## AMEE 2014 Programme Schedule

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SESSION 1: Plenary 1  
Sunday 31 August: 1730-1930

1A PLENARY: "Meanings of medicine: the convergence and crises of civilisations."
Location: Gold Plenary, Level +2, MiCo

Presenter: Richard Horton, Editor-in-Chief, The Lancet, United Kingdom

1B PLENARY: Disruption, Distraction, Diversion or Delight: The Love/Hate Tug of War Between Technology and Medical Education
Location: Gold Plenary, Level +2, MiCo

Presenter: Lawrence Sherman, FACEHP, CCMEP, Senior Vice President, Educational Strategy at Prova Education, United States

Technology and medical education are often viewed as necessary bedfellows, but not without dispute. The debate often exists about just how to incorporate the “right” technologies at the “right” time and the “right place” when considering the medical education continuum. There are advocates of keeping things status quo, while others (often deemed cowboys and zealots) who believe that technology should replace many existing (standard) platforms. All, however, are interested in preserving Excellence in Medical Education.

This plenary talk will take a lighthearted and humorous approach to understanding this technology tug of war, in which there will be an opportunity to see one view about where technologies can, should and will fit in. There will also be a focus on just how technology can help the current and future healthcare providers improve communication with each other and, dare I say, with their patients as well. There are detractors who believe that technology will irreparably damage the physician/patient relationship while others see technology as the link that has been missing in this relationship.

Over the course of 30 minutes these topics will be discussed, and it is hoped that the audience will be active participants in the presentation, regardless of which view they have!
SESSION 2: Simultaneous Sessions
Monday 1 September: 0830-1015

2A SYMPOSIUM: Competencies and Milestones: Will those who ignore the past be condemned to repeat it?
Location: Gold Plenary, Level +2, MiCo

Debra Klamen*, Southern Illinois University School of Medicine, United States
Reed Williams*, Indiana University School of Medicine, United States
Nicole Roberts*, Southern Illinois University School of Medicine, United States
Anna Cianciolo*, Southern Illinois University School of Medicine, United States

Competencies and milestones are on the minds of medical educators around the world. For example, the United States Accreditation Council for Graduate Medical Education developed “outcomes-based milestones for resident performance within the six domains of clinical competence. The milestones are competency-based developmental outcome expectations that can be demonstrated progressively by residents and fellows from the beginning of their education through graduation to the unsupervised practice of their specialty.” At first glance, these new requirements will demonstrate accountability of the effectiveness of graduate medical education, but the unintended consequences may outweigh potential benefits. Looking from an assessment standpoint from inside medical education, and outside medical education in the K-12 and Department of Defense educational systems, one can see that following the competency and milestone roads perhaps is not a desirable direction. Attending this session will inform participants of what has been tried previously, and hopefully, warn them against repeating the same mistakes.

2B SYMPOSIUM: Creating effective learning with new technology in the 21st Century: The importance of educational theories. An AMEE eLearning Committee Symposium
Location: Auditorium, Level +3, MiCo

John Sandars*, Leeds Institute of Medical Education, University of Leeds, United Kingdom
Goh Poh Sun*, Yong Loo Lin School of Medicine, Singapore
Natalie Lafferty*, University of Dundee, United Kingdom
Patricia Kokotailo*, University of Wisconsin, United States
Rakesh Patel*, University of Leicester, United Kingdom

There is an increasing variety of technology available to the 21st medical educator, from social media (such as Twitter and YouTube) facilitating free open access education (FOAMed) to large knowledge repositories and simulations to Massive Open Online Courses (MOOCs). The challenge for all medical educators is to resist the temptation of adopting the latest technology without considering how the technology can be used to facilitate effective learning. This symposium will offer participants a range of established and newer educational theories, from multimedia design and deliberate practice to ecology of learning and connectivism, and illustrate how these theories can critically inform the use of technology to create effective personal and collaborative learning. Participants will have the opportunity to consider the extent to which they currently use theory to create learning opportunities with technology and to explore how they can produce innovative learning with technology by the use of newer theories.

2C SYMPOSIUM: From Patient to Instructor: Honoring patient engagement in medical education
Location: Brown 3, Level +2, MiCo

Nancy McNaughton*, University of Toronto, Canada (Moderator)
Julie Thorne*, CHIME, University of Toronto, Canada
Ann-Helen Henriksen*, University of Copenhagen, Denmark
Jools Symmons*, University of Leeds, United Kingdom
Angela Towle*, University of British Columbia, Canada
Charlotte Ringsted*, University of Toronto, Canada (Co-moderator)

There is growing recognition within medical education that patients, with experience in their own medical conditions, can provide unique insights into medical student learning. Increasing engagement of patients in different types and levels of training raises important educational and ethical questions for us as educators and health care practitioners. This symposium brings together medical educators from around the world presenting their own work with patients as educators and diverse perspectives on issues related to patient involvement in medical training. How are patients being involved in medical training? What benefits and challenges result from engaging patients in medical training? What are important considerations for patients engaged in medical training?

Participants will learn about different ways of engaging patients in medical education and be encouraged to reflect on patient involvement within their own institutions.
RESEARCH PAPERS: Exploring Cognition

Location: Brown 2, Level +2, MiCo

2D1 (18847)
Assessment of written questions formulated by students reveals their misconceptions, which are indicative of their examination results: an exploratory intervention study

M. Olde Bekkink*, Radboud University Medical Centre, Department of Internal Medicine, Nijmegen, Netherlands
R. Donders, Radboud University Medical Centre, Department for Health Evidence, Nijmegen, Netherlands
E. Steenbergen, Radboud University Medical Centre, Department of Pathology, Nijmegen, Netherlands
R. de Waal, Radboud University Medical Centre, Department of Pathology, Nijmegen, Netherlands
D. Ruiter, Radboud University Medical Centre, Department of Anatomy; Department of Pathology, Nijmegen, Netherlands

Introduction: Pre-existing knowledge can strongly influence how new concepts are learned. If newly taught knowledge conflicts with students’ pre-existing insights, students may ignore or distort new information. Incorrect pre-existing insights, also called misconceptions, can therefore seriously interfere with the students’ learning performance (1,2). In order to stimulate excellence in learning and teaching it is important to timely detect and repair misconceptions. The objective of this study was to determine if assessment of written questions generated by students could be used to explicit the cognitive process and identify misconceptions.

Methods: An exploratory intervention study, approved by the Ethics Review Board of the Dutch Association for Medical Education, was performed. The intervention was provided during a small group work (SGW) session on tumour pathology in a (bio-)medical bachelor course on General Pathology. Students were invited to generate an extra written question related to the topic tumour pathology. This concerned a deepening question on disease mechanisms, and not mere factual knowledge. Three independent expert pathologists rated the questions as adequate or compatible with a misconception based on a coding schema that had been tested during a pilot study. Consensus was reached in all cases. Outcome measures were the prevalence of misconceptions and the final examination scores on the topic tumor progression and other three topics of the course. The effect of gender and study discipline was assessed.

Results: 242 students participated in the SGW sessions and 221 students produced a question (participation rate 91%). Thirty-six questions were excluded because they were copied from the manual (n=30), not interpretable (n=3), or derived from students who did not attend the formal examination (n=3). Of the 185 questions rated, 11% (n=20) was compatible with a misconception. Misconceptions were found only among medical students, not among biomedical science students. The prevalence of misconceptions was equal among male and female students. Examination score on the topic tumour pathology amounted 5.2 (SD 1.9) in the group with misconceptions and 6.7 (SD 1.2) in the group with adequate questions (p=0.003). De average score on the other topics of the course was not different between the group with misconceptions 6.9 (0.97) and the group with adequate questions 7.0 (1.1) (p=0.72).

Discussion and Conclusions: Assessment of written questions formulated by students during a SGW session is a useful approach to reveal students’ misconceptions. Identification of these misconceptions provides an opportunity for timely repair during the remaining sessions of the course in advance of the formal examination. The occurrence of misconceptions is associated with a lower performance in formal examination on the specific topic where the misconceptions were found. This stresses the importance of timely detection and repair. The difference in occurrence of misconceptions between students medicine and biomedical science merits further investigation.


2D2 (18745)
Through the eyes of the experts: What do ‘rich pictures’ add to the understanding of surgical judgment?

Sayra Cristancho*, Western University, Surgery and Centre for Education Research & Innovation, London, Canada
Susan Bidinosti, Western University, Centre for Education Research & Innovation, London, Canada
Lorelei Lingard, Western University, Medicine and Centre for Education Research & Innovation, London, Canada
Richard Novick, Western University, Surgery, London, Canada
Michael Ott, Western University, Surgery, London, Canada
Tom Forbes, Western University, Surgery, London, Canada

Introduction: The study of expert judgment has a robust tradition in medical education research. This research has successfully deconstructed a multitude of cognitive skills that expert clinicians exhibit when making decisions. However, the increasingly complex nature of medical practice has alerted us to the need to explore the contextually-embedded nature of medical expertise. Qualitative methodologies are now
being used to explore these contextual factors of medical expertise mostly through the use of interviews. Though interviews are a well-established method for gathering complex and heterogeneous accounts of expert judgment, they may be unable to fully capture experts’ experience of coping with complexity. A number of issues may limit the interview method including: the difficulty of making the tacit explicit, the insufficiency of words and the status of the interviewer. We explore the value of using visual data in a study on surgical judgment to better understand experts’ conceptualizations of complex, challenging situations.

**Methods:** We follow a Systems Engineering (SE) approach to research, which is particularly appropriate for describing and solving complex phenomena. Diagramming is the key activity used in SE to visually communicate the complexity of a situation. In this study, we use a particular type of diagram called ‘Rich Picture’. ‘Rich Pictures’ allow individuals to tell the story of their condition at a particular place and time; therefore constituting a way of understanding how individuals see their world. Using selected examples, we articulate instances where the use of ‘rich pictures’ helped in the identification and understanding of unarticulated aspects of surgeons’ perspectives on challenging operations.

**Results:** We found that interviews and ‘rich pictures’ uncovered different aspects of surgeons’ perspectives on complex operations. Interviews served to open the door into the surgeons’ perspectives while they tried to satisfy the researchers’ curiosity. Drawing was perceived as a more personal experience as they tried to satisfy their own curiosity. Although surgeons frequently commented on the challenge of being taken out of their comfort zone, all participants referred to the drawing activity as a liberating experience. Sharing their pictures with the researchers was perceived as their opportunity to disclose their feelings about what was really important to them.

**Discussion and Conclusions:** Neither the visual nor the verbal can offer a complete construction of a situation. Recent work with patients has demonstrated the usefulness of drawing to explore the multiplicity and complexity of human experience. We are expanding the applicability of drawings as a research method to include the human experience of practicing in high-stakes professions, such as surgery. Particularly the ability to examine both the picture content and the motivations behind making a picture adds a new vantage point from which to describe how experts see a challenging situation in their practice. Incorporating visual representations, such as ‘rich pictures’, as research data can aid in uncovering unarticulated constructions of a situation. When the researcher strives for capturing complexity, visual methods have the potential to help medical experts deflect from their tendency to simplify descriptions of accounts and to meaningfully engage them in the research process.

**2D3 (18634)**

**The Role of Anatomy Demonstrating: A Surgical Trainees’ Perspective**

**Bhavna Gami***, The London Postgraduate School of Surgery, United Kingdom
Nigel Standfield, London School of Surgery, Anatomy, London, United Kingdom
Claire Smith, Brighton and Sussex Medical School, Anatomy, Surgery and Cancer, Brighton, United Kingdom
Ceri Davies, Imperial College School of Medicine, Surgery, London, United Kingdom

**Introduction:** Surgical Trainees in the London Deanery are required to undertake 30 sessions (each approximately half a day) of Anatomy teaching in their second year of specialist training. To date, there is no literature evaluating the perception of how beneficial anatomy demonstrating is to surgical trainees hence, this study is the first to do so.

**Methods:** A focus group was convened to ascertain surgical trainees’ perspectives on demonstrating Anatomy to students, to identify key problems and improvement strategies to optimise the trainees’ skills to enhance students’ learning of Clinical Anatomy. A questionnaire was formulated using the outcome of the focus group and all 2nd Year Core Surgical Trainees in the London Deanery were asked to complete the survey. Views on anatomy teaching both of cohort 2012 and 2013 CT2 trainees were obtained.

**Results:** 12 people attended the Focus group session and a total of 109 trainees completed the questionnaire. The focus group highlighted a vast number of themes for example, the problems trainee’s faced in fulfilling the necessary sessions for demonstrating to pass the year. Results from the questionnaire included, 56% of trainees agreed that demonstrating had helped them prepare for surgical training and 56% of trainees also agreed that the anatomy teaching sessions at CT1 had prepared them for teaching the students at CT2.

**Discussion and Conclusions:** This study has highlighted the need for improved communication between the trainee and the Deanery / Medical Schools / NHS Trusts to address issues, such as the perceived unrealistic expectations of fulfilling the teaching session requirement. The stakeholders will hopefully acknowledge and address the outcomes of the focus group and questionnaire in order to improve the experience and efficacy of demonstrating, for both surgical trainees and medical students.

**References:** Gossage JA. 2002. The importance of anatomy demonstrating for the surgical trainee. Surgery (Scalpel) 201:2
2D4 (18801)
Effects of free, cued, and modelled-reflection on medical students’ diagnostic competence

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Alexandre Moura, UNIFENAS Medical School, Educacao Medica, Belo Horizonte, Brazil
Silvana Santos, Universidade Federal de Minas Gerais, Propedeutica Complementar, Belo Horizonte, Brazil
Tamara Van Gog, Erasmus University Rotterdam, Department of Psychology, Rotterdam, Netherlands

Introduction: Structured reflection while practicing with diagnosing cases has been shown to improve medical students’ learning of clinical diagnosis. The present study investigated whether additional instructional guidance increases the benefits of reflection by comparing the effects of free-, cued- and modelled-reflection on learning.

Methods: Fifty-eight 5th-year and 57 6th-year students from a Brazilian medical school participated in a three-phase experiment. During the learning phase, participants diagnosed 8 clinical cases under different experimental conditions: free-reflection, cued-reflection, or modelled-reflection. In an immediate test and a one-week delayed test, they diagnosed a new set of 8 different cases, 4 of which presented diseases that they had studied during the learning phase. Learning was measured by diagnostic accuracy on the cases of the 4 diseases appearing in all phases.

Results: Repeated measures ANOVA on the mean diagnostic accuracy scores (range: 0-1) showed a significant main effect of experimental condition (p < .001), year of training (p = .013), and effect of performance moment (p = .003), without significant interaction effects. Overall, the modelled-reflection group and the cued-reflection group did not differ in performance (p = .100) but both outperformed the free-reflection group (p < .001 for both comparisons). Overall performance increased in the delayed test relative to the immediate test (p = .004) and to the learning phase (p = .03); the two latter phases did not differ. Both 6th-year and 5th-year students rated studying examples of reflection as less effortful than cued- and free-reflection in the learning phase (p < .001 for all comparisons).

Discussion and Conclusions: Students apparently learn more with less effort from studying correct structured reflection while practicing with diagnosing cases than from reflecting without any instructional guidance. Examples of reflection and cued-reflection were more beneficial for learning than free-reflection and could be a useful instructional strategy for clinical teaching.


2D5 (18853)
Time matters, Realism in resuscitation training

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Christian B Høyer, Aarhus University, Centre for Medical Education, Aarhus N, Denmark
Doris Østergaard, Herlev Hospital and Copenhagen University, Danish Institute for Medical Simulation, Herlev, Denmark
Berit Elka, Aarhus University, Centre for Medical Education, Aarhus N, Denmark

Introduction: The advanced life support guidelines recommend two minutes of cardiopulmonary resuscitation (CPR) and minimal hands-off time to ensure sufficient cardiac and cerebral perfusion. We have observed doctors who shorten the CPR intervals during resuscitation attempts. During simulation-based resuscitation training, the recommended two-minute intervals of CPR are often deliberately decreased in order to increase the number of scenarios. The aim of this study was to test if keeping two-minute intervals of CPR during resuscitation training ensures better adherence to time during resuscitation in a simulated setting.

Methods: This study was designed as a randomised control trial. Fifty-four 4th-year medical students with no prior advanced resuscitation training participated in an extra-curricular one-day advanced life support course. Participants were either randomised to simulation-based training using real-time (120 seconds) or fake-time with shortened intervals (30-45 seconds instead of 120 seconds) in the scenarios. Adherence to time was measured using the European Resuscitation Council’s Cardiac Arrest Simulation Test (CASTest) in retention tests conducted one and 12 weeks after the course. The sequence of the test scenario consisted of non-shockable rhythm twice (pulseless activity; PEA1 and PEA2), shockable rhythm twice (ventricular fibrillation; VF1 and VF2), and return of spontaneous circulation (ROSC). All five CPR intervals were used as measure points for data collection.

Results: The intervention group (real-time) adhered significantly better to the recommended two-minute intervals (mean 13; standard deviation (SD) 8) than the control group (fake-time) (mean 45; SD 19) when tested (p < 0.001). The hands-off time for the fake-time group was increased by 30% compared with that of the real-time group. The individual variation in average CPR time intervals and a statistically significantly shorter CPR time interval at ROSC was more outspoken among participants in the control group
than among participants in the intervention group where the phenomenon was found to be statistically significant larger ($p < 0.001$).

**Discussion and Conclusions:** ALS fake-time training contrasts to other time-critical settings outside the healthcare environment like combat situations and aviation where real-time simulation is used to a great extent. We accordingly recommend that ALS courses, like any time-critical setting, do not employ shortened CPR time intervals in the future. The study of time fidelity in ALS simulation revealed that some of the trainees had a significantly shorter time interval from ROSC to the next control of rhythm than their own average time interval during the preceding four CPR intervals (PEA1, PEA2, VF1 and VF2). This general lack of time consistency in the fake-time group could be interpreted as a sign of insecurity or a need for continuous consulting and reliance on the information displayed on the defibrillator. Such insecurity or lack of confidence could be rooted in information overload induced by shortened time intervals during CPR which leaves little room for reflective thinking during the simulation scenarios. This study indicates that time is an important part of fidelity. Variables critical for performance, like adherence to time in resuscitation, should therefore be kept realistic during training to optimize outcome.

**2D6 (18913)**
**Improvements in the diagnostic performance of medical students related to the construction and retention of System 2 decision rules in long term memory**

*Frank Papa*, UNTHSC, Medical Education, Fort Worth, United States  
*Richard Baldwin*, UNTHSC, Medical Education, Fort Worth, United States

**Introduction:** Medical education researchers increasingly utilize Dual Processing (System 1/ System 2) theories as a framework for teaching to and assessing the diagnostic capabilities of medical students. In the context of this framework it is posited that System 1 stores, retrieves and uses previously experienced case encounters to diagnose new cases while System 2 forms heuristics or decision rules (abstracted from the individual’s knowledge of diseases, and, experiences with previous cases) to diagnose new cases. In System 2, decision rules are believed to be constructed and represented in memory structures resembling if/then statements. For example, for patients presenting with the problem of acute chest pain, ‘if pain is dull, then think cardiac etiologies’ whereas, ‘if pain is sharp, then think pulmonary or musculoskeletal etiologies’. Previous research has provided evidence of improvements in diagnostic performance immediately following System 1 and/or System 2 training. The purpose of this investigation was to determine if students explicitly trained to ‘construct their own System 2 decision rules’ (i.e., receiving training in metacognition) achieve higher levels of diagnostic performance based upon long term retention of their System 2 rules compared to students not receiving such training.

**Methods:** During our year two, ‘Clinical Medicine’ course (designed in part, to support the development of diagnostic capabilities), 202 students were assigned to 60 groups (3 – 4 students per group) with 47 groups serving as controls and 13 serving as treatment groups. Control groups were trained to use both their knowledge of the signs and symptoms associated with the nine diseases comprising the session’s differentials for the diagnostic problem of Acute Chest Pain, and, diagnostic rules as provided by their small group trainers. Treatment groups were trained in how to construct and use their own if/then System 2 diagnostic rules from their knowledge of the signs and symptoms associated with those same nine differentials. Sixteen days following training, all students were administered a set of 10 Acute Chest Pain test case vignettes. Test performance following a delay of two weeks or greater are generally understood to represent the effect of training upon long term memory.

**Results:** Of the ten case vignettes administered 16 days following training, the treatment group correctly diagnosed on average 8.08 cases (SD=1.66, N=39) while the control group averaged 7.17 cases correctly diagnosed (SD=2.32, N=163); $t=2.31; df=200; p<0.022$; Cohen’s $d=0.45$.

**Discussion and Conclusions:** These findings suggests that students receiving training in how to construct their own System 2 type diagnostic rule structures (training in metacognition) outperform those not given such training – in a study designed to determine the impact of two different diagnostic training approaches upon long term memory. If the benefits of teaching students in how to construct their own System 2 diagnostic rules can be replicated, medical educators might consider redesigning differential diagnostic training exercises to include metacognitive training in the hopes of improving not only diagnostic performance but also the retention of those rules leading to diagnostic improvements.

Factors influencing students’ skills in giving effective feedback: A qualitative study

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Fadi Munshi, Faculty of Medicine-King Fahad Medical City, King Saud Bin Abdul Aziz University of Health Sciences, Medical Education, Riyadh, Saudi Arabia

Background: The Saudi commission for academic accreditation and assessment indicates that ‘evidence about quality of teaching and learning can be obtained by ratings from students’. At FOM-KFMC all courses are evaluated using global rating tools. This study explores some of the factors that affect student skill in giving feedback using global rating scales, and how that feedback might be enhanced through qualitative discussions.

Summary of Work: This study used focus group discussions (FGD) to explore students’ perceptions of the evaluation process. During discussions students were encouraged to identify factors that influenced their written ratings and to identify ways to improve their feedback practice and course delivery.

Sample: Twenty Year 2 volunteer medical students who participated in FGDs in Weeks 4 and 7 instead of written evaluation.

Summary of Results: Discussions revealed that students find the evaluation tool too long, difficult to understand, and lacking any evaluation of the physical learning environment. ‘Extraneous factors’ that affect a student’s mood such as rescheduling of sessions can influence rating of quality. One important socio-cultural factor that impacts student ratings is respect for adults. Students frequently resolve this dilemma by giving high scores to experienced physicians despite their teaching skills being seen as requiring improvement.

Discussion and Conclusions: The University’s current evaluation format does not truly reflect student judgment in that it does not provide for cultural effects.

Take-home messages: Design of effective student feedback for improving course quality in Saudi medical colleges should acknowledge that one global format is not suitable for all contexts and can hide important student concerns.

Curriculum Review Process aimed to improve integration in a traditional Doctor of Veterinary Medicine program

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Janet Beeler-Marfisis, Ross University School of Veterinary Medicine, North Brunswick
John Dascanio
Jennifer Moffet
Eric Pope
Ashutosh Verma

Background: Ross University School of Veterinary Medicine (RUSVM) is accredited by the Council on Education of the American Veterinary Medical Association. RUSVM offers a program composed of 28 months of pre-clinical courses and 48 weeks of clinical education.

Summary of Work: The Curriculum Review Process originated from RUSVM’s goal of producing practice-ready graduates. The main objectives of the review were to increase curricular integration and incorporate modern technology to support a new generation of learners. The Curricular Review Process followed the Analysis, Design, Develop, Implement, Evaluate (ADDIE) instructional design strategy.

Summary of Results: Outcomes assessment data (direct and indirect measures) were analysed. Faculty members were asked to identify gaps and unnecessary redundancies and to propose solutions. Members of the Curriculum Committee facilitated meetings of instructors teaching in each pre-clinical semester, multidisciplinary focus groups, student representatives, and individual faculty members. Multi-semester case-based courses were designed and developed to integrate basic and clinical sciences. The Curriculum Committee met frequently to incorporate proposed changes into the revised curriculum. From analysis to implementation, the review process took 12 months. The process followed in the design and development of new courses, the challenges encountered, strategies used to achieve consensus, and evaluation plans will be discussed.

Discussion and Conclusions: A collaborative Curricular Review Process revitalizes the curriculum, helps with team building efforts, and ensures that faculty and administrators share the responsibility of maintaining accreditation standards and educational goals.

Take-home messages: The ADDIE instructional design strategy was successfully used in the review of a DVM program.
2E3 (21925)
The question of students' satisfaction and motivation – a working motivational system model

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Ádám Tibor Schlégl, University of Pécs Medical School, Department of Orthopaedics, Pécs, Hungary
Zsuzsanna Füzesi, University of Pécs Medical School, Department of Behavioral Sciences, Pécs, Hungary
Ádám Feldmann, University of Pécs Medical School, Department of Behavioral Sciences, Pécs, Hungary

Background: It is essential for universities to have valid educational quality assurance. Hungarian law and ethical code does not make the filling out of the questionnaires obligatory. The self-registered rate of the questionnaires is low, to provide an acceptable rate for quality assurance is troublesome. It was necessary to create a motivational system to achieve an acceptable completion rate.

Summary of Work: With the professional help of a jurist, a sociologist and educational organizers we have created methods to motivate the students. Every option was acceptable by law and ethical norms. We used self-registered online questionnaires to analyze how strongly would the offered options motivate the students.

Summary of Results: Of all alternatives, 70% of the students chose the possibility for earlier exam registration. Students who give feedback on obligatory subjects within the set deadline will be awarded a bonus that entitles them to one day earlier registration for exams. From 13,925 questionnaires from the previous semester 6,848 have been filled out (almost 50%). It is vital that this rate is divided equally between all subjects, which gives us a general view of students’ satisfaction. The questionnaires were available for 2,408 students, of which 1,122 students (47%) were granted early registration.

Discussion and Conclusions: Our newly set up online system has exceeded expectations. The 50% rate, which used to be “just” statistical rate, is now evenly divided between each subject, giving us a general view of the student satisfaction.

Take-home messages: The appropriate motivation is the key to reach the valid fill out rate.

2E4 (22567)
Postgraduate perspective on the undergraduate medical curriculum: Former students’ and their post-graduate tutors’ view

Maria Magalhães, Faculty of Health Science, University of Beira Interior (Covilhã-Portugal), Santa Maria da Feira, Portugal
Luís Patrão*, Faculty of Health Science, University of Beira Interior, Covilhã, Portugal
Ricardo Tjeng
Miguel Castelo-Branco Patrao

Background: Undergraduate medical curriculum is the beginning of a continuum learning process that lasts for a lifetime. Its impact on patient safety and medical care quality in the long term is very difficult to measure given that postgraduate learning and subspecialisation, as well as personal characteristics, influence each doctor’s personal curriculum. Undergraduate medical curriculum assessment on a global perspective can be done taking into account several stakeholders: national and international institutions, faculty members, students, former students, patients and even postgraduate tutors of former medical students from a given institution.

A survey was undertaken in 2007 in the United Kingdom addressing a curricular reform. For that, former medical students were interviewed.

Summary of Work: Our medical school has a 6 year undergraduate medical curriculum. Since 2007, the year the first students graduated, about 450 students have become medical doctors. To evaluate our undergraduate medical curriculum, a survey will be sent to our medical school former students and to their postgraduate tutors. This survey is based on the Competences for Primary Medical Degrees in Europe defined by MEDINE.

Summary of Results: The survey is now running and results will be presented during the conference.

Discussion and Conclusions: This kind of long term curriculum assessment by its stakeholders is of great value for further curriculum improvement. Feedback from former students and their postgraduate tutors is a good marker of the global medical curriculum but does not assess some specific aspects.

Take-home messages: Former students and their postgraduate tutors can be of great value when analysing the outcomes of an undergraduate medical curriculum.
An analysis of the quality of undergraduate medical education at Aksum University's new Medical School, Ethiopia

Tim Crocker-Buque*, Queen Mary University of London, Centre for Primary Care and Public Health, London, United Kingdom

Background: To tackle Ethiopia’s severe shortage of doctors the government has opened thirteen new medical schools since 2012, including one at Aksum University. All these schools are graduate entry and deliver the New Innovative Medical Curriculum for Ethiopia (2011). This work was undertaken as part of a partnership with Queen Mary, University of London. This is the first quality analysis undertaken at any of the new medical schools.

Summary of Work: The medical education delivered at Aksum was evaluated against Tomorrow’s Doctors, the UK GMC’s standards for undergraduate medical education. Evidence was collected through direct observation of teaching and learning, interviews with faculty and students and review of policies and documents.

Summary of Results: Quality was variable across the 9 domains. No patient safety issues were identified. Teaching provided by staff was high quality; however the environment was poor. The library and clinical skills lab were under resourced, however IT access was good. There is scope to improve feedback to students. Quality of assessment methods is weak and requires urgent improvement, particularly with OSCE delivery. Formal quality management procedures should be developed. Fourteen specific areas for targeted support were identified.

Discussion and Conclusions: Tomorrow’s Doctors is a useful tool when evaluating the quality of medical education in the Ethiopian setting and can be used to identify areas to target support as part of an international partnership. Quality analysis should be undertaken at the other new Ethiopian medical schools.

Take-home messages: It is possible to apply the Tomorrow’s Doctors standards in an Ethiopian setting and is a useful method to target support for improvement.

Effective student feedback to drive change

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Background: Students need to see that the feedback they provide to Educational Institutions on their teaching experience is valued and plays an important role in the decision making around future curriculum and other educational developments.

Summary of Work: At Edinburgh a system is now developed that incorporates both a ‘Trip Advisor’ style module review from previous students and a ‘You Said... We Did System that captures the key issues currently identified from feedback. We have evaluated student views of both systems to examine whether they reveal differences in responses to feedback questionnaires.

Summary of Results: The results show how students can change their engagement levels with on-line feedback data collection of student feedback. It also demonstrates how student expectation is increasing in terms of the delivery of a high quality teaching experience that reflects the fees paid to the Institution.

Discussion and Conclusions: Student feedback is an important aspect of any programme or course evaluation system and ensuring that responses collected are considered and constructive improves the overall quality of these data.

Take-home messages: Universities need to ensure feedback from students is a significant contributor to any programme evaluation system but not to the detriment of other available data.
2E7 (20819)
Longitudinal outcome analysis: USMLE Step 1 to Residency

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Background: A previous assessment of student performance on the USMLE Step 1 indicated that education initiatives implemented in 2008 improved our student performance. The outcome measures of student performance on Step 1 are only partial estimates of the effects of curriculum and educational systems. Institutional success must be defined not only in terms of performance on Step 1, but also of ultimate success in matching into residency programs.

Summary of Work: We have further assessed the longitudinal outcome predictors for Step 2 CK, 2 CS and Residency Match among the students who took Step 1 in 2009. The prematriculation and Basic Science variables constituted predictor variables in stepwise linear and logistic regressions. Success rates and odds ratios were evaluated for categorical variables.

Summary of Results: Although the students excelled in Step 1, the Step 2 pass rates and the residency match rate decreased. The high odds ratios for the residency match were associated with failing Step 1 and Step 2 CK. The highest risk factor for not matching into residency was failing Step 2 CK.

Discussion and Conclusions: The longitudinal assessment has elucidated the weaknesses and strengths in our educational programs. The students excelled in Step 1 since the implementation of multiple education initiatives in 2008. However, the success rates for Step 2 CK, 2 CS, and residency match were lower than the success indices for Step 1.

Take-home messages: Innovative curricular development is required for the students to maintain effective and successful academic progress through the 4-year medical curriculum.
2F1 (23100)
Disease & Illness: Teaching the humanistic dimensions of care through the Longitudinal Educational Experience to Advance Patient Partnerships (LEAP) Program

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Background: The gap between basic-science and clinical training in traditional undergraduate medical education helps explain the erosion of medical student empathy in recent studies. The LEAP program is an innovative curriculum aiming to restore humanistic dimensions of medical education by contextualizing it in longitudinal patient-trainee partnership.

Summary of Work: Forty students enrolled in the 2012-2013 pilot program. Students are partnered with chronically ill patients and expected to make monthly contact with them by telephone, home visits, or in clinical settings. Students meet with a faculty mentor in monthly, 90-minute seminars to discuss selected psychosocial topics related to their patients. Available topics were designed to increase participant understanding of professional identity formation, increased complexities of the healthcare system, and interprofessional teamwork. Students kept online log of patient encounters and completed a “One-Minute Paper” after monthly seminars throughout the year. Mixed-methodology year-end evaluations include: anonymous survey of self-reported understanding of various psychosocial dimensions of care, focus group to explore personal/professional growth, analysis of one-minute paper and patient logs for emerging themes as related to humanism.

Summary of Results: Data showed overall positive student response: 86% would recommend the program to others; 89% believe the program addressed a gap in the existing curriculum. Emerging themes from qualitative analysis captured student understanding of their multiple roles in the complex healthcare system, need to elicit and integrate patient perspectives, and importance of interprofessional collaboration.

Discussion and Conclusions: Early incorporation of longitudinal clinical context to medical student education improved understanding of humanistic dimensions of care and fosters personal/professional growth.

2F2 (20798)
A 'scattergun' approach to educator skills for clinical teachers

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Background: Busy clinical teachers in distributed teaching sites do not have time to attend long courses for professional development as educators. Opportunistic and timely teaching is required. This paper reports on a Health Workforce Australia fellowship project to upskill clinical teachers in rural Australia. Clinical teachers attended a focussed immersion in multiple teaching and learning strategies covering opportunistic teaching in clinical settings and with patients. It was assumed these teachers may only have one opportunity to attend a teaching focussed workshop and so many skills were covered.

Summary of Work: Clinical teachers attended a 2.5 hour workshop covering 18 core educator skills. Pre- and post-tests using an adapted form of the Dundee Ready Educational Environment Evaluation (Roff et al, 1997) and self-reported measures of knowledge and confidence in teaching were collected and analysed.

Summary of Results: Statistically significant self-reported increases in confidence two months after the workshop occurred for 83.3% of participants in educator knowledge and skills. DREEM subscale changes occurred for Perception of Learning and the Course Organisers sub-scale. Participants learned educator strategies to apply immediately to workplace clinical teaching.

Discussion and Conclusions: Multiple teaching and learning topics may be successfully introduced in a single workshop resulting in increased confidence and competence about teaching. Knowledge, skills and attitudes were immediately adapted to the clinical workplace. Benefits were especially valuable for newly graduated clinicians who were new to teaching and to their clinical workplace role.

Take-home messages: A ‘scattergun’ approach may be one way of upskilling clinical teachers to assimilate multiple teaching and learning strategies in a single workshop.
**2F3 (22333)**
Eight years’ experience with a Medical Education Journal Club in Mexico: The challenges of sustainability and learning

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Uri Torruco-García, UNAM Faculty of Medicine, Medical Education, Mexico City, Mexico
Margarita Varela-Ruíz, UNAM Faculty of Medicine, Medical Education, Mexico City, Mexico

**Background:** Journal Clubs (JC) are alive and well in the age of evidence-based medicine. There are few reports of JC focused on medical education. We describe an eight years’ experience with a medical education Journal Club (MEJC) at UNAM Faculty of Medicine in Mexico City.

**Summary of Work:** In January 2006, our Postgraduate Studies Division started a monthly JC using medical education literature. The goals were: to provide continuing professional development to the Division scholars, and to discuss educational research and its usefulness in our setting. A discussion guide and the research paper were sent two weeks before each session. A periodic face-to-face MEJC can improve critical literature.

**Summary of Results:** 89 MEJC sessions until March 2014. Average attendance is 15 persons per session, with a mix of clinician educators and academicians (psychologists, educators, social scientists). A certificate of attendance is given each year. The articles cover most types of medical education research (curriculum, faculty development, educational research methodology, learning methods, assessment, BEME). A retrospective pre-post questionnaire was administered to 14 professors that are regular attendees, the results showed an increase in self-reported attitudes, knowledge and skills, related to critical appraisal of the medical education literature.

**Discussion and Conclusions:** A periodic face-to-face Medical Education Journal Club can improve critical appraisal of the medical education literature, and be maintained long-term using evidence-based strategies. The MEJC is an academic activity that is a useful adjunct to improve the scholarship of teaching.

**Take-home messages:** A successful MEJC can be implemented as a routine scholarly activity in a medical school department.

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**2F4 (21918)**
A peer-led international programme to equip medical students with leadership skills to affect change in healthcare

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**Background:** Advocacy and leadership skills enable frontline healthcare professionals to improve the systems they work in. Globally these areas are neglected in medical school curricula. We designed, delivered and evaluated a 3 day training programme for 65 students from 31 different countries.

**Summary of Work:** The programme was developed by an international group of expert students and delivered prior to the International Federation of Medical Students’ Associations (IFMSA) conference in 2013. Various methodological styles were employed, including peer and expert-led lectures, small group workshops, debates and thematic site visits. Learning was then applied to outcome-focused campaigns such as changing medical school curricula. Questionnaires were conducted assessing student knowledge, skills and attitudes prior to the workshop, immediately afterwards and one year later.

**Summary of Results:** Initially 94% of students reported increased understanding of advocacy. 80% reported increased motivation to affect change. Student feedback supported the role of peer educators in equipping and inspiring them to put training into practice. One year later, students showed continued increased understanding, skills and motivation, and reported having participated in advocacy activities and delivered advocacy training to others.

**Discussion and Conclusions:** This student-run programme demonstrated a low-cost, effective, replicable model which could be employed worldwide by student organisations, healthcare bodies and medical education faculties alike. Similar subsequent IFMSA training has also been shown to be effective immediately afterwards. Increased resources and mentorship will enable up-scaling of peer-led training programmes.

**Take-home messages:** Internationally students demonstrate a low baseline motivation and ability to engage leadership. Outcome-focused, interactive training from experienced peers can inspire and empower participants to implement change.

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**2F5 (21293)**
The role of tactical decision games (TDGs) as a novel method of teaching non-technical skills (NTS) to final year medical students

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**Background:** Non-technical skills (NTS) are “the cognitive, social and personal resource skills that complement technical skills, and contribute to safe and efficient task performance”. Key NTS required by junior doctors in acute care are decision-making,
situation awareness, task management and team-working. Tactical decision games (TDGs) are low-fidelity classroom-based activities designed to increase proficiency in NTS. TDGs consist of a developing emergency scenario, where group participants have a time-limited period to decide on a course of action. Whilst TDGs have been widely used in non-medical domains, their potential use in medicine does not appear to have been studied.

Summary of Work: This is an action research study. Initially, participating students take part in 2 generic TDGs with a short presentation and discussion around NTS between the 2 TDGs. Use of non-medical games enables the group to focus on NTS rather than technical/medical issues. Students then participate in an acute care simulation scenario that involves the application of NTS. Focus groups of participating students are then used to facilitate development of the TDGs in further cycles.

Summary of Results: Results from early cycles of this study will be presented with an emphasis on determining the feasibility and acceptability of using TDGs with final year medical students.

Discussion and Conclusions: NTS account for 70-80% of errors in safety critical industries. High-fidelity simulation is one means of developing NTS but is expensive with respect to both equipment and personnel. TDGs may represent a potential low-fidelity, affordable and sustainable alternative means of teaching NTS.

Take-home messages: TDGs are a potential novel method of teaching NTS.

2F6 (20098)
Bringing the world to the bedside: The role of distance-learning partnerships in overcoming geopolitical barriers to medical education

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Background: Unstable geopolitical environments and poor infrastructure present significant barriers to education systems strengthening in developing healthcare communities. In the context of Palestine, the Separation Barrier and numerous Israeli checkpoints prevent students from accessing clinical learning environments.

Summary of Work: Established in March 2012, OxPal Medlink is a synchronous e-learning partnership aiming to address educational needs of Palestinian medical students. Using low-bandwidth virtual classrooms incorporating audio, text and interactive whiteboard technologies (www.wiziq.com), students participate in weekly tutorials with clinicians at Oxford University Hospitals. Tutorials use tutor- and student-provided cases to develop clinical reasoning skills.

Ongoing evaluation is through online questionnaires, focus groups and semi-structured interviews with Palestinian students and faculty.

Summary of Results: To date, 141 tutorials have been delivered in internal medicine, general surgery, paediatrics and psychiatry, engaging 150 students at three universities. In recent feedback, over 85% of students rated tutorials as “Good” or “Excellent” and “Fairly” or “Very” relevant to their future practice. Participants reported OxPal had positively modified their approach to patients.

Discussion and Conclusions: Globalisation and emergence of web-based technologies make long-distance collaboration increasingly feasible. Growing evidence supports the online platform as a sustainable and self-reinforcing means of overcoming regional barriers to medical education. Web-based distance-learning can facilitate the delivery of high-quality, locally-relevant teaching which has the potential to strengthen native educational capacity. The OxPal model may be replicated by other endeavours aiming to remedy ‘teaching deficient’ areas with ‘tutor surplus’ areas.

Take-home messages: OxPal demonstrates that distance-learning is a feasible, low-cost and effective means of overcoming local barriers to medical education in geopolitically unstable regions.
2G SHORT COMMUNICATIONS: OSCE 1 – Scoring an OSCE
Location: Theatre Room 12, Level 0, MiCo

2G1 (22876)
OSCE checklist scores: to standardize or not to standardize?

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Background: Institutions that use checklists as part of their scoring for OSCEs have to decide whether scores are standardised across stations. When combining across stations, are individual stations allowed to contribute differentially to the total OSCE score? Also, what is the impact of standardizing (or not) on measures of assessment quality and pass/fail decisions?

Summary of Work: Using data from several OSCEs, this study investigates the effect of standardizing OSCE scores in two ways: (i) to the same mean and standard deviation (e.g. z-scores), and, (ii) to the same maximum achievable mark. This work then compares assessment quality and individual student pass/fail decisions with the unstandardized approach where ‘raw’ checklist scores are used.

Summary of Results: The method of standardisation (or not) makes little difference to measures of assessment ‘quality’. Both standardization approaches result in slightly lower failure rates when compared to the unstandardized approach.

Discussion and Conclusions: This work shows that pass/fail decisions, particularly for students in the critical pass/fail area, can be affected by different approaches to standardization. However, the decision whether (and how) to standardize scores cannot rest on psychometric analysis alone. Rather, such decisions must be based on the theoretical and philosophical underpinnings of the assessment and its purposes.

Take-home messages: Institutions need to have a developed and defensible rationale for all assessment design decisions, including whether or not to use standardized scores in their OSCEs. Whilst the impact on assessment ‘quality’ is likely to be limited, key pass/fail decisions do depend on the methodology employed.

2G2 (21851)
Checklist item weighting: Theoretical, psychometric and empirical perspectives

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Background: The debate about the use of item-based checklists, domain marking and global grading in OSCEs continues to attract considerable attention. As checklists are developed and items are grouped together, with an increased focus on higher level skills, individual ‘items’ have the potential to become ever more differentially weighted.

Summary of Work: Using empirical data from several OSCEs, this study compares assessment ‘quality’ and student pass/fail decisions between a simplified weighting method and the more nuanced approach where OSCE-writers weight checklist items according to their professional judgement. This work also considers the underlying theoretical and psychometric assumptions behind different weighting approaches.

Summary of Results: There is little difference in assessment ‘quality’ between the two approaches. Within stations, typically 5% of students have different station level pass/fail decisions, with slightly higher pass rates under the simpler approach. Across the OSCE as a whole approximately 3% of students have different decisions, with the failure rate generally a little lower under the simpler method.

Discussion and Conclusions: There is a strong validity argument for complex and/or substantial checklist tasks to receive higher weighting. Whilst our work indicates that the weighting makes little apparent difference to overall measures of assessment ‘quality’, a substantial proportion of borderline student pass/fail decisions are affected by weighting decisions.

Take-home messages: Most assessors implicitly weight items when making their own global decisions. Understanding weighting impact, particularly at the pass/fail boundary, helps to confirm this. Hence, ensuring good alignment between the item weighting structure and that implicitly employed by assessors is essential. This work informs future OSCE marking schedule development.
2G3 (21717)
Reliability Analysis of an Objective Structured Clinical Examination with Generalizability Theory

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Background: OSCE is a widely used method to assess clinical competence in health sciences. In Latin America there are no reports about OSCE reliability using generalizability theory. The objective of the study was to assess clinical competence in medical students with an OSCE, and to measure its reliability with generalizability theory.

Summary of Work: Prospective cohort study, pre–posttest, in 5th year medical students at UNAM Faculty of Medicine in Mexico City. Students were assessed with 18 six-minute OSCE stations. At the beginning of Internship we applied a pretest, and a posttest one year later. Internal consistency was calculated regarding the total scores for each station. A crossover random effects design was used to identify the main sources of variation. Examiners, standardized patients and cases were regarded as a single facet of analysis.

Summary of Results: 278 Students were assessed. Pre-test OSCE global mean score was 55.4±6.3, the post-test score was 62.6±5.6 (p<0.001), with a Cohen d=1.2. Cronbach’s alpha in the pre-test was 0.62 and 0.64 in post-test. G coefficient was 0.66 in the pretest and 0.62 in the posttest. The major components of variance were the residual error, stations and students.

Discussion and Conclusions: The clinical competence of medical students measured with an OSCE is higher at the end of undergraduate medical internship. The OSCEs showed adequate reliability evidence, using the two analyses, Cronbach’s alpha and G Theory.

Take-home messages: Reliability using generalizability theory in our 2-hour, 18-stations OSCE was acceptable.

2G4 (22510)
Correlation of Self Assessment and Peer Assessment to the Passing Grade of the OSCE in Level 2 and Level 4 Students, Faculty of Medicine UNISBA

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Background: Objective Structured Clinical examination (OSCE) is a clinical competency assessment of students comprehensively and consistently. Self assessment and peer assessment could improve student capacity to perceive learning objective, increase self confidence, critical thinking ability and act appropriately in facing the exam. This study aims to look at the relationship between self and peer assessment to the passing grade of the OSCE in level 2 and level 4 students.

Summary of Work: The value of the OSCE was retrieved after students take the exam, while self and peer assessment was carried out just before the exam. Self assessment was done by students themselves, whereas peer assessment was done by 5 other students who had one group.

Summary of Results: The study result in the level 2 students shows meaningful relationship between self and peer assessment with the passing grade of the OSCE with P value < 0.001. The strength of relationship between these was moderate (R=0.426). In level 4 students the results indicate there is meaningful relationship between self assessment and the passing grade of the OSCE with P value < 0.001. The strength of relationship between these is moderate (R=0.451). There is no meaningful correlation between peer assessment and passing grade of the OSCE.

Discussion and Conclusions: Self assessment has positive correlation to the passing grade of the OSCE in level 2 and level 4 students. Peer assessment has positive correlation to the passing grade of the OSCE in level 2 students. Self assessment has positive correlation to peer assessment in level 2 and level 4 students.

Take-home messages: Self assessment and peer assessment are necessary for achieving learning outcomes and students’ performance to gain clinical competence.
2G5 (19394)
Using Hierarchical Linear Modeling (HLM) to Investigate Examiner and Site as Sources of Variation in the National Assessment Collaboration (NAC) Objective Structured Clinical Examination (OSCE)

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Background: A constant challenge to ensuring test fairness is to understand and minimize sources of score variance unrelated to differences in candidates' abilities. Examiners and sites represent two potential sources of such error variance in the NAC examination. How much variation can be attributed to these sources? Can this variation be explained by other variables? The nested structure of NAC scores (candidates within examiner; examiners within station and site) precludes the use of generalizability studies as a method for analyzing sources of score variation. One alternative is to use HLM techniques that are specifically designed to evaluate effects associated with various levels of nested data.

Summary of Work: One year of NAC data were analyzed using two HLM models. Model 1 investigated total score variation due to candidates and sites. Model 2 investigated station score variation attributable to examiners and sites. Variables used to explain site variance included number of prior administrations and standardization of site. Variables used to explain examiner variance included examiner experience, demographics, and examiner’s score on a different national OSCE.

Summary of Results: Most of the total score variation (83-89%) was attributed to candidate ability with the remaining 11-17% due to site. Most of station score variation (89-98%) was attributed to examiner with the remaining 2-11% due to site. None of the explanatory variables investigated significantly predicted site variation. Examiner variance related to examiner experience, gender, and examiners’ previous examination scores.

Discussion and Conclusions: Small but systematic variation due to site and examiners has implications for training.

Take-home messages: Limitations and next steps will be discussed.

2G6 (21577)
The elephant in the room: benchmarking the assessment of clinical competence

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Ian Kerr, Griffith University, School of Medicine, Gold Coast, Australia
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Background: The Australian Collaboration of Clinical Assessment in Medicine (ACCLAIM) began as a small group of Australian Medical Schools to benchmark graduate outcomes in each School’s Objective Structured Clinical Examination (OSCE). In 2013, the collaboration received funding through a national learning and teaching grant. Currently, 19 of the 21 Australasian medical schools are involved in the collaboration. Collaboration goals are:
1. Quality improvement through sharing of resources and expertise
2. Benchmarking of graduate outcomes
3. Development of new approaches to improve capacity of assessment systems

Summary of Work: This presentation will cover challenges encountered, including: dealing with different curriculum structures; assessment processes and debates regarding the optimal length, content and curriculum domains of stations; examiner training; structure of the mark sheet; standard-setting; provision of feedback to students.

Summary of Results: Over four years, this group has shared 14 OSCE stations and has also provided quality assurance at OSCEs at more than seven sites biannually. Consequent to discussions held between members and participation in the OSCE external review process, each has embraced ‘best OSCE practice’ and modified aspects of their OSCE processes accordingly.

Discussion and Conclusions: Whilst others have developed tools for benchmarking written assessment, ACCLAIM focuses on the elephant in the room, the sharing and benchmarking of OSCE items, i.e. cross-site comparison and quality improvement in an assessment tool widely used to measure student competence at the ‘shows how’ level of Miller’s pyramid.

Take-home messages: We have shown that it is possible to address the challenging ‘elephant in the room’ – the benchmarking of clinical competence assessment.
Can an OSCE be used as a progress test?

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Background: Written progress tests are frequently used to assess learner performance over time because they allow for a standardized benchmark of achievement when assessing knowledge. It is unclear, however, if performance-based tests that measure clinical skills could also be used for progress testing. The purpose of this study was to explore the use of a formative OSCE for Internal Medicine residents (IM-OSCE) as a progress test.

Summary of Work: Data from eight administrations of the IM-OSCE were analyzed. OSCE scores were scaled to standard scores (mean 500, SD 100). Progression of resident performance over their three years of core training was compared to see if individual scores increased with time.

Summary of Results: Forty-six residents participated in the IM-OSCE in each of their three core years of training. Individual performance improved from a mean of 445 (+/- 12) for PGY-1s, to 534 (+/-10) for PGY-3s (p < 0.001). For IM-OSCE sub-scores, mean structured oral scores increased from 464 (+/-14) to 533 (+/-12), while physical examination scores increased from 464 (+/-12) to 529 (+/-10) (p < 0.001), and procedural skills scores increased from 495 (+/-21) to 555 (+/-14) (p = 0.033). There was no significant change in communication scores as residents progressed through their training (p = 0.975).

Discussion and Conclusions: Individuals’ total IM-OSCE scores increased longitudinally, which is one of the hallmarks of a progress test. Unlike the other clinical skills measured, communication skills did not appear to change over time.

Take-home messages: This study provides support for the use of an OSCE as a progress test for trainees from different levels of training.
2H1 (19745)
Educational environment and quality of life of medical students – A multi-centre study

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Background: The educational environment stands out as a predisposing factor for influencing quality of life (QoL) among medical students. We aimed to assess perceptions of the educational environment and QoL among medical students, and to determine the association between these measures.

Summary of Work: This is a study with a randomised sample of 1,350 students from 22 Brazilian medical schools. We used the DREEM, WHOQOL-BREF questionnaires and self-assessment of QoL.

Summary of Results: The overall DREEM scores (119.4±27.1) revealed that the student perceptions of the educational environment were positive. The scores in all domains were significantly lower for students in their final years of medical school (p <0.001), except in the academic self-perceptions domain. Individual items of DREEM with mean score of ≤ 2.0 were 3, 4, 5, 7, 14, 17, 22, 24, 25, 27 and 29. The female students presented lower scores in the physical and psychological domains on the WHOQOL-BREF (p<0.001). The QoL self-assessment indicated that the QoL scores in medical school were significantly lower than QoL scores in their overall lives (p<0.001). The Pearson’s correlation coefficients demonstrated the existence of a positive correlation between perceptions of the educational environment and QoL.

Discussion and Conclusions: Although the students’ perception of their educational environment is positive, our study shows that medical school has an impact on their QoL. The worst scores were found for students in their final years of medical school and for female students.

Take-home messages: Gender differences in QoL and perceptions of the educational environment in medical school must be considered in curriculum planning and student support.

2H2 (18413)
Assessment of the Quality of Educational Environment During Undergraduate Clinical Teaching Years in the King Abdul Aziz University, College of Medicine in Saudi Arabia

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Background: The undergraduate curricula of medical schools in King Abdulaziz University Saudi Arabia, is traditional, like most of the medical schools in the Middle East region. A measure of the educational environment in the college of medicine as perceived by students would assist educators and college administration personnel in gauging the quality of the learning occurring within this important venue.

Summary of Work: During the academic year 2012/2013, the DREEM questionnaire was distributed and collected by the undergraduate student leader of the same year to all 280 females and males clinical stage medical students. 4th year, 5th year and 6th year clinical stage students are located in the hospital sites for their clinical teaching. Each medical student. 4th year, 5th year and 6th year.

Summary of Results: One hundred and ninety-six female and male students completed the questionnaire from the total students sample (280) representing a response rate of 70%. There were 109 males (out of 150) representing 72.6 % and 95 females (out of 130) representing 73%: the female students comprised 48.5% of the total responding students, while the male students represented 51.5%. There were no individual areas of excellence (that is no item scored > 3.5).

Discussion and Conclusions: The DREEM provides useful diagnostic information about medical schools, whether it is in developing or western developed countries. The DREEM gives a clear indication of the priorities for reform of the curriculum. These data can also serve as a baseline for a longitudinal quality assessment of students’ perceptions of the changes planned for the college of medicine, Saudi Arabia.
The AMEET inventory, an instrument for measuring faculty perceptions of educational environment in the undergraduate medical curriculum

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Background: Educational environment (EE) experienced by teachers involves all the conditions affecting teaching and learning activities. We aimed to develop an inventory to measure faculty perceptions of EE: the Assessment of Medical Education Environment by Teachers (AMEET) inventory; ascertain faculty perceptions of EE at our institution (CoM) and identify reasons for any differences in perceptions.

Summary of Work: The study included both qualitative and quantitative methods: a modified Delphi technique, a cross-sectional survey and focus group discussions. The AMEET inventory was developed through a three-stage process involving a modified Delphi technique and answered by all CoM faculty. Median total, domain and individual statement scores were compared using Wilcoxon Rank sum test. Focus group discussions were conducted to gain in-depth insights.

Summary of Results: The modified Delphi technique resulted in the development and validation of the AMEET inventory which was piloted with 62 faculty. A Cronbach’s Alpha of 0.94 was obtained. Median total score of the faculty was 136/200. The individual item analyses identified the strengths and areas necessitating improvement. The scores of the basic science faculty were significantly higher than the clinical faculty. Valuable insights were obtained from the focus group discussions.

Discussion and Conclusions: The AMEET inventory is a valid and highly reliable instrument to assess faculty members’ perceptions of EE. While the faculty members had a positive perception of the EE in the undergraduate medical program, a few areas of concern were also highlighted.

Take-home messages: The valid and highly reliable AMEET inventory meets the need to assess faculty members’ perceptions of educational environment.

Role modelling professionalism for residents: The Learning Environment for Professionalism Survey (LEP)

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Timothy Woods, Academy of Innovation in Medical Education, Medicine, Ottawa, Canada
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Background: Professionalism is a key physician competency upon which medical training programs base objectives and evaluation. The learning environment (LE) is also now one of the Liaison Committee on Medical Education (LCME) accreditation standards for medical institutions. Post graduate programs require an instrument to formally assess the learning environment to ensure best practices. The presentation will include results of the Learning Environment for Professionalism (LEP) survey in residents and the challenges in regards to implementation.

Summary of Work: The LEP has been validated (reliability and validity) in the undergraduate setting (C. Thrush, Medical Teacher 2011). It is a brief survey that has items balanced to assess both professional and unprofessional behaviours on clinical rotations. The 11 items are rated on a 4 point scale. This study was designed to determine the feasibility applicability of the LEP scale in the postgraduate learning setting. As such the trainees in four programs during a 12 month period (2013) were asked to complete ratings on the LEP at the end of their rotations. Ratings were made for other residents and attending faculty. Results were collected in aggregate to ensure confidentiality.

Summary of Results: The response rate was 87%. The program and rotation ratings were very similar leading to low reliability. All items rated positively, but displays of altruism tended to have lower ratings as were ratings for derogatory comments. Ratings for withholding information and discrimination tended to be quite high (in the favorable spectrum). There was an overall tendency for resident ratings to be lower than attending faculty ratings.

Discussion and Conclusions: The challenges of implementing the project across programs and evaluation of the learning environment will be discussed.

Take-home messages: The LEP tool can be used as an ongoing evaluation tool of the LE in postgraduate programs.
2H5 (20307)
Medical Students’ Perceptions of their Learning Environment, Well-being, and Academic Self-Concept

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Background: Medical education seems to be a demanding and overwhelming experience for many students. The perceived learning environment plays an important role in students’ well-being.

Summary of Work: Our study investigated medical students’ perceptions of their learning environment and how these related to well-being in terms of experienced exhaustion and losing interest in personal studies. Experiences were compared between lecture-based learning (LBL) and problem-based learning (PBL) environments.

The MED NORD questionnaire was used to measure students’ experiences of their learning environment, experienced well-being (i.e., exhaustion and lack of interest), and academic self-concept. A total of 610 students participated. Structural equation modelling was used to investigate relationships between variables. A cross-sectional design was used to compare experiences between different medical schools.

Summary of Results: Perceptions of worry about future workload were found to positively relate to exhaustion, whereas perceptions of worry and study satisfaction both negatively related to lack of interest. Experienced high workload related to both exhaustion and lack of interest. In turn, lack of interest was negatively related to academic self-concept, whereas exhaustion was positively related to it. PBL students reported higher levels of worry concerning future workload, but they also experienced receiving more feedback. In addition, novice PBL students experienced higher levels of exhaustion and better academic self-concept than LBL students. No such differences were found in the clinical phase.

Discussion and Conclusions: Lack of interest concerning personal studies appeared to be more unfavourable than experiences of exhaustion. The PBL environment appeared challenging, but only during the first years of study.

2H6 (22448)
The association between learning environment climate and empathy

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Background: Cultivating medical students’ empathy is highly emphasized in medical education. The objective of this study was to examine the association between the learning environment climate and the degree of empathy of medical students.

Summary of Work: A total of 157 (60.15%) medical students participated in this study. Learning environment climate was measured using 10, 2, 3 items, with a scale of 1 (never) to 4 (always), selected from the dimension of teacher-learner relationship, physician-patient relationship, and self-efficacy in the Learning Environment Scale, respectively. Empathy was examined using six items, with a scale of 1 (strongly disagree) to 6 (strongly agree), selected from the empathy scale of the Ko’s Mental Health Questionnaire. The association between the learning environment climate and the degree of empathy was assessed using structural equation modeling (SEM).

Summary of Results: We examined the goodness-of-fit of the three-factor model, the teacher-learner relationship, the physician-patient relationship, and the self-efficacy, using non-normed fit index (NNFI), comparative fit index (CFI), and root mean squared error of approximation (RMSEA). The values of NNFI, CFI and RMSEA indicated a good fit for the three-factor model. We tested the path model, the three-factor model and empathy, using SEM. The result showed a good fit for the path model (p=.9998).

Discussion and Conclusions: Our study showed that better learning environment climate perceived by medical students is significantly associated with their higher degree of empathy. In addition to promoting the degree of empathy using formal curriculum, medical educators should also pay more attention to hidden curriculum by cultivating better learning environment climate.

Take-home messages: In addition to promoting the degree of empathy by formal curriculum, medical educators should also pay more attention to hidden curriculum by cultivating better learning environment climate.
21 SHORT COMMUNICATIONS:
Instructional Design
Location: Amber 2, Level +2, MiCo

211 (22853)
4C/ID in medical education: Designing a course based on whole-task learning

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Background: Medical education increasingly stresses the integrated acquisition of multiple competences such as clinical reasoning and decision making, communication skills and management skills. To promote such complex learning, instructional design theories like the 4C/ID model (van Merriënboer, Clark, & de Croock, 2002) have focused on the use of authentic, real life learning tasks or whole-tasks. The aim of this presentation is to illustrate and discuss the processes of design, development, implementation and evaluation of a computer-assisted open learning environment, based on evidence-based instructional design principles, that integrates learning tasks, feedback and deliberate practice. The intended users of the learning environment are general practice students (seventh year of medical school).

Summary of Work: In this presentation, we describe the steps that were taken to build five online learning modules (e.g. patient with diabetes; child with acute illness) that all focus on the integrated acquisition of the CanMEDS roles in general practice.

Summary of Results: The results of this research are shown through a virtual walkthrough in the learning environment, hereby sketching the theoretical background for every component. We also present the roadmap that is developed to guide medical teachers and instructional designers in developing and implementing complex learning environments.

Discussion and Conclusions: We go beyond the development of learning materials and also focus on the implementation strategy and management plan in order to increase a successful implementation and follow-up of educational innovations in medical education.

Take-home messages: The educational change cycle towards innovation assists in the process of innovation in medical education.

212 (23039)
If a picture is worth a thousand words, is a video worth a thousand pictures? Novices experience similar cognitive load when using dynamic or static multimedia to learn surgical skills

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Background: Mixed effects of multimedia learning reflect a misalignment between instructional design and cognitive processing. Three types of cognitive load influence multimedia learning: germane, intrinsic, and extrinsic. Measurement of relative load types may inform design of effective learning environments and provide insight towards the effectiveness of dynamic or static forms of multimedia.

Summary of Work: Following visual spatial assessment, novice medical students (n=20) were randomized into one of two multimedia conditions. The dynamic group video contained a complete procedure (Z-plasty) whereas the static group video contained a small number of still frames from the complete video. Auditory information was identical. During the intervention, all participants were simultaneously required to manually respond to a second visual stimulus at random intervals. Cognitive load measures included reaction times, and a questionnaire. Performance outcomes included a knowledge test and drawing exercise. Load and performance scores were used to calculate instructional efficiency and learner involvement scores.

Summary of Results: Groups were equal for sex, handedness, age, and mental rotation. Following the intervention, there were no group differences for learning outcomes, dual-task reaction times, and across all levels of cognitive load type. There were no group differences for efficiency or involvement, however there was substantial variability within groups.

Discussion and Conclusions: Presenting identical information using dynamic and static multimedia imposes similar types and levels of cognitive load. Equal load combined with equal efficiency and involvement scores suggest that dynamic and static multimedia are equally effective for novice trainees learning surgical skills.

Take-home messages: Effectiveness of multimedia may be less dependent on dynamic or static presentation than previously believed.
213 (20516)
Measuring cognitive load to optimize instructiveness of your courses: A case in health professions education

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Background: Statistics is a subject in many medicine and health professions programs. Students in these programs typically have a non-mathematical background but have to learn statistical concepts and software within a limited course time. This frequently results in superficial learning [Leppink et al 2012]. To what extent can Cognitive Load Theory [Sweller 2010] combined with course evaluation forms help teachers and curriculum developers to design instruction that stimulates learning?

Summary of Work: Twenty-six students in a health professions education Master program participated in a research course that included five statistics workshops. Students completed a validated ten-item cognitive load questionnaire [Leppink et al 2013 2014] after each workshop. After the course, students completed a course evaluation and rated the instructiveness of each workshop.

Summary of Results: While quantitative course evaluation responses provided an overall indication of the perceived instructiveness of workshops, cognitive load questionnaire scores indicated to which extent content complexity and instruction were tailored to students’ proficiency in individual workshops. Further, responses to open-ended questions in the course evaluation (e.g., being taught theory and software simultaneously) helped to explain which aspects influenced cognitive load in single workshops and could be adjusted to increase the instructiveness of the workshops.

Discussion and Conclusions: The combined use of course evaluations after a course and a short cognitive load questionnaire administered throughout the course can provide a richer source of information on how to design instruction that stimulates learning.

Take-home messages: Cognitive Load Theory [Sweller 2010] has clear implications for instructional design and the use of cognitive load measures in educational design should be considered.

214 (21470)
Repetition of knowledge: Passive or active learning methods?

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Background: Research has shown that <50% of knowledge is retained after 2 years. Many curricula aim to scaffold knowledge throughout the years. However, if half of the foundation has disappeared, there is not much left to build on! It is known that active learning increases knowledge acquisition during initial learning compared to passive learning. Repetition is known to aid retention of knowledge. However, it is unknown if repetition through active learning is preferable above repetition through passive learning.

Summary of Work: Prior and after a 4 week integrated course, students (N=120) completed 40 questions on anatomical knowledge (pretest(1) and posttest(1)). After 14 weeks students completed pretest(2) and were subsequently divided in a group without repetition, and three groups that repeated knowledge through a lecture (most passive), an e-learning module or a dissection room session (most active). Afterwards the students completed posttest(2).

Summary of Results: The average scores were: pretest(1) 14.7, posttest(1) 26.8, pretest(2) 20.3 and posttest(2) 29.1 points out of 40. There were no significant differences between the experimental groups on posttest 2.

Discussion and Conclusions: The time set for the repetition sessions was 1.5 hours. Interestingly, the students finished the e-learning module in maximal one hour, while students in the dissection room did not complete all their assignments. As the e-learning module was unguided and took the least amount of time to complete, this method seems most favorable for repeating knowledge. However, more research towards effective repetition methods is necessary.

Take-home messages: The results of this study suggest that repetition does not have to be provided through active learning methods.
215  (20470)
Learning impact of anchored and structured concept maps

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**Background:** Concept maps have been found to be helpful in promoting deep learning, as well as making connections between knowledge derived from various disciplines. We studied the impact of online concept maps on learning by students in first undergraduate Medicine course exploring understanding of medical disciplines.

**Summary of Work:** We employed a controlled crossover study design, comparing learning with scaffolded concept maps with automated evaluation and feedback with collaborative generation of free concept maps by small groups of students. Concept mapping activities were integrated into the curriculum, utilising two consecutive scenarios to illustrate the disciplinary basis of medical practice. Quantitative measures of learning impact were determined by two online quizzes.

**Summary of Results:** Collaboratively generated concept maps were also evaluated for accuracy and complexity. There were no significant differences in performance between each arm of the study. Maps were scored using Yin’s method (2005).

**Discussion and Conclusions:** We infer that for this cohort scaffolded online concept maps with automated evaluation and feedback are equally as effective as collaboratively generated concept maps. Scaffolded maps were more readily accepted by students and demonstrated more extensive links.

**Take-home messages:** Scaffolded maps can be scored more easily than free concept maps using existing software and structured feedback can be provided.

216  (21651)
The Impact of Mood Induction on Learners’ Application of Basic Science Principles to Novel Problems

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**Background:** Medical education requires that learned knowledge be transferred (i.e., applied) to novel situations. Research shows that one’s mood can impact the acquisition of knowledge, but little research has been done to examine mood’s impact on transfer. The present study examined the influence of mood on the transfer of basic science principles to clinical problems.

**Summary of Work:** 49 undergraduate students were randomly assigned to 1 of 3 previously validated mood induction conditions, in which they were asked to write about a positive, negative, or neutral life event for 10 minutes. Participants were then taught three physiological concepts, each in the context of a single organ system. Testing consisted of 15 new cases with the same concept/organ system pairings used during training (near transfer) or with novel pairings in which the concept had to be applied to a different organ system (far transfer). Testing was repeated after one week with 15 new cases.

**Summary of Results:** Mood induction had a consistent effect (p=0.01) in that performance was reduced for people primed towards either positive (39±4.0%) or negative (35±3.8%) moods compared to those given the neutral writing task (51±3.8%). This effect did not interact with near vs. far transfer.

**Discussion and Conclusions:** These data suggest that the internal mood states brought into learning environments by trainees can have significant effects on knowledge transfer.

**Take-home messages:** Educators and students should be aware that trainees’ moods can influence their learning.
Influence of Music in the Teaching, Learning Processes in Medical Students

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Background: Academic evaluation results have been deficient for students of immunology at Juan N. Corpas School of Medicine (FUJNC). Faculty members and students have made a lot of pedagogic efforts and innovation in order to improve the learning, teaching process, but the results are not good enough. Recently, FUJNC has begun research about music as a teaching tool for medical students.

Summary of Work: We have developed special software to analyze brain waves, carried out an electroencephalogram procedure on a series of medical students and found a relationship between several music intervals and specific brain waves, which are better for the process of learning. We have composed some songs, with music and lyrics. This music is based on the intervals that promote more alfa and beta waves (statistically significant). Its lyrics are the contents of some immunology subjects.

Summary of Results: We have found, as preliminary results, that there is a real connection between specific musical intervals and predominance of specific brain waves. In fact, we found that the intervals called “second minor” and “third minor” are the ones producing predominance of alfa – beta brain waves, which are present when someone is studying and learning something. We are running the last stage of the study, which will be finished in April 2014, evaluating the possible difference of learning a difficult and specific topic of immunology through the music, enhancing memory and understanding of these contents.

Take-home messages: Music can be used as a teaching tool for medical students. There is a relationship between musical intervals and brain waves.
2J SHORT COMMUNICATIONS: Widening Participation and Admission to Medical Studies
Location: Amber 3, Level +2, MiCo

2J1 (21927)
Measuring socio-economic status in medical school applicants

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Cathy Jackson, University of St Andrews, School of Medicine, Dundee, United Kingdom

Background: Over 100 years ago, Flexner wrote “We have no right...to set up standards which will close the profession to "poor boys". However medicine in the UK remains dominated by those from a higher socio-economic status (SES). The 2010 ‘Global Conference for Social Accountability of Medical Schools’ report described student selection as one component of social accountability. Multiple measures of SES exist, creating challenges in knowing which measures to use to identify applicants from deprived backgrounds and to monitor widening participation (WP) strategies.

Summary of Work: Analysis of data from the UKCAT Consortium and UCAS was undertaken, investigating:
1) The distribution of four measures of SES in medical school ‘applicants’ and ‘accepted offers’.
2) How these measures compare in measuring SES.

Summary of Results: There are more applicants from higher SES groups, regardless of the measure used. These applicants are more likely to gain an accepted offer. Individual SES measures are distributed differently amongst applicants. Analysis suggests only a weak association between measures.

Discussion and Conclusions: Higher SES applicants are more likely to gain an accepted offer, raising potential issues with admissions processes. The lack of correlation between SES measures highlights problems deciding which should be used. We discuss pros and cons of individual measures and on-going work to establish and employ a ‘gold standard’ marker of SES, allowing identification of applicants from deprived backgrounds and monitoring of progress in WP.

Take-home messages: Medical schools must consider carefully which markers of SES they use in admissions and in monitoring WP. Further work is vital to widen participation in medicine in the UK.

2J2 (21023)
Student perceptions of selection criteria for medicine: Do attitudes differ by social and educational background?

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Background: Given the desire to widen access to medicine it is important that selection criteria such as admissions tests do not deter applicants from particular social groups. We wished to investigate the views of potential medical applicants from different backgrounds towards medical selection criteria.

Summary of Work: A questionnaire survey of 749 potential medical applicants was employed (both Likert-scale and open-ended questions). Gender, ethnicity, school type and widening participation (WP) indicators were collected. Selection criteria compared were: academic attainment; teacher references; personal statements; relevant work experience; different admissions test skills (e.g. verbal and numeric reasoning, writing skills, behavioural skills); traditional interviews; MMIs.

Summary of Results: Admissions tests, interviews and MMIs were rated as similarly (and somewhat) daunting but received low ratings as a deterrent to application. Personal statements and relevant work experience were seen as particularly open to the impact of external help. Females rated most selection criteria as more daunting than did males and males had more confidence that they could perform well on all criteria (although confidence was also fairly high for females). Few differences were seen by school type or WP background. Independent school and non-WP participants rated traditional interviews as very slightly more fair and valid than did state and WP participants. However, all participant groups rated the fairness and validity of interviews, MMIs and admissions tests quite positively.

Discussion and Conclusions: The results give no cause for concern that particular selection criteria are a deterrent to application for any group.

Take-home messages: Admissions tests, interviews and MMIs are generally perceived as fair and valid by prospective applicants.
Do students’ socio-economic background or schooling impact on medical school performance?

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Michael Chan, Bart’s and the London Medical School, Medical School, London, United Kingdom
Philip Chan*, University of Sheffield, Medical School, Sheffield, United Kingdom

Background: One of the main tenets of widening access is that the social and educational environments of young people impact on attainment, and disadvantage certain students at the time of application to medicine. It is less established whether these impacts continue after admission to the medical course.

Summary of Work: We studied the submission of one medical school to the UK Foundation Programme, which ranked the whole graduating student cohort (n=240) on the basis of their averaged summative assessments over the previous 4 years. Using their application data, we obtained the Income Deprivation Affecting Children Index (IDACI) scores for the home postcode and the percentage of A-level students at their school achieving 3 A levels at AAB or higher, as well as their GCSE and A level examination results.

Summary of Results: We analysed four variables by stepwise linear regression. IDACI rank was non-significant. Both mean GCSE (.340, p < .005) scores were associated with increasing summative average, whilst school performance was associated with decreasing summative average (-.159, p < .05). We confirmed the effect of previous academic attainment, documented in many previous studies. We found the same inverse relationship between schooling and medical course performance as McManus in the large UKCAT-12 study (which looked only at first year results). We found no evidence that socioeconomic background affects course performance.

Discussion and Conclusions: Schooling could be taken into account for admissions purposes. Students who achieve qualifying status from schools with poorer A level performance actually have higher academic attainment on our medical course.

Take-home messages: These data support a selection policy which gives preference to students from schools with relatively poorer average attainment, if they meet the admission standard.

Widening participation: What works for students, and why?

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Background: Underrepresentation of UK medical students from lower socio-economic groups persists with only 11% coming from a family where the main earner is from a semi-skilled or unskilled occupational class. This is less than the 14% from 2009/2010(1). Widening participation (WP) schemes aim to encourage disadvantaged students to enter higher education. Despite many active WP programs, there is mixed evidence of their success. This study aims to explore WP from a student’s perspective, to better establish what factors within WP schemes are beneficial; why they are useful; and also explore aspects which discourage students in their applications.

Summary of Work: Methods include three focus groups and a questionnaire. The focus groups involved randomly selected state school students who participated in a WP project in East London, and BM6 Widening Access students at Southampton. The questionnaire aims to validate themes found in the focus groups with a wider audience of disadvantaged students.

Summary of Results: Results show a positive reaction to medical student mentors and a push for information on application earlier in secondary school. Deterring factors included inconsistencies in teachers’ awareness of medical application processes and occasionally active discouragement.

Discussion and Conclusions: Students find WP programs helpful, but lack earlier engagement with them. To better WP, more needs to be done earlier, and further research into the school’s influence on students is required.

Take-home messages: WP programs – while useful – remain inconsistent. Students receive influences from their schools and peers, whom are often negative towards their applications.

 Assessment of the interpersonal skills of potential doctors: Their inclusion in the selection processes of medical and health science courses

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**Background:** There has been a growing recognition of the importance of effective interpersonal skills for medical and health practitioners, and hence a need to consider this ability when selecting students into medical and health science courses. Students wishing to gain entrance to medical courses in Australia and New Zealand are required to sit the Undergraduate Medicine and Health Sciences Admission Test (UMAT). This test is constructed by the Australian Council for Educational Research and it comprises three sections: Logical Problem Solving, Understanding People and Abstract Reasoning. This presentation focuses on the Understanding People section.

**Summary of Work:** The test section Understanding People is designed to be an objective measure of candidates' ability to understand and reason about people. An investigation of the construct validity of this section was conducted on a sample of 301 UMAT candidates using measures of emotional intelligence and general ability.

**Summary of Results:** The ability measure of emotional intelligence was the only EI measure that made a significant unique contribution to UMAT Section 2 scores. Verbal Reasoning partially mediated the relationship between ability emotional intelligence scores and UMAT Understanding People scores.

**Discussion and Conclusions:** It was found that the construct validity of the Understanding People section of the UMAT medical admissions test is sound. It correlates with both ability measures of emotional intelligence and verbal reasoning as predicted.

**Take-home messages:** The assessment of interpersonal ability is an increasingly important consideration in the medical selection process. Data provided here indicate that the present method of assessing interpersonal ability in the UMAT is psychometrically robust.

Personality testing for admission to medical college

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**Background:** The medical profession requires certain key personality traits for successful management of health related issues. The department of Behavioral science at RMC developed and executed the personality testing of candidates as part of admission criteria for the session 2013. The present study provides an insight to personality types finally selected for admission.

**Summary of Work:** The internationally validated Big Five questionnaire was adapted for testing as a self-administered questionnaire containing categories of Openness (O), Conscientiousness (C), Extroversion (E), Agreeable (A), and Neuroticism (N) with six questions (3 positive and 3 negative) per category. Total scores were calculated for each category and also overall scores of all five categories.

**Summary of Results:** Total scores of 91 students for all five OCEAN categories ranged from 31.5 – 53.0 (52.5%, 88.3%) with a mean of 45.0±4.65 (75.0%); 67 (74.7%) students scored 41-50 marks. Top scores (10-12 marks) in N were 39.6%, 39.5% in A, 36.3% in C, 29.7% in O and 16.5% in E. Significant correlations were obtained between the total OCEAN scores and total interview marks (r= 0.279, p= 0.007), final merit score (r= 0.288, p= 0.006), O (r= 0.631, p<0.001).

**Discussion and Conclusions:** Personality type did not correlate with the candidates’ past scholastic achievements and only weakly with the admission interview and final merit scores. Consciousness, Openness and Neuroticism correlated most strongly with the total personality score. Consideration should be given to individual factors of personality type when selecting candidates for admission to the medical profession.

**Take-home messages:** Personality makes the doctor.
Does medical students' admission based on an end-of-first-year knowledge test select unsuitable non-cognitive qualities?

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Background: In some European countries, medical schools admit students for undergraduate training at the end of the first study year, using highly-selective assessments anchored on factual knowledge. The Geneva Faculty of Medicine admits 160 students from more than 500 on the basis of students' scores on an end-of-first-year knowledge MCQ test. This could potentially select students with qualities unsuitable to become caring doctors.

Summary of Work: We used measures of personality, stress coping, empathy, learning approaches, motivation and cognitive performance to establish the profile of 347 first year medical students (principal-component-analysis) and investigated a model predicting success at the end-of-year exam and hence selection to go on with undergraduate training (multivariate-variance and logistic-regression analyses adjusted for gender).

Summary of Results: Students' profiles could be defined by 6 features (diligent, emotional, self-determined, sociable, intelligent, externally-driven), accounting for 66% of population variance. The chance of being selected increased for male (OR:1.58, p=0.019), diligent (OR:1.46, p=0.007) and intelligent (OR:1.36, p=0.034) students.

Discussion and Conclusions: Highly-selective MCQ tests favored the selection of students with suitable features such as intellectual flexibility and capacity to work diligently and deeply. Moreover, qualities presumably important for caring doctors such as being sociable and self-determined, were not penalized. This study suggests that the concern of selecting students with unsuitable qualities through a knowledge-based admission might not be justified. Under-selection of women could however be a cause of worry.

Take-home messages: Although far from ideal, highly-selective knowledge tests do not seem to select students with unsuitable qualities to pursue a medical career.
**2K SHORT COMMUNICATIONS:**

**Accreditation of Medical Schools**

**Location:** Amber 4, Level +2, MiCo

**2K1 (19517)**

The World Federation for Medical Education (WFME) recognition of accreditation agencies: Overview and updates

*Marta van Zanten*, Foundation for Advancement of International Medical Education and Research, Philadelphia, United States

*Stefan Lindgren*, World Federation for Medical Education

*David Gordon*, World Federation for Medical Education

**Background:** Accreditation is frequently viewed as a powerful tool for quality control and improvement of medical education programs, yet accreditation practices vary considerably worldwide. The World Federation for Medical Education (WFME), with assistance from the Foundation for Advancement of International Medical Education and Research (FAIMER), has developed and implemented a program of recognition of agencies accrediting medical schools.

**Summary of Work:** The WFME Recognition Program consists of criteria that must be met by the agency seeking recognition. First, an accrediting agency seeking recognition completes an application documenting how the agency meets the criteria. Next, an ad-hoc WFME team reviews the agency's application, observes a site visit of one medical school, and observes the agency's decision making meeting. The WFME team subsequently writes a report documenting the agency's compliance with the recognition criteria. Finally, the WFME Recognition Committee debates the report and makes a recognition decision.

**Summary of Results:** Currently the Caribbean Accreditation Authority for Education in Medicine and other Health Professions, the Association for Evaluation and Accreditation of Medical Education Programs, Turkey, and the United States Liaison Committee on Medical Education / Committee on the Accreditation of Canadian Medical Schools have all undergone the recognition review process. The WFME Recognition Committee made positive decisions to officially recognize each of these agencies for a period of ten years.

**Discussion and Conclusions:** As of 2023, WFME Recognition will be required of agencies accrediting the schools of international graduates seeking training positions in the United States. Additional accreditation agencies are encouraged to participate.

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**2K2 (19877)**

The impact of the revision of the WFME standards for basic medical education

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**Background:** The World Federation for Medical Education has released a revised version of their Basic Medical Education Standards. This paper compares the original and revised versions following an external review of a medical school based on the original version, and indicates potential implications of the changes for making judgements about the quality of medical education.

**Summary of Work:** A comparative analysis was conducted of the original and revised standards, producing a list of changes, through either ‘strengthened’ or ‘new’ standards or guidance for their interpretation. The potential impact of the changes on the writing of a report for this external review was then considered.

**Summary of Results:** The revised standards have more specific requirements for curriculum design, clinical placements, research training and the support and participation of students. In order to meet the revised standards, medical schools may need to invest substantially in acquiring in-house medical education expertise and better prepared teaching and research staff.

**Discussion and Conclusions:** The bar appears to have been raised substantially in the revised standards document. While individually the changes appear sound, the overall impact, particularly in the developing world, may be substantial.

**Take-home messages:** Global standards for medical education must be capable of flexible implementation based on local, but still focus on common outcomes.
2K3 (21649)
First Trial of Accreditation for Medical Education Using WFME Global Standard 2012 in Japan

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Nobuo Nara, Tokyo Medical and Dental University, Tokyo, Japan

Background: Accreditation of medical education has not been introduced in Japan. After the announcement by ECFMG that graduates from non-accredited medical schools will be unable to register for the ECFMG examination after 2023, Ministry of Education, Japan Society for Medical Education, and Association of Japanese Medical Colleges decided to establish Japan Accreditation Council for Medical Education (JACME). JACME always contacts WFME, FAIMER, and LCME. In December 2013, members of peer review committees of JACME site-visited and accredited medical education in Niigata University using Japanese version of the WFME Global Standard 2012 as the first trial.

Summary of Work: The first trial revealed the advantages and disadvantages of medical education in Niigata University. The 2012 standard is sometimes difficult to understand and sometimes unsuitable for Japan. However, the trial was successfully performed. The process stimulated to plan for reforms and quality improvement of the medical programme. After the official start of JACME, accredited or non-accredited will be decided within a year or two. The accreditation cycle is planned every seven years.

Summary of Results: The first accreditation trial using Japanese version of WFME Global Standard 2012 was performed in Japan.

Discussion and Conclusions: The accreditation trial using 2012 Standard started in Japan.

Take-home messages: The accreditation of eighty Japanese medical schools should be finished by 2023.

2K4 (23076)
Student roles in accreditation process: Ideas for improvement

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Background: As one of the methods of quality assurance, accreditation of educational programs has been a driver for change in many medical schools. Accreditation process is composed of a self-review of the institution and an on-site evaluation by the accrediting body. These both are important opportunities for medical students with specific roles attributed to them. Accreditation (just as a volunteer activity for now) is a new term for Turkish medical schools

Summary of Work: A focus group discussion, composed of local student leaders from 17 Turkish medical schools, 10 from accredited and 7 from non-accredited was organized. Their knowledge about accreditation process, their involvement in self-review committees, their roles at site visits, effect of student networking, their observations regarding change in their medical schools (if there is any) and student representation on the accrediting body was discussed. The discussion was recorded.

Summary of Results: Only 1 student knew about the legal aspect of the accreditation process. Student networking (country wide) was the main information source for their roles in the accreditation process. Except for 2 examples, they believe that student selections for self-review committees or site visits are not transparent. They don’t believe that accreditation of their medical school made (or will make) a change for their learning environment, but they believe that the set of standards may be supportive. They don’t understand the rationale for selection of students to the accrediting body.

Discussion and Conclusions: Students give importance to accreditation processes and care about their roles. Transparency of the process in selecting students for specific roles is important. Students want to see some steps towards change.

Take-home messages: Student involvement in accreditation should be improved for more effective outcomes.
2K5 (21910)
**An Analysis of the Role of Indonesian Medical Council in Assuring the Quality of Medical Education**

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**Background:** Indonesian Medical Council (IMC) was established in October 2005 as mandated by the Medical Practice Law No.20/2004. The main function of IMC is to safeguard the medical practices through several mechanisms, one of which is through ensuring the quality of medical education by approving the standards of competences and standards of medical education and by monitoring the implementation of those standards. Since 2013, a new Medical Education Law No.20/2013 has been enacted where the role of IMC in medical education has disappeared.

**Summary of Work:** A document analysis of the Medical Practice Law, the Medical Education Law and their related document is conducted using the framework of public policy analysis which starts from problem formulation, future prediction, and recommendation. Qualitative analysis is applied using a constant comparative method.

**Summary of Results:** The results showed that in relation to problem formulation, there are serious contradictions between these two Laws which includes the role of the IMC. Under the new Law, the role of the IMC disappears. This happens since the actors behind the new Law have particular agendas. As for the future prediction, the new Law will create more problems, as opposed to solving existing problems. The recommendation is to submit application to the Supreme Court for judicial review of the new Law in order to reduce potential serious problems in the near future.

**Discussion and Conclusions:** There are serious contradictions between the Medical Practice Law and the Medical Education Law. To avoid future problems, a judicial review for the new Law is needed.

**Take-home messages:** Various interests and aspirations among stakeholders involved in medical education need to be well managed to achieve balance of power and synergy with the IMC as the Leader.

2K6 (22556)
**Italian Health Profession students’ achievement towards Europa 2020 benchmarks. Universities and schools working together to bridge the gap**

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**Background:** The European Union adopted the new growth strategy Europe 2020. At the heart of the agenda there is the achievement of “smart, sustainable, inclusive growth brought about through greater coordination of national and European policy.” Within these three main priorities, in order to monitor the progresses towards these growth objectives, the European Commission defined several headline targets to achieve by 2020. Education and training systems are believed to play a major role in this context. The two headline targets specifically refer to this field are:
- reducing school drop-out rates below 10% and
- increasing the share of 30-34 year olds having completed tertiary or equivalent education to at least 40%.

The European Commission requires that these goals be translated into national targets, tailored to each Member State’s particular situation.

**Summary of Work:** The main focus is to take a first look at the national and regional trends and prospects for achieving the 2020 benchmarks. Most countries monitor their own students’ learning outcomes in order to provide answers to this question.

**Summary of Results:** The sample consisted of 2,250 first-time students who entered in a course over the three-year period from academic year 2006-07 through academic year 2008-09 and for whom complete admissions data were available.

**Discussion and Conclusions:** University and school can work together using indicators and benchmarks to inform and guide evidence-based policy making and as a means to monitor progress, both at the EU and national levels towards commonly agreed strategic objectives for education and training.

**Take-home messages:** Parents, students, teachers and those who run education systems are looking for sound information on how well their education systems prepare students for life.
2K7 (19499)
’Sustainable Accreditation’: A theoretical model derived from an empirical study of the impact of accreditation on medical schools in Saudi Arabia

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Background: The accreditation of undergraduate medical education (UME) is a universal undertaking. Accreditation is usually viewed as a method to promote quality UME, although a number of reports indicate that accreditation can be associated with staff burden, and quick fix approaches to ‘pass’ the immediate test.

Summary of Work: Qualitative data were collected from six medical schools in five different cities in Saudi Arabia. Document analysis was undertaken, and interviews and focus groups were conducted with students, educators and medical education leaders to examine the perceived impact of the National Commission for Academic Accreditation and Assessment (NCAAA) on the quality of UME.

Summary of Results: A majority of students and educators reported that the accreditation process had been helpful in improving the learning experiences of medical students. Interestingly other stakeholders reported that they viewed accreditation as a hurdle to be passed, and reported that practices returned to ‘normal’ after the period of surveillance. The data suggest that a number of factors influence whether accreditation acts as a stimulus for building a long-term quality culture (sustainable accreditation). The seven features of the Sustainable Accreditation Model are illustrated with examples from the data.

Discussion and Conclusions: Stakeholders reported mainly positive effects of accreditation on the quality of medical education offered. Students, educators and educational leaders were able to identify conditions that encouraged short term change -‘passing the test’- and longer term changes to systems, skills and practices. Links to the ‘sustainable assessment’ literature were made in order to develop the model of sustainable accreditation.

Take-home messages: Without sufficient orientation to purpose, establishment of relationships, and educational leadership within medical schools, seeking accreditation can be a ritualistic exercise characterised by ‘ticking boxes’ and ‘performing well on the day’. Sustainable accreditation embodies a set of principles to optimise the potential for accreditation to trigger longer term changes in educational practice.
2L1 (20391)
**Case Competitions: a New Frontier in Inter-Professional Health Education?**

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**Background:** Case Competitions (CCs) -- an educational approach borrowed from business schools -- feature teams of students from multiple disciplines who work collaboratively to analyze and "solve" a simulated or real-world challenge. They present their interdisciplinary recommendations to expert judges. There is a reported proliferation, across the US, of CCs focused on health themes. Little or no literature exists to document this trend and to assess its utility as an educational and pedagogical intervention.

**Summary of Work:** We sought to document all known health-oriented CCs in the US and to explore how existing CCs assess the learners and teams. We searched the literature via PubMed, as well as the grey literature, using the key words: "case competition" and Health; "Case challenge" and Health; Competitions were categorized based on location, organization, content area, process and prizes, year of initiation. Organizers were asked to provide their judging rubrics.

**Summary of Results:** The number of health-related case challenges is increasing. There are currently more than 30 CCs in the US. The majority were initiated in the past 3 years. Most judging rubrics focus on four domains: analysis of problem; content and justification for intervention; delivery and presentation; Responsiveness to Q and A. Some rubrics assess team work, but not all.

**Discussion and Conclusions:** Case competitions represent unique opportunities for inter-professional and inter-disciplinary learning for health professional students. They may represent a growing trend in Interprofessional education. This is a first step in a process of more rigorous and methodological assessment of the model, its process, perceived benefits, real and perceived outcomes.

**Take-home messages:** Case competitions are becoming popular. More research is needed on their pedagogical value.

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2L2 (20203)
**Activation issues in the rapid response system: An analysis of professional and interprofessional socio-cultural factors**

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**Background:** The rapid response system (RRS) has been instituted to allow healthcare professionals to promptly access help when a patient’s status deteriorates. Despite patients meeting the criteria, up to one-third of RRS cases that should be activated are not actually called, constituting a ‘missed RRS activation’.

**Summary of Work:** Ten focus groups of senior and junior nurses and physicians across four hospitals were conducted to gain greater insight into the social, professional and organizational factors that mediate the usage of the RRS. Directed and complementary directed content analysis of transcripts was guided by theoretical constructs from the interprofessional practice and the sociology of professions literatures.

**Summary of Results:** Health professionals’ reasons for not activating the RRS included: 1) two separate intra-professional clinical decision-making pathways when deciding whether to activate the RRS; a highly hierarchical pathway in nursing, and a more autonomous pathway in medicine, and 2) interprofessional communication barriers between nursing and medicine when deciding to make and actually making a RRS activation.

**Discussion and Conclusions:** The RRS is unevenly used by different health professions and by different status of hospital staff. Additionally, the RRS is utilized by health professionals as a “work around” approach when collaboration between professionals breaks down.

**Take-home messages:** Sociocultural factors shape the intra- and interprofessional pathways to activating the RRS, if it is activated, and the nature of how it is activated. These findings have important quality improvement and patient safety implications in terms of informing the design of continuing interprofessional education activities within the clinical context.
How lack of role clarity and insecurity hamper students’ readiness for Interprofessional Education in the Asian Context: A mixed methods study

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Background: Health services are generally provided in the form of collaborative services provided by various health professions. To prepare future health care professionals for this, interprofessional education (IPE) is recommended. IPE is a relatively new phenomenon in Asian countries. But a previous study reported that more than 50% of participants have poor readiness for IPE and tend to turn down this learning approach. The purpose of this study was to explore underlying reasons of students’ lack of readiness for IPE.

Summary of Work: Students of the final year students of medical (N=208), dentistry (N=44), nursing (N=99) and midwifery programs (N=47) of Sultan Agung Islamic University filled out the Readiness for Interprofessional learning (RIPL) questionnaire. Focus group discussions (FGDs) were performed with a selection of each professional group.

Summary of Results: 53% of students spread over all professions showed not to be ready for IPE. Focus Group results indicated that medical and dentistry students experienced lacking boundaries between health professional roles in Indonesia. Midwifery, nursing and dentistry students refused IPE because they were less confident to learn together with students of other health profession programs.

Discussion and Conclusions: In general, the problem of lack of clarity of role limitations and insecurity were some reasons to reject IPE that need attention and treated for IPE to be applied.

Take-home messages: To successfully implement IPE in Asian countries role un-clarity and insecurity amongst future health professionals needs to be tackled.

Enactments of Team Learning

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Background: Interprofessional practice is seen as a way to provide better patient care through collaboration, and shared problem solving. Yet, there is very little empirical data describing how organizational investments in collaboration relate specifically to team learning. We explored how the construct of team learning is used in day to day clinical practice at 3 different sites.

Summary of Work: We conducted 60 hours of observation across 3 sites (through 45 visits) and 40 semi-structured interviews with participating health care professionals. We also compiled an archive consisting of hospital text, posters, strategic plans etc which related to team function and interprofessional collaboration. We used critical discourse analysis to describe how values of collaboration are promoted across different clinical contexts specifically in relation to the construct of team learning. We then used theories of expertise to orient analysis to ways in which knowledge flowed between team members, and the ways in which expertise was enacted, negotiated and performed.

Summary of Results: The construct of team learning was pervasive and its enactment took many forms with important implications for team function: performance of professional role, reaction to crises, problem solving, strategic workaround, quality improvement, and clinical performance improvement. Participants labelled some dimensions as educational activity while other forms were perceived to constitute implicit aspects of team functioning. Knowledge flow was organized around notions of acuity and patient safety.

Discussion and Conclusions: Discourses of collaboration have expanded the way learning is rationalized and performed in clinical contexts.

Take-home messages: When thinking about how to support professional training in the work place, attention should be placed on dimensions of team learning that are not motivated by traditional educational objectives.
A structured framework of an interprofessional learning programme for the Health Sciences

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Background: Interprofessional education (IPE) often has no significant place in the education of health professionals. This could be due to lack of awareness. This paper outlines a framework showing how students might become competent in working together as healthcare teams.

Summary of Work: The framework is divided into three levels with progressive complexity of tasks. Level 1 is an introduction where students are informed of the objectives. This usually takes place in the early semesters. Level 2 focuses on co-operative learning via multiprofessional problem-based learning and the simulated wards by using clinically relevant cases that will likely foster transfer of learning. This is conducted in the middle of the course. Level 3 is experiential learning where students are in a work setting similar to the one in real practice such as a hospital/community with real patients. They plan, execute, gather the results, and reflect on the experience so they can reinforce and modify the way they would handle similar cases in the future. This is conducted in the last two years of the course.

Summary of Results: The students’ evaluation of the tasks was mostly positive. However, a full evaluation of the programme is yet to be conducted.

Discussion and Conclusions: The framework is structured on two concepts which are co-operative and experiential learning. The changed behaviour of the multiprofessionals when they practice and how such change can bring about better patient safety is yet to be proven. Nevertheless, the end point of the IPE programme is the ability of health professionals to perform their roles as a team in the patient care.

Take-home messages: A well-structured IPE programme can provide an opportunity and an imperative that each healthcare member contributes and is accountable for learning and participation for a greater common goal – better patient care.

Towards true pedagogical competence in health care – systems thinking for the future

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Background: Centre for Clinical Education (CCE) is a partnership between Stockholm County Council, Karolinska Institutet, and three university colleges in Stockholm. CCE has the overall responsibility for quality and coordination of clinical education throughout the healthcare system in the Stockholm County. Insufficient pedagogical skills have been identified among clinically active supervisors and a need for a more concerted action is warranted. Several hindering factors have been identified such as lack of a comprehensive plan and obstacles for individuals not being granted leave of absence for continuing professional development.

Summary of Work: To meet the needs CCE has developed a plan for the development of competences including a “pedagogic staircase”. The health system thinking addresses the issue as a complex adaptive system with flexibility. The model includes a web based introductory course, short courses “Stepping Stones” and a longer course at an advanced level (7.5 credit points). All courses are blended and integrated into the overall healthcare system.

Summary of Results: Several courses have been developed with an inter-professional approach. To date, approximately 900 teachers have completed our courses. Contextualized and tailor-made activities are placed locally in a clinical setting. The use of teachers from the CCE network ensures legitimacy and former course participants return to join the CCE network thereby contributing to a “cascade effect”.

Discussion and Conclusions: The identified need includes a teamwork approach, systems thinking and inter-professional activities bridging the gap between academe and health care.

Take-home messages: A structure for pedagogical competences in health care provides a basis for increased quality in clinical education.
Using Interdisciplinary Simulation to Teach Effective Management of Perioperative Emergencies: Development of Multi-station Linked Simulations to Decode Clinical Reasoning

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Background: Perioperative Emergency Management (POEM) is a 2-day course where 51 surgery, anesthesiology and emergency medicine junior trainees underwent simulated sessions in teams.

Summary of Work: Four interdisciplinary teams, each consisting of 5-6 surgery, anesthesia and emergency medicine trainees, a nurse, and a respiratory therapist managed a multi-trauma patient through linked simulated stations: 1) emergency room stabilization 2) difficult airway management 3) unstable patient in radiology 4) damage control surgery and 5) decompensation in ICU. After each station, trainees answered a survey explaining their clinical reasoning and proposed management plans. A surgeon and anesthesiologist then conducted a debriefing session.

Summary of Results: Trainees performed better in clinical reasoning related to their specialty. 63% anesthesia vs. 54% emergency vs. 41% surgery trainees scored highly in differential diagnosis of undifferentiated patients. 62% anesthesia and emergency trainees started massive transfusion early but only 52% organized damage control surgery and only 33% knew surgical hemothorax criteria. Conversely, 77% surgery trainees planned damage control and 82% knew surgical hemothorax criteria, but only 50% organized massive transfusion. Junior trainees also showed difficulty judging between patients who could be temporized vs. critically unstable patients. Overall, 95% of trainees felt interdisciplinary teams helped them learn from others, develop a systematic clinical approach, and better understand differing roles.

Discussion and Conclusions: The format of interdisciplinary sequentially linked simulation stations and pre/post station surveys encouraged trainees to commit to a management plan and explore their clinical reasoning. Debriefing sessions enabled trainees to deliberately reflect on their judgment and explore decision-making errors.

Take-home messages: Interdisciplinary team simulations helped trainees learn different skill sets across specialties.
Students reported increased interest in urology, and simultaneous interpreting teaching (P < 0.0001) overwhelmingly better satisfaction in groups using interpreting provides a convenient and helpful approach to enhance efficiency of cross-discipline education in clinical setting.

**2M1 (22249)**
Simultaneous interpreting of cross-discipline conference - Maximize education efficiency for medical students in urological rotation

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**Background**: One of the major challenges that medical students encountered in urological rotation is the comprehension of the discussions in the cross-discipline combined conferences, i.e. uro-radiology, uro-oncology-pathology conferences and research meetings. Students showed stress or low achievement in attending these discussions.

**Summary of Work**: We conducted a pilot teaching task by doing simultaneous interpreting for the students at the meeting events across 6 months. One of the urological faculty members volunteered to interpret to the microphone (with low volume) on the conversations between the discussers. Earphones were distributed to all students. When possible, the faculty interpreter also gave explanations of the rationale why the questions were raised and responses between faculty members. Students’ feedback was compared between cohorts with simultaneous interpreting teaching and traditional teaching.

**Summary of Results**: The feedback showed overwhelmingly better satisfaction in groups using simultaneous interpreting teaching (P < 0.0001). Students reported increased interest in urology, and became more motivated in self-directed learning, and more confident in patient-encounter. The outcome of the project has helped the department to adopt the facility to all students in urological rotation. Other departments are also interested in introducing the modality into their regular teaching settings.

**Discussion and Conclusions**: Simultaneous interpreting gives an opportunity to connect the teachers/facilitators and learners. Besides, immediate explanation to clinical queries diminishes the student’s barriers to construct the comprehensive concept maps.

**Take-home messages**: The use of simultaneous interpreting provides a convenient and helpful way for medical students to comprehend clinical discussions in cross-discipline conferences and research meetings.
2M3 (18826)
Aligning clinic with classroom, doing the flip, to teach less so they learn more
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Background: We have an increasing demand for clinical placements because of the mismatch between the growing number of medical students and the number of teaching practices. Most clinical rotations are full time but in the general practice setting, extending placements beyond 4 sessions a week, triggers teaching practices to resign; despite us selecting practices with high professional standards and interests in education and research. Workplace based training is an essential and valid way to develop clinical confidence, practical competence, and professional identity. How can we ensure that all the necessary learning outcomes are achieved when every student’s experience is different?

Summary of Work: We constructively aligned workplace and classroom experiences in multiple ways to amplify and resonate learning from clinical practice and expand on workplace based learning. The alignment included learning outcomes, set clinical, classroom and on-line activities, formative and summative assessments, within a flipped classroom. Which meant we could teach less and students could learn more. Students brought practice based clinical activities back to the classroom for dissemination, discussion and feedback. We grew a full time placement equivalent without increasing the burden on clinical workplace based teachers.

Summary of Results: Evaluation showed student approval rates between 70 and 90% for all activities; the average approval rate was 85%.

Discussion and Conclusions: Through employing a range of innovative methods we created a comprehensive, interesting, and experientially grounded learning experience.

Take-home messages: There are ways to expand the benefits of workplace based training, both on and off site. Constructive alignment works on multiple levels and helps to standardise experiences and improve student learning.

2M4 (21980)
How do medical students learn during the initial clinical years? Perceptions of students and clinical tutors
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Background: Teaching methods change considerably from the initial years to the clinical years of the undergraduate medical curriculum. Clinical learning occurs in complex and varied scenarios during the provision of patient care. Students have to adapt their learning approaches and strategies to be able to integrate theory and clinical practice and become experiential learners.

Summary of Work: The aim of this study was to compare the approaches used by medical students to learn during the initial clinical years, as reported by students themselves and by their clinical tutors. We performed eight focus group discussions with students enrolled in years three to seven (n=54) and we interviewed eight clinical tutors. Both focus group discussions and interviews were audio recorded, transcribed and analyzed according to Grounded Theory.

Summary of Results: Three main themes were identified in the discourse of both students and tutors: Strategies oriented to theoretical learning, strategies oriented to experiential learning, and strategies oriented to evaluation. In addition, students referred to strategies for integrating theory and practice. The mentioning of individual differences was present across the reports of both students and tutors.

Discussion and Conclusions: Students use a rich variety of approaches to face the challenges of clinical learning. Both students and tutors recognize that the learning approaches and strategies vary according the nature of the task and individual differences. The responses of students bring particular knowledge of the approaches used for the theoretical and practical integration and deeper into the social dimension of learning.

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2M5 (20888)
Promoting authentic clinical participation and student contributions to practice improvement

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Background: Clinical participation is more valuable to students, and to clinical hosts, if students contribute to patient care instead of merely observing practice or rehearsing skills. Understanding ethical research practice, critical appraisal and the clinical evidence-base are an important, and sometimes overlooked, elements of preparing students for professional practice.

Summary of Work: As part of a focus on evidence-based medicine students in our institution undertake a clinical audit. Previous research into learning and clinical experience has focused either on students or on the practice environment. We surveyed students and host units. 1. Did the student project support promote the development of attributes and skills in research? 2. Did the project enable students to contribute to patient care and practice improvement? Final year students and host clinical units completed a survey derived from curriculum statements and from the literature on research skills development. Responses were analysed within an experience based learning framework.

Summary of Results: Students’ descriptions of the project indicated they developed a sense of belonging and professional identity as an evidence-based practitioner, in keeping with the model of evidence-based learning. Host units willing to support students report that benefits in clinical practice improvement outweigh time costs.

Discussion and Conclusions: The strongest learning outcomes for students and benefits to the clinical unit arose when students’ projects were clearly relevant to the unit’s clinical practice and when students received sufficient educational and organisational support.

Take-home messages: Learning can be optimised within the demands of busy clinical units through curricular activities that promote authentic, relevant and legitimate participation in clinical practice.

2M6 (19746)
Pilot to explore the effect of service user “speed dating” upon reflective learning for diagnostic radiography students

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Background: A recent quality review of the diagnostic radiography degree identified the need to enhance service user input. One driver for this is the recent Francis report which resulted in an additional HCPC standard of education and training, stipulating the requirement to include service users in student training.

Summary of Work: Nine service users with experiences of imaging took part in a “speed dating” educational event. Each service user was given a numbered area to sit with 4/5 year 3 students. Students asked four key questions about the patient experience. Every 15 mins a bell rang and each group moved on to the next patient. Students were recombined into three groups to reflect upon the conversations, and devise changes to their future practice. Each group then presented their reflections to the service users.

Summary of Results: The “Speed dating” event highlighted issues not raised in Francis. Nearly all service users felt that radiographers defined them by their condition and not as a person. They commented that communication could be poor and patients required additional support in the alien environment of the ”X-Ray” department. Some examples of excellent practice were given as exemplars.

Discussion and Conclusions: Students and service users enjoyed this innovative way of meeting outside of the clinical environment, and both valued the opportunity to reflect on experiences. Students formulated changes in future practice to enhance the patient experience.

Take-home messages: Incorporation of service users into the training of health care professionals is an essential aspect and it can be achieved in a novel, relaxed way using the “speed dating” format.
Using of cell phone photos for rectal prolapse diagnosis as an educational method

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Background: One of the challenges in medical education is integration of training and giving care. Respect for individual autonomy is a principle, based on the premise that no human being can be used merely as a means to achieve a goal so assuming the patient as a means is disregard the principle. One of the most challenging clinical situations is visual inspection and anal region examination of children in a teaching clinic. In this research, mobile photography by parents is used as a reliable and stressless method.

Summary of Work: From September 2008 to September 2011, 142 parents attended complaining of something protruding from their child’s anus during defecation. After a complete history taking and ensuring that there are no emergency problems, because of psychological trauma and refusal by older children, the parents were asked to take photos by cellphone when the child was defecating and the lesion was protruding from the anus. Demographic data, clinical examination, photographs and the results of diagnostic tests were recorded.

Summary of Results: 125 photos were taken and brought in. In all cases a prolapsed rectum was confirmed. The pathologies diagnosed included 49, 31, 8, and 12 cases as prolapsed rectum, hemorrhoids, rectal polyp and sentinel skin tag, respectively. A survey was conducted and 94.6% of students agreed this diagnostic method is considered suitable for teaching medical ethics and patients’ rights. 90.7% of the parents of the patients expressed satisfaction.

Discussion and Conclusions: For medical ethics and respect for human dignity and non-imposition of stress and psychological trauma, in a child with a complaint of protrusion during defecation, after determining no emergency situation, mobile photography by parents is recommended, rather than viewing it and DRE.

Take-home messages: Using available technology, education and clinical services can be optimized.
2N1 (20636)
Personal and professional mindsets of medical students participating as mentees in an institutional mentoring program

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Background: Primary goals of the voluntary mentoring program of the Medical University of Vienna for medical students are to support their professional and personal development and to foster their career opportunities. Participating students may differ from non-participating colleagues in basic personal and professional mindsets.

Summary of Work: During spring 2013 a cross-sectional questionnaire-based survey assessing medical students from all academic years was conducted. Participation was voluntary and anonymous (total n = 1344; 20.7% mentees of target group). The survey asked for socio-demographic background variables, students’ academic achievements (grades so far), and validated questionnaires on self-efficacy, self-esteem, motivation, hope, and involvement in social groups.

Summary of Results: Binary logistic regression revealed that the following variables were significant predictive for mentee status (Nagelkerke’s R² = .07): high academic achievement (p < .001), high intrinsic motivation (p < .01), female sex (p = .01) as well as low perceived psychological distress and less hope (p = .05). Extrinsic motivation, self-esteem, academic self-efficacy, professional identity and engagement in social groups were no significant predictors in the multivariate model.

Discussion and Conclusions: Signing up as a mentee in a formal mentoring program is associated with female sex, high academic achievement, high intrinsic motivation, less hope as well as low perceived psychological distress.

Take-home messages: Designers of voluntary mentoring programs for medical students should be aware that a selected group of students might be attracted.

2N2 (21879)
Using a peer supervision and mentoring model in the supervision of final year medical student placements in the Solomon Islands

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James Fink, Bond University, Faculty of Health Sciences and Medicine, Gold Coast, Australia

Background: Makira Island in the Solomon Islands has a population of over 41,000 people, which in 2013 was serviced by one doctor, who worked in the hospital and travelled to remote sites, supported by highly skilled nursing staff. The capital Kira Kira is a very impoverished community with no formal governance structure, poor infrastructure and a large variety of public health issues that lead to fascinating medicine.

Summary of Work: In 2013 Bond University’s School of Medicine in Australia commenced 5th year medical student placements at Kira Kira Hospital, with 33 students participating. At times there was little if no direct medical supervision of the students by a medical practitioner.

Summary of Results: As a result of this an interesting model of ‘peer supervision and mentoring’ developed whereby the students worked in pairs and consulted and learnt together, checking in with their nursing colleagues at regular intervals.

Discussion and Conclusions: These placements were evaluated in the later part of the year. This paper will present the findings of the evaluation and the peer mentoring and supervision model that emerged.

Take-home messages: An innovative peer mentoring model of distance supervision has been developed in a third world country.
**2N3 (20914)**  
**Challenges faced by rural origin health science students across three South African Medical Schools: A focus on support**

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**Background**: There is a vast body of literature that suggests those students most at risk for drop out, or non-persistence, are students from disadvantaged backgrounds, students whose language for learning is not their mother-tongue and students who enter the tertiary education sector ill-prepared academically due to the existing disparities in the primary and secondary levels of education. Also a student who feels alienated, alone and unsupported is at high risk for “non-persistence” or drop out. Thus in order to improve retention it is essential to ensure students feel supported, included and socially integrated at university. The focus of this paper is on the support required and accessed by rural students.

**Summary of Work**: Health science students from three SA universities in their first and final years of study completed self-administered questionnaires. Students identified themselves as either of rural or urban origin in the questionnaires. Data were analysed according to those two categories. Quantitative data were entered into Epidata and analysed using SPSS whilst qualitative data were analysed thematically.

**Summary of Results**: Rural students report requiring support to overcome the following challenges: the language of teaching and learning, computer literacy and other technological issues, and financial constraints. Support is accessed from teachers, family and friends, and religious communities, in a similar way to urban students. However peer mentors were considered less supportive unless they too shared a rural background.

**Discussion and Conclusions**: Students from rural backgrounds access support from various sectors but rely most on peers who know and understand their context, family and the broader community “back home”. It is important for universities to consider the type and nature of support students need in order to address gaps in support programmes.

**Take-home messages**: Universities should consider ensuring student support is relevant particularly for disadvantaged students.

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**2N4 (18593)**  
**Using Learning Styles to Advance Interprofessional/Collaborative Learning in Healthcare Education**

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**Background**: Learning and Personality Style inventories have been around for years. However, their measurement and subsequent application to learning is often difficult and rarely successfully utilized in interprofessional/collaborative learning in health care. In an effort to simplify the process for educators and students, the author created the “Four Seasons” Inventory and workshop.

**Summary of Work**: “Four Seasons” identifies preferred styles and helps ensure that instruction reflects the learning needs of all students in whole task integrative curricula. We know from the literature that traditional lectures are the preferred pedagogical method for less than 40% of students. The “flipped classroom” increases that number but the most effective faculty will use the keys that maximize learning for all.

**Summary of Results**: "Four Seasons" has been used with over 2,000 dental, medical, PA, Audiology, OT and PT students in their initial orientation. Participation of faculty has led to more effective instruction and better retention of knowledge by students.

**Discussion and Conclusions**: This easy to use, non-proprietary, instrument assists in individualizing instruction, recognizing learning preferences of faculty and students, and improving interpersonal communication.

**Take-home messages**: To be most effective in healthcare education, we need to understand and apply multiple teaching methodologies to both meet individual needs and make interprofessional/collaborative learning successful. Here is a researched foundational piece to move in that direction.
2N5 (18648)
Relationships between learning strategies, stress and study success among first-year veterinary students during an educational transition phase

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Background: The major challenges facing new veterinary students include the new type of subject matter and dissonance between their preferred learning strategies and the perceived demands of the new instructional environment.

Summary of Work: We investigated with a questionnaire the relationships between stress, learning strategies and study success among first-year veterinary students at the very beginning of their studies.

Summary of Results: Participants with prior university credits did not have significantly better test scores, but they achieved the learning goals with significantly less stress than other participants. Previous experience not only helped students to adjust to a new type of course content, but also to cope with the stress experienced from concurrently running courses.

Discussion and Conclusions: Our results showed that young students with few previous university studies may be overwhelmed by the concurrent courses and the entirely new subject matter, leading to a fear of achieving a low test score. With the increasing stress, many students appear unable to modify their learning strategy to suit the demanding university studies. Variation between students in prior knowledge and academic self-beliefs influences student achievement and should be taken into account in course instruction.

Take-home messages: Learning experiences during the educational transition phase from secondary school to veterinary education may influence the student’s performance throughout the curriculum.

2N6 (20806)
Meeting Challenges in Providing Academic Support to Medical Students and Residents: The Cognitive Skills Program at Rutgers Robert Wood Johnson Medical School

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Background: Supporting student/resident learning to master large amounts of material in relatively short time, pass licensure/certification board exams, and acquire lifelong learning skills is an essential goal in medical education. Developing/sustaining appropriate services for student/resident success raises many possibilities and challenges, including faculty/staff hiring and training, funding, and attracting students/residents to seek services.

Summary of Work: The Cognitive Skills Program (CSP) offers a 25-year unique perspective for meeting challenges in developing/enhancing programs of academic support. Based upon research findings of cognitive and educational psychology, services are customized to meet individual needs. Focus is to promote effective and efficient skills for lifelong learning, to remediate struggling learners, and to prepare them for licensure/certification board exams. Services include seminars, small group peer-taught content reviews, and individual consultation by educational/cognitive psychologists with knowledge of medical education. Early intervention and self-reflection are emphasized. Strategy training is embedded in basic science and clinical learning.

Summary of Results: Program evaluation demonstrates consistent use by a high percentage of students: In 2012-13 individual consultation was provided to 288 students (978 hours), with students rating individual sessions very helpful or helpful. Students attending peer-lead content review sessions all rated them excellent to good. Faculty who provide academic support are fully integrated into the medical school and consistently receive high student ratings.

Discussion and Conclusions: The CSP has successfully navigated through many challenges to become a model academic support program.

Take-home messages: Providing quality academic support services, and removing the stigma from accessing this support, is a key to a successful program.
To what extent can cognition explain why some trainees experience difficulty in training?

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Background: The majority of trainee doctors successfully complete their training on time; however, there are a small number who experience difficulty. The cost of medical training is substantial; training in general practice in 2012 being estimated at £498,489 (Curtis, 2012), so those who experience difficulty can present significant costs for Local Education and Training Boards (LETBs). It is therefore important to accurately identify individuals who experience difficulty and to provide support to address their areas of need. In order to successfully achieve this it is imperative to identify the potential causes of difficulty for trainees and to establish effective interventions.

Summary of Work: One suggested cause of trainee difficulty is cognitive difficulties. Data were analysed for 171 trainees who as part of an Educational Psychology assessment completed the Wechsler Adult Intelligence Scale (WAIS), a well-established measure of cognitive abilities.

Summary of Results: A number of cognitive difficulties were found within this group of trainees, showing a complex profile. Of the four subscales measured by the WAIS, overall trainees performed lowest on working memory and processing speed subtests. Generally trainees were performing within the average range of intellectual functioning, which is significantly lower than would be expected based on previous research findings.

Discussion and Conclusions: Cognitive difficulties could explain trainees’ experience of performance problems. Lower scores within working memory and processing speed are likely to prevent individuals from effectively managing material and conveying this in an effective manner.

Take-home messages: The assessment of cognitive difficulties in trainee doctors is important to develop a deeper understanding, and to provide targeted support for these individuals.

Trainees in difficulty: A qualitative interview study about personal narratives and workplace atmosphere related to difficulties in postgraduate medical education

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Background: 3-10 % of doctors in postgraduate specialist training can be termed trainees in difficulty or problem residents, struggling to comply with educational requirements. From research we know that stress, insecurity, lack of time, lack of mutual expectation, and lack of role clarification are key sources when a trainee experiences difficulties.

Summary of Work: 10 qualitative semi-structured interviews with Danish trainees in difficulty were conducted. The interviews took the trainees’ narratives about the above mentioned key sources as starting point.

Summary of Results: The results show that trainees experience stress, insecurity, lack of time, lack of mutual expectation, and lack of role clarification as sources influencing their difficulties, hence the conducted interviews support previous research. However, these sources seem to be intertwined in different ways dependent on the trainee’s life history and specific contextual circumstances. Furthermore, the results show that the atmosphere (“stimmung”) and the organizational climate at the workplace are highly influenced by the senior doctors. The trainees in this study had no difficulty working long hours and in stressed situations as long as their work was positively acknowledged and properly supervised by the senior doctors.

Discussion and Conclusions: The problem area of trainees in difficulty seem to involve an educational culture and organizational climate marked by stress, insecurity, lack of time, lack of mutual expectation, and lack of role clarification. Positive acknowledgement and proper supervision by the senior doctors seem to reduce and remedy the trainees’ experiences of difficulties.

Take-home messages: The complexity of this study’s narratives about trainees in difficulty calls for flexible solutions as well as organizational initiatives.
203 (20483)

Struggling doctors in specialist training: A case-control study

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Background: Recent meta-analyses have found small-moderate positive associations between general performance in medical school and post-graduate medical education. In addition, a couple of studies have found association between poor performance in medical school and disciplinary action against practicing doctors. The aim of this study was to examine if strugglers in specialist training in a Danish context tended to struggle already in medical school, and to determine which/if administratively observable performance indicators in medical school could predict struggling in residency.

Summary of Work: The study design was a cumulative incidence matched case-control study. The source population was all active specialist trainees in 2010-June 2013 in two Danish regions, who were graduates from Aarhus University. Cases were doctors who decelerated, transferred, or dropped out of residency. Cases and controls were matched on graduation year. Medical school exam failures, grades, completion time and academic dispensations as predictors of case status were examined with conditional logistic regression.

Summary of Results: Eighty-nine cases and 343 controls were identified. The total number of medical school re-examinations and the time it took to complete medical school were significant individual predictors of struggling in residency. Restriction of range due to medical school dropout may make predictors such as medical school grades and academic dispensations less useful.

Discussion and Conclusions: Knowledge of selected performance indicators could be used constructively in discussion with the resident to tailor and plan a smoother transition to residency, and to support residents in areas of weaknesses.

Take-home messages: The results suggest that the existing culture of ignoring past academic performances in residency is not warranted.

204 (21181)

Can personal attributes explain why some trainees experience difficulty in training?

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Background: The UK National Association of Clinical Tutors (NACT) argues that poor performance in medical students may not always be the result of the trainee lacking the requisite competencies, skills and knowledge required for success in training. Instead they suggest that it may be due to one or more other factors, especially interpersonal behaviours and attitude towards patients and colleagues (Kell, 2012). This study investigated the effects of personality and personal attributes of doctors who are experiencing difficulties in training.

Summary of Work: Differences were explored in personal traits and attributes between GP Registrars (GPRs) referred for an intervention on ‘Patient-Centred Consulting’ due to low scores in empathy, sensitivity and communication skills, with a group of GPRs who were not referred. Previously validated assessments were completed in personality, and occupational and emotional self-efficacy.

Summary of Results: In comparison to GPRs who has not been referred for an intervention it was found that the GPR intervention group had significantly higher scores on Emotional Stability and on Conscientiousness. The intervention group had significantly lower scores on Occupational Self-Efficacy and Trait Emotional Intelligence (or Emotional Self-Efficacy).

Discussion and Conclusions: Low self-efficacy and emotional intelligence may be an important causal factor in identifying trainees who are more likely to experience difficulties during training.

Take-home messages: Early identification of trainee doctors with low self-efficacy and/or emotional intelligence is important in helping to ensure these individuals receive appropriate interventions to aid their development.
Trainee in difficulty: A narrative inquiry about mismatching expectations and the lack of collegial network

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Background: 3-10% of doctors in postgraduate specialist training can be termed trainees in difficulty or problem residents, struggling to comply with educational requirements.

Summary of Work: A narrative single case study was chosen as being exemplary of 11 conducted qualitative interviews with trainees in difficulty. The study was based on a social constructionist conception of narrative theory which holds that storytelling is integral to the understanding of the trainees’ personal experiences of educational culture.

Summary of Results: Alice (anonymous trainee in difficulty) has had an unproblematic way through medical school and internship. In her early specialist training, Alice has high expectations of a good educational culture, but she experiences an overpowering workload, an unsupportive atmosphere, and uncertainty about her own role and the department’s expectations for her. Her collegial network is limited, although she is generally a sociable person. Alice faces a number of critical incidents each contributing to a growing fear of clinical responsibility. In a specific critical incident she feels unprepared and insufficiently trained, so she calls for another doctor to take over, goes to her leader, and announces her indefinite sick leave. Later she tries employment in other specialties without completing.

Discussion and Conclusions: The narrative of Alice shows that her difficulties as a trainee were closely connected to an educational culture lacking in defined expectations and an absent collegial network.

Take-home messages: A collegial network that compensates for critical incidents and defined mutual expectations between trainee and workplace may prevent trainees from ending in difficulties.

Identifying and addressing special needs of trainees who fail their vocational training OSCE (FRACGP exam)

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Background: In 2012, GP Synergy reviewed performance data of Registrars in the RACGP fellowship exam over several years. We identified the following difficulties in registrars who had repeatedly failed the OSCE:

− Communication difficulties,
− Lack of insight about clinical and consultation techniques,
− Clinical reasoning problems,
− Personality/attitude factors affecting consultation skills, and
− Exam performance anxiety.

Most of the registrars in this group were International Medical Graduates.

Summary of Work: The registrars completed a self-assessment grid, a script concordance testing questionnaire and we used role playing to assess areas of need. We then developed a unique and individualised program to improve OSCE performance.

Language, accent and performance coaching was facilitated by an actor with speech and language training. A General Practitioner with mental health expertise conducted sessions on coping with performance anxiety during exams. ‘Friday study group’ sessions were held fortnightly in our simulation room. Each session concentrated on an identified consultation problem, using video debriefing and case role plays. The Registrars had activities to complete and received feedback from medical educators and peers.

Summary of Results: The effectiveness of the program was evaluated using pre and post participant questionnaires and exam outcomes. Nine registrars have participated in the program to date. Six have passed the OSCE. Four of the nine registrars participated in the language/performance and performance anxiety sessions. Three of these completed the OSCE successfully.

Discussion and Conclusions: If exam performance is improved, we will recommend implementation earlier in training for registrars at risk.

Take-home messages: Problems with language, performance skills and performance anxiety can affect exam consultation skills.
Exploring the emotional talk of trainers and junior doctors during their narratives of assessment and feedback experiences

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Background: Literature suggests emotion influences students’ assessment and feedback (AF) experiences. However, there is a dearth of literature exploring the role of emotion from a trainers’ perspective although other sources such as the failure-to-fail literature suggest emotion may be important to AF outcomes. This study compared the emotional talk of trainers and junior doctors when recalling AF experiences.

Summary of Work: Secondary data analyses were conducted on data exploring trainers/junior doctors’ AF experiences in the workplace across 3 UK sites. Personal incident narratives (PINs) from 110 individuals were analysed using a validated text analysis tool (Linguistic Inquiry and Word Count, LIWC) to process the emotional talk. Statistical analyses investigated differences between trainers and trainees.

Summary of Results: Within the data, 96.3% of the PINs contained emotional talk. The use of positive emotional talk was more common (92%) than negative emotional talk (71%). There was no significant difference between trainers’ and trainees’ narratives in terms of positive (Trainee, Mdn = 1.64, IQ = .91-2.35; Trainer, Mdn = 1.43, IQ = .88-2.09; z = -1.44, p > .05, r = -.07) or negative emotional talk (Trainee, Mdn = 0.37, IQ = .0, .83; Trainer, Mdn = .51, IQ = .21,.97; z = -1.67, p > .05, r = -.09).

Discussion and Conclusions: These findings highlight that both junior doctors and trainers use positive and negative emotional talk when narrating their AF experiences.

Take-home messages: Understanding the role of emotion during AF experiences may provide further insight into issues such as trainers’ failure-to-fail underperforming trainees.
How does the teaching of a structured tool for communication within and between teams contribute to student learning? A Best Evidence Medical education (BEME) systematic review

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Presenter: Sharon Buckley*, University of Birmingham, Birmingham, United Kingdom

Background: Recent prominent cases of poor patient care and compromised patient safety have highlighted the importance of good communication within and between health care teams. In response, standardised forms of communication, such as Situation Background Assessment Recommendation (SBAR) are increasingly used in practice and taught to trainee health care professionals. We have undertaken a BEME systematic review to consider how the teaching of such ‘tools’ contributes to student learning in the pre-registration setting.

Summary of Work: Our review has explored the range of tools currently taught within pre-registration curricula, the teaching methods employed and how such teaching influences students’ knowledge, skills and attitudes. Our definition of ‘team’ encompasses the different types identified by the ‘TeamSTEPPs’ programme (1) and our definition of a ‘structured tool’ encompasses any systematic approach to communication that is taught to students in order to enhance their ability to communicate effectively within or between professional teams. We are particularly interested in how such teaching varies with profession and how far it takes place within the context of interprofessional education (IPE). We have used review management software to assist in the coordination of our screening and data extraction.

Summary of Results: To date, we have identified approximately 35 articles that meet our inclusion criteria.

Discussion and Conclusions: Our review is nearing completion. This presentation will focus particularly on our approach to evidence synthesis and our preliminary findings, including recommendations for the further development of this aspect of patient safety teaching.

(1) Team STEPPs portal Available at: http://www.teamsteppsportal.org/ Accessed 24 02 14

STructured apprOach to the Reporting In health Education of evidence Synthesis: The STORIES Statement

Morris Gordon*, Trevor Gibbs*

Background: Significant heterogeneity in techniques and reporting in healthcare education systematic review exists and limit the usefulness of such reports. The aim of this project is to produce a statement that offers a guide for reporting evidence synthesis in health education for use by authors and journal editors.

Methods: A review of existing published evidence synthesis consensus statements was undertaken and all common items extracted. A modified Delphi process was undertaken. In stage one, participants were asked to review the common items, suggest relevant supporting texts and finally specify any items they feel should be included. These were refined through two more stages.

Results: The final statement contains several items of evidence synthesis reporting guidance unique to this context, including description of relevant theoretical constructs, description of qualitative methodologies with rationale for their choice and presenting the implications for educators in practice.

Conclusions: An international expert panel has agreed upon a consensus statement of 25 items for the reporting of evidence synthesis within healthcare education. This statement can be used for those writing for publication and reviewing such manuscripts to ensure reporting supports best informs the wider healthcare education community.
2P3
What are the features of interventions that affect diversity in health professions trainees? A BEME systematic review

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Background: There is a growing movement to increase diversity in health professions trainees given the evidence that students from under-represented populations will serve either their own or other under-resourced communities in greater proportion than those from well-represented populations. Thus interventions have been designed to increase diversity within health professions schools. No review or synthesis of these interventions has been completed. Systematic evaluation of interventions aimed at increasing diversity is necessary to allow appropriate targeting of the existing resources and to guide the successful development and implementation of future initiatives.

Objectives: We aim to perform a systematic review of the literature to determine the impact of interventions designed to increase the recruitment of under-represented populations by health professional schools. The results may be used by health professions education policy makers and program designers to select and implement more effective interventions.

Methods: The research question, inclusion criteria and study methods were developed iteratively through the use of pilot searches and protocols resulting in the submission of a protocol to BEME for peer review. A complete literature review of interventions to increase diversity in health professions trainees and initial screening has been performed.

Conclusions: This presentation will discuss the process of research question and protocol development as this review builds on experience from four prior reviews and an iterative pilot process. Results from initial work will be presented.

2P4
A BEME systematic review of undergraduate medical education in the UK general practice setting

Sophie Park*

Background: UK medical schools deliver 10-15% of their undergraduate curriculum in general practice at a cost of £100 million per year. This study aimed to systematically identify, summarise and synthesise empirical research evidence about delivering undergraduate medical education in the UK general practice setting.

Methods: We searched databases using terms relating to general practice and medical education. Studies about undergraduate medical education in UK general practice were included. We produced a descriptive synthesis summarising all papers as well as 2 in-depth syntheses producing: 1) a synthesis of quantitative papers using comparators and objective outcome measures and 2) a meta-ethnography of qualitative papers.

Results: Database searches retrieved 12,477 records for title and abstract screening. Of these, 169 papers were included in the review. A wide range of learning activities across different specialties are taught in general practice placements. Medical students learned clinical skills as well or better in general practice as in hospital settings, and received more teaching and feedback from general practice tutors compared to hospital tutors. Patient satisfaction and enablement is not affected, but patients experience lower relational empathy with their GPs when a student is present in their consultation. Students need support negotiating transition across learning spaces. GPs have a powerful role as a broker of the interactions between patients and students, and as transient members of the learning community, the role and involvement of patients requires careful facilitation.

Conclusions: We will discuss the findings of this systematic review and potential implications for policy, teaching and future research.
2P5

Communities and medical education: rummaging around in Pandora’s box

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Catherine Cervin, Northern Ontario School of Medicine, Canada

Background: the relationships between medical schools and communities have long troubled and inspired medical education programs. Successive models of community-oriented, community-based and community-engaged medical education have promised much and delivered to varying degrees. There is a highly diverse literature on how these relationships should and do work. In essence, a lack of clarity regarding existing models and approaches, whether they work at all or work only in particular contexts. A BEME-registered realist systematic review was designed and executed to explore, synthesize and explain the evidence on the ways that medical schools and communities can interact.

Summary of work: the study was designed as a two-armed review; one using standard outcomes criteria based on Kirkpatrick levels, the other a realist review seeking to explain the contexts, mechanisms and outcomes identified in the literature. 334 articles were reviewed in the realist arm and 181 in the outcomes arm. Our 38 reviewers used a purpose-built online tool that allowed the review process to be monitored and data extracted on demand. Reviewers completed 489 realist reviews and 271 outcomes reviews. Synthesis explored a series of components that were then combined in a second synthesis round.

Discussion: we found that there was little consistency in terminology, methods, theory, reporting standards or outcomes across the existing literature. Moreover, the majority of papers were descriptive or aspirational with little empirical work demonstrating the efficacy of processes or relationships. We will present recommendations for the future conduct of scholarly inquiry into the relationships between medical education and communities.

2P6

Year 2 of a systematic review of the effectiveness of methods used to develop research skills in UG medical students: what have we learnt?

Jon Issberner*, School of Medicine, University of St Andrews, United Kingdom
Anita Laidlaw
Rachel Davies
Alun Hughes
Mairi McKinley
Calum McHale
Vicki Cormie
Simon Guild

Background: We are in the second year of writing a BEME systematic review which aims to assess how effective published undergraduate educational interventions are at improving research skills in medical students. The aim of this talk is to reflect on the process thus far, and to suggest some potentially good practice for the future.

Summary: Critical stages in the review process so far have included: deciding what type of review to undertake (realist synthesis or a more empirical systematic approach), developing the search strategy, honing the inclusion/exclusion criteria, ensuring consistency between reviewers in applying inclusion exclusion criteria, and defining precisely terms used during data extraction.

Summary of experiences and adaptations: 1) The review group represents a variety of research backgrounds and experience which has been both advantageous and problematic. 2) The initial title screening was carried out by members of the review group working in pairs. To ensure this screening was consistent each sub-set of titles was seeded with the same 20 titles to ensure consistency of practice between pairings. 3) Due to the diversity in training within the group a precise glossary of the terms used in the data extraction sheet was constructed and agreed upon by the whole group. 4) To assist the process of data synthesis, a relational data base is under construction which will allow comparisons between data sets to be made with relative ease.

Conclusions: Our reflections on the process thus far have suggested that if the review group is large and heterogeneous in research background and experience, it is imperative to precisely define terms used in inclusion/exclusion criteria for the initial title screening and for data extraction.

Take home message: Consistency of practice between group members can and should be measured and maintained. If steps are taken to ensure this from the start of the process, the whole experience will run much more efficiently.
**2Q  CONFERENCE WORKSHOP:**
*Trainee Workshop: Transitioning from Learner to Teacher (22723)*
Location: Workshop Room 1, Level 0, MiCo

**Rille Pihlak**, European Junior Doctors, Department of Emergency Medicine, Tartu, Estonia
**Robbert J Duvivier**, Foundation for Advancement of International Medical Education & Research (FAIMER), Department of Emergency Medicine, Philadelphia, United States
**Matthew J Stull**, University of Cincinnati College of Medicine, Cincinnati, United States

**Background**: As trainees enter their final years of formal medical education, either as a senior student or junior doctor, their roles change from strictly learning to balancing it with educating others. This workshop will introduce learners to ways to build on their experiences as students to transition to the role of the educator. As we reflect we can quickly recognize effective experience and those that could bear improvement. This workshop will serve as an introduction to the practical aspects of teaching in the classroom and at the bedside by evaluating experiences that the trainee had as a student and applying best practices to enhance their future as a teacher.

**Intended Outcomes**: participants will:
- Identify one area they intend to improve on in their teaching based on previous experiences.
- Develop at least 1-2 practical ways that will improve their teaching.
- Highlight future opportunities and tools that can be utilized to help with the transition.

**Structure**: The workshop will use small groups to identify learning experiences in the participants’ past. The groups will then discuss ways to optimize those experiences using basic best practices, such as the one minute preceptor model for bedside teaching. Facilitators will help guide the small groups to set goals for their own teaching to enhance their practices for when they return home. Finally, facilitators will help highlight paths that these transitioning medical educators can take, especially emphasizing opportunities through medical education organizations, such as AMEE.

**Who should attend**: Medical students, junior doctors, young educators (by age or experience) and others interested in the topic.
**Level**: Introductory

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**2R  CONFERENCE WORKSHOP:**
*Debriefing after simulation based training of teams – How to stimulate reflection on individual and team skill (22651)*
Location: Workshop Room 2, Level 0, MiCo

**Doris Østergaard**, Capital Region of Denmark, Danish Institute for Medical Simulation, Herlev, Denmark
**Debra Nestel**, Monash University, Melbourne, Australia
**Peter Dieckmann**, Capital Region of Denmark, Danish Institute for Medical Simulation, Denmark
**Barry Issenberg**, Michael Gordon Centre, Miami, United States
**Daisy Rotzoll**, University of Leipzig, Germany
**Hyon Soo**, Yonsei University, Republic of South Korea

**Background**: The use of simulation-based training with multi-professional teams for the acquisition of medical expertise is increasing; they include skills and non-technical skills such as situation awareness, decision making, team working and leadership skills. This type of training is typically followed by a feedback or debriefing session, that often includes the use of video recordings. Research has demonstrated significant impacts of debriefing and feedback on learning following simulation-based training. Providing effective debriefing and feedback requires expertise. The debriefing usually follows a certain structure: a description phase, an analysis phase and an application phase. A specific questioning technique is used to obtain an understanding of the learners’ frames (the reasons) behind the actions. Feedback is thus given based on this understanding. Most of the speaking is done by the learner to facilitate the learners reflection of own skills in the simulated setting. Debriefing of multi-professional teams is especially challenging as the level of competence in the team might vary considerably. The time to focus on each participant is limited.

Effective transfer of lessons learned to the clinical setting and to other teams is another challenge that will be discussed in this workshop.

**Intended Outcomes**: Understand the benefits and the challenges of debriefing the multi-professional team

**Structure**: Short presentation, group exercise, debriefing of roleplaying team based on video examples.

**Who should attend**: Educators involved in postgraduate simulation based training.
**Level**: Intermediate
2S  CONFERENCE WORKSHOP:  
Empowering the 21st Century Scholar: 
Fostering Global Collaboration and 
Innovation (19368) 
Location:  Workshop Room 3, Level 0, MiCo

Janette Samaan*, Association of American Medical Colleges (AAMC), Global Health Learning Opportunities, Washington, D.C., United States

Chris Candler*, Association of American Medical Colleges (AAMC), Medical Education, Washington, D.C., United States

Mary Beth DeVilbiss*, Association of American Medical Colleges (AAMC), Academic Medicine, Washington, DC, United States

Robby Reynolds*, Association of American Medical Colleges (AAMC), Medical Education Online Programs, Washington DC, United States

Anne Farmakidis, Association of American Medical Colleges (AAMC), Academic Medicine, Washington DC, United States

Pablo González Blasco, SOBRAMFA – Medical Education & Humanism, Scientific Affairs, São Paulo, Brazil

Background:  In this complex digital age, sifting through all of the resources and tools is a challenging prospect for the busy clinician and teacher. The Association of American Medical Colleges (AAMC) offers a wide array of teaching resources and scholarship freely available for the medical education community. Using a case study model, Dr. González Blasco will demonstrate how he has utilized, and contributed to, AAMC resources in his collaboration and scholarship on the topic of accessing emotions in medical education through movies, opera and music. Experiential learning will be incorporated in this workshop through exposure to the use of the arts and during the table exercise when participants will use laptops and mobile devices to explore AAMC’s peer-reviewed publications Academic Medicine and MedEdPORTAL, and the Global Health Learning Opportunities (GHLO) Collaborative. Participants will become familiar with these resources and learn more about how they can be used to advance global collaboration and scholarly activities.

Intended Outcomes:  By attending this session participants will:

1) Become familiar with AAMC peer-reviewed on-line medical education research, curriculum and assessment tools.

2) Be provided with guided hands-on experience exploring the highlighted resources.

3) Learn about the Global Health Learning Opportunities (GHLO)’s resources for faculty engagement in the international faculties of medicine network

4) Learn from an international user and contributor about the process of accessing AAMC resources, using performing arts to teach medicine.

Structure:  Overview of AAMC Resources and Services, Case study: Using cinema and opera to develop empathic physicians, table exercise: hands-on exploration of AAMC resources and international engagement program, discussion and questions.

Who should attend:  Faculty members, medical education deans, department chairs, international / global affairs officers, undergraduate or post-graduate students, researchers, and research center staff or directors.

Level: Introductory

2T  CONFERENCE WORKSHOP:  
Clerkships: Assessing if they are effective learning experiences (21696) 
Location:  Suite 9, Level Mezzanine, MiCo

Danette W. McKinley*, FAIMER, Research and Data Resources, Philadelphia, United States

Jon Dowell*, University of Dundee School of Medicine, Research and Data Resources, Dundee, United Kingdom

Georgette Dent*, University of North Carolina School of Medicine, Chapel Hill, United States

Alice McGarvey*, Royal College of Surgeons in Ireland, Dublin, Ireland

Agostinho Sousa*, IFMSA, Portugal

Background:  While students have generally positive responses to clerkships, evaluating learning during these experiences can be challenging. The purpose of this workshop is to identify challenges and opportunities associated with determining the quality of medical students’ clinical experiences in various disciplines. Are there ‘universal’ criteria that can be used to assess the effectiveness of these experiences? 

Intended Outcomes:  Workshop facilitators and participants will examine and suggest resolutions for issues that emerge when managing clinical experiences, generating insights from both faculty and student perspectives, concluding with a summary and resource exchange if appropriate.

Structure:  Short presentations by those with expertise in evaluation of clerkship experiences will be interspersed throughout a highly interactive session involving breakout sessions, brainstorming, large group discussions and debate facilitated by panel members. Workshop participants will be invited to discuss their own practices and identify issues and solutions associated with evaluation of learning during clerkships.

Participants will be invited to interact to identify issues/solutions to the following topics:

- How should the quality be judged?
- What process(es) facilitate(s) recognition?
- What role should students play in evaluation?
- What role should host schools play in evaluation?

Who should attend:  Faculty and students interested in clerkship evaluation. Students are highly encouraged to attend.

Level: Intermediate
**Background:** As interest in the role of self-directed learning increases, more attention is called for to become conscious and strategic in how to develop solid CPD portfolios. Coaching can be an invaluable tool in helping health professionals self-assess, set goals, establish learning plans and evaluate outcomes. This workshop will describe a simple approach to coaching, offer practical skills and discuss the differences between mentor and coach.

**Intended Outcomes:** Participants will be able to:
- Define the difference between coaching and mentoring,
- Identify the benefits and challenges of coaching,
- Practice a simple model of coaching,
- Discuss application to their individual practices.

**Structure:** The workshop is experiential and will include short presentations, the opportunity for short skills exercises and application to practice.

**Who should attend:** The workshop is open to participants interested in the actual and potential role for coaching within the field of CPD. Undergraduate and postgraduate applications will not be addressed.

**Level:** Introductory
2W  CONFERENCE WORKSHOP: The Use of Virtual Patients to Promote Interprofessional Learning (22885)
Location: Suite 6, Level Mezzanine, MiCo

Luke McGowan*, Peninsula College of Medicine and Dentistry & Plymouth University Peninsula Schools of Medicine and Dentistry, Technology Enhanced Learning for Medicine and Dentistry, Plymouth, United Kingdom
Matthew Jerreat*, Peninsula College of Medicine and Dentistry & Plymouth University Peninsula Schools of Medicine and Dentistry, Clinical Education for Dentistry, Plymouth, United Kingdom
Hisham Khalil*, Peninsula College of Medicine and Dentistry & Plymouth University Peninsula Schools of Medicine and Dentistry, Division of Medical Education, Plymouth, United Kingdom
Arunangsu Chatterjee*, Plymouth University Peninsula Schools of Medicine and Dentistry, Technology Enhanced Learning / Collaboration for the Advancement of Medical Education Research & Assessment (CAMERA), Plymouth, United Kingdom
Richard Thorley, Plymouth College of Medicine and Dentistry, PCMD Student, Plymouth, United Kingdom
Craig Walsh, Plymouth College of Medicine and Dentistry, Plymouth, United Kingdom

Background: Virtual patients (VPs) have been defined as interactive computer simulations of real-life clinical scenarios for the purpose of medical training, education or assessment (Ellaway, 2008). There are numerous arguments for including VPs in curricula of healthcare professionals. Promotion of interprofessional learning (IPL) is a promising application of VP.

Intended Outcomes: At the end of the workshop participants should
1. Understand VP systems and their uses
2. Know about integrating IPL in VP
3. Identify opportunities for collaboration

Structure: Background of available VP systems including open source, 10 minutes tutorial
- How do IPL VP differ from others, 5 minutes
- Small group activity: Hands on use of open resource VP with facilitation, 20 minutes
- Small group activity Demonstration of a custom made VP platform, 20 minutes
- Group discussion: Opportunities and Limitations of the systems what works and what doesn’t, 15 minutes
- Small group activity: design of an inter-professional VP case study with facilitation, 20 minutes
- How to take VP ideas forward; opportunities for collaboration and student engagement, 10 minutes
- Evaluation, 5 minutes

Who should attend: Healthcare professionals, educationalists and e-learning technologists with an interest in developing VP with an emphasis on IPL. This workshop would be suitable for an audience of 18-20 participants. Participants are required to bring their own laptop or tablet for this session.
Level: Intermediate

2X  CONFERENCE WORKSHOP: Making the most of existing assessments: Using learning analytics (18420)
Location: Suite 4, Level +2, MiCo

Jane Souza*, St. John Fisher College, Wegmans School of Pharmacy, Rochester, United States

Background: The standards as outlined by the Academy of Medical Educators support faculty use of learning analytics for everything from program development to effective feedback and educational interventions. The Association of American Medical Colleges Learning Objectives for Medical Student Education emphasizes the need for physicians to document attainment of critical learning outcomes. How can these goals be achieved without creating an unmanageable workload for medical educators? This workshop will demonstrate how one healthcare professional program captures data from existing (embedded) faculty-generated assessments to monitor student longitudinal progress on critical learning outcomes. Learning analytics are then used to remediate exposed knowledge deficits and inform evidence-based programmatic change. Both students and faculty use the same data set to inform a feedback loop. Conference participants should attend the workshop to actively engage in learning how they can make practical use of assessment data to serve faculty, students and accrediting agencies in any health profession program.

Intended Outcomes: Participants will be able to
1. Develop a strategy for using existing assessments to serve multiple purposes.
2. Participants will able to outline a feedback loop based on faculty-generated assessments.

Structure: 1. Presentation of a model for capturing student progress on meeting required learning outcomes;
2. Discussion on how the resulting data set can be mined to inform multiple constituents including faculty, students and accrediting agencies;
3. Participants will use handouts of course-level curriculum map templates to explore how the process could be implemented in their settings.

Who should attend: Faculty, assessment professionals, administrators.
Level: Intermediate
**2Y CONFERENCE WORKSHOP:**
Social Accountability: Medical education and the global environment (19548)

**Location:** Suite 3, Level +2, MiCo

Sarah Walpole*, Hull York Medical School / York Hospital, Centre for Education Development / Acute Medical Unit, York, United Kingdom

Deborah Murdoch-Eaton*, Sheffield Medical School, Sheffield, United Kingdom

Stefi Barna*, Norwich Medical School, Public Health, Norwich, United Kingdom

Trevor Thompson, Bristol University, Medical School, Primary Care, Bristol, United Kingdom

**Background:** The Global Consensus for Social Accountability calls on medical schools to identify and respond to future health challenges, and recognises the importance of environmental determinants of health. The value of aligning environmental protection and health promotion agendas has become ever more apparent, as highlighted by the 2009 Lancet Commission on health and climate change, the World Health Organisation and the World Organisation of Family Doctors. Yet this dimension of social accountability requires considerable development in medical schools. A systematic review has highlighted lack of attention to environmental determinants of health in medical education.

**Intended Outcomes:**
1. Consider the extent to which medical schools can and should address environmental dimensions of social accountability;
2. Identify opportunities and barriers to enhancing teaching and research on environmental determinants of health at your medical school;
3. Network with and learn from other participants, including receiving access to open-educational resources.

**Structure:**
- Sharing experience and interest of participants (10 minutes)
- Case study presentation: Sustainable Healthcare Education network consultation on priority learning outcomes and development of teaching in UK medical schools (15 minutes)
- Facilitated discussion: challenges of integrating the environmental dimension in medical teaching and research (15 minutes)
- Group exercise: strategy for change in home institution (30 minutes)
- Participatory exercise: questions, highlighting available repositories and resources (15 minutes)
- Closing session: sharing participant interests and potential collaborations (10 minutes)

**Who should attend:** All interested in social accountability, innovation in teaching, or adapting their teaching to incorporate environmental sustainability. Previous knowledge or experience is not required.

**Level:** Intermediate

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**2Z CONFERENCE WORKSHOP:**
What makes a good case for use in students’ case discussions? (20522)

**Location:** Suite 2, Level +2, MiCo

Jakob Donnér*, Lund University, Department of Clinical Sciences, Lund, Sweden

Gudrun Edgren*, Lund University, Faculty of Medicine Centre for Teaching and Learning, Lund, Sweden

Christina Gummesson, Lund University, Faculty of Medicine Centre for Teaching and Learning, Lund, Sweden

**Background:** The use of cases in medical education has a long tradition. An increasing awareness of the importance of students’ active participation for constructing learning has stimulated the use of cases as triggers for discussion, eg, in problem-based learning. Cases need to be constructed to stimulate learning according to intended outcomes and to motivate students to indulge in discussions promoting meaningful learning with understanding of principles and their application. In the authors’ experience from developing and assessing cases and also mentoring case authoring, the most common challenges with case construction are:
- adding enough complexity to trigger curiosity
- making professional and patient perspectives visible in parallel
- making a case authentic to trigger meaningful discussion.

**Intended Outcomes:** After participating in the workshop, participants will be able to assess the appropriateness of cases for teaching in relation to their intended use and evaluate how a case might stimulate and motivate students’ discussions and learning.

**Structure:** There will be an introduction to how cases are used for learning in different settings and what is known about what constitutes a case fit for purpose. The presenters will draw on literature and their own experiences. Participants will evaluate case examples in groups using different criteria. Participants are invited to bring their own cases for discussion.

**Who should attend:** All teachers who use cases to stimulate students’ active learning. The cases could be used for triggering discussions in problem-based learning, for developing of clinical reasoning or eliciting other case-based discussions.

**Level:** Intermediate
2AA CONFERENCE WORKSHOP:
"Redrawing the Line on Professionalism:” International views on professionalism (20192)
Location: Suite 1, Level +2, MiCo

Carol Hodgson*, University of Alberta, Pediatrics, Edmonton, Canada
Penelope Smyth*, University of Alberta, Medicine, Edmonton, Canada
Clair Birkman*, University of Alberta, Office of Medical Education, Edmonton, Canada

Background: How do professionalism views develop and transform over time? One idea is that differences are based on experience and years of training. Situational learning theory provides a cognitive basis for learning professionalism. We conducted 12 focus groups with learners at different training levels and profession to study their professionalism views in order to develop a professionalism curriculum. The resulting professionalism workshop is presented.

Intended Outcomes: The intended outcomes for the session include learning how to: (1) develop and validate a set of professionalism cases; (2) use an ARS to collect information on professionalism views; (3) facilitate a discussion on professionalism values; and (4) discuss professionalism cases within different professional contexts.

Structure: A brief description of the method used to collect cases will be described along with the process used for validation. Participants will be shown professionalism cases and asked to vote using an anonymous audience response system (ARS) as to whether or not the behavior described is “professional, marginally professional, or unprofessional.” Following voting on all cases, participants will be asked to discuss why they think the behavior was professional or not. Views from normative groups will be included in the discussion. The participants will discuss the utility of using this method in their own medical schools. The session will conclude with a wrap-up discussion on the context of professionalism.

Who should attend: Health professions educators interested in how to use an innovative method to gather views on professionalism from members of their academic community.

Level: Introductory

2BB CONFERENCE WORKSHOP:
ASPIRE
Location: Suite 5, Level Mezzanine, MiCo

David Wilkinson*, Macquarie University, Australia
Trudie Roberts*, University of Leeds, UK
2CC1 (20345)
ADEM Plus: Performance assessment of medical students in Brazil

Ricardo S. Komatsu*, Famema, Marilia Medical School and IEP, Hospital Sirio-Libanes, Geriatrics, Health Professions Education, Marilia, SP, Brazil
Roberto Q. Padilha, Instituto De Ensino E Pesquisa, Hospital Sirio-Libanes, Public Health and Health Professions Education, Sao Paulo, SP, Brazil
M. Brownell Anderson, NBME, International Programs, Philadelphia, PA, United States
Raja G. Subhiya, NBME, Scoring and International Programs, Philadelphia, PA, United States
Paulo Chapchap, Hospital Sirio-Libanes, Surgery and Corporate Strategy, Sao Paulo, SP, Brazil

Background: There are in Brazil initiatives of assessment and evaluation in Medical Education as National Exam of Students’ Performance – ENADE, part of SINASES–INEP–MEC (Ministry of Education), progressive tests, organized by consortia of medical schools, beyond proposals of terminal exam such as applied by Sao Paulo State Medical Licensing Council.

Summary of Work: To support and promote medical students’ performance assessment, and physicians assessment in first two postgraduate years, and to support program evaluation of Brazil’s undergraduate medical schools. We are conducting a longitudinal assessment involving sequential exams in clinical sciences at the end of: 3rd, 4th, 5th and 6th years of MD Program (2013) and during the 1st (2014) and 2nd (2015) postgraduate years. The exams will be developed and applied by National Board of Medical Examiners (NBME) with questions written, reviewed and validated by a Brazilian Committee for ADEM+ (HSL-IEP). MD Programs and students who volunteer accept to be part of ADEM+. In 2013 we had 12 MD programs and 1027 medical students as participants.

Summary of Results: We are presenting individual performance bulletin, after each exam, for students, as well as a performance report to each MD Program participant of ADEM+. Also we discussed the results with each representative of MD programs.

Discussion and Conclusions: In this interim analysis we can conclude that our Project ADEM plus is a successful initiative surely contributing to reinforce the culture of assessment and evaluation in MD programs in Brazil.

Take-home messages: We need more initiatives to produce reliable items to our progressive tests and ADEM plus can contribute in Brazilian scenario.
2CC3 (19345)  
**Student perceptions of assessment in higher education**

**Brooke Harris-Reeves**, Griffith University, School of Allied Health Sciences, Gold Coast, Australia  
**Andrea Bialocerkowski**, Griffith University, School of Allied Health Sciences, Gold Coast, Australia

**Background**: Assessment of student learning is at the centre of educational practices in higher education. It transforms learning into qualifications and is recognised as the point of exchange in the teaching and learning relationship. Assessment has an important influence on student’s learning. The way in which a student thinks about learning determines their approach to completing an assessment task.

**Summary of Work**: This study aimed to gain in-depth insights into students’ perceptions of, and preferences for assessment in a higher education setting. Conducted in a tertiary institution with final year Bachelor of Exercise Science students, the study employed a qualitative research approach and included the use of questionnaires. The study identified student perceptions of assessment including assessment approaches that: increase stress and anxiety; motivate; optimise learning; and students’ main objectives of assessment.

**Summary of Results**: Students aimed to achieve the best mark possible and gain an understanding of the content. Multiple choice examinations were students’ preferred method of assessment. Authentic assessment was identified as both increasing student motivation and achieved optimal student learning. The assessment approach that led to the highest levels of stress and anxiety was examinations.

**Discussion and Conclusions**: Findings suggest students hold strong opinions about different forms of assessment. Exposing students to assessment procedures which they react positively to may be an important contributor to a student’s success.

**Take-home messages**: It is suggested educators take a diverse approach to assessment and move beyond educational practices that they have an emotional attachment to, to achieve the best outcomes for students.

2CC4 (22138)  
**How do medical students know when they are prepared for an exam? A qualitative study**

**Zahra Hussain**, University of Glasgow, School of Medicine, Glasgow, United Kingdom  
**S Makstutis**, University of Glasgow, Wolfson Medical School Building, Glasgow, United Kingdom  
**L Johnston**, University of Glasgow, Glasgow, United Kingdom  
**RS Drummond**, University of Glasgow, Glasgow Royal Infirmary, Glasgow, United Kingdom  
**P Evans**, University of Glasgow, Glasgow, United Kingdom  
**JG Boyle**, University of Glasgow, Glasgow Royal Infirmary, Glasgow, United Kingdom

**Background**: Little is known about how medical students prepare for exams, what it is that gives them a sense of preparedness and whether this correlates to academic performance.

**Summary of Work**: Using grounded-theory, a random sample of medical students were invited to participate in semi-structured interviews until saturation was reached. Interviews were audio-recorded, transcribed and data from 10 medical students was entered into NVivo 10 qualitative data analysis software to facilitate a thematic content analysis. The study was approved by the University of Glasgow ethics committee and informed consent was obtained.

**Summary of Results**: Interview transcripts revealed candidate responses to questions about how medical students prepare for an exam and what it is that gives them a sense of preparedness. A content analysis ultimately defined several major themes.

**Discussion and Conclusions**: Participants most commonly quoted a 2 month period of study when preparing for an exam. Perceived reasons for feeling prepared included the ability to recall content fluently and with confident understanding and the use of learning objectives. Perceived reasons for failing to feel prepared included a lack of time to study, failing to revise certain content and peers discussing unfamiliar content.

**Take-home messages**: This exploratory qualitative study identified attitudes and behaviours that appeared to explain how medical students know when they are prepared for an exam. The findings will be used to construct a questionnaire to measure the specific themes. This will form the basis of a prospective study correlating questionnaire responses with exam results. We anticipate our findings will suggest ways to improve exam preparation and academic performance.
2CC5 (20663)
The survey of clinical medical students' attitude toward fairness of assessment

Rachawan Suksathien*, Medical Education Centre, Maharat Nakhon Ratchasima Hospital, Department of Rehabilitation Medicine, Nakhon Ratchasima, Thailand

Background: To survey clinical medical students' attitude toward fairness of assessment methods in medical education centre, Maharat Nakhon Ratchasima hospital.

Summary of Work: The self-administered questionnaires consisting of questions about fairness of each assessment tools and overall assessment system. Respondents were asked to score the agreement using 4 points Likert scale (strongly agree, agree, disagree and strongly disagree). There were free space for comments in each questions. The questionnaires were sent to the 5th and 6th year medical students of medical education centre, Maharat Nakhon Ratchasima hospital.

Summary of Results: Ninety-three clinical medical students completed the questionnaires. More than 90 percent agreed that overall assessment in medical education centre, Maharat Nakhon Ratchasima hospital was fair. The MEQ and OSCE were perceived to be the fairest assessment tools. Nearly 98 percent of the students agreed that MEQ and OSCE were fair. The assessment of attitude and logbook were perceived as the least fair. Fifty-nine percent of the medical students disagreed with fairness of attitude assessment and nearly 50 percent wrote comments about it. Seventy-four percent of medical students thought that logbook was an unfair assessment and 57 percent wrote comments about it. Thirty-eight percent of the students expressed that there were some problems in assessment procedure in some clinical rotations.

Discussion and Conclusions: Logbook and attitude assessments were the least fair assessment tools in clinical medical students' opinions. Standardised assessment tools and assessors should be developed to improve validity, reliability and acceptability of assessment system.

Take-home messages: The feedback about assessment procedures from medical students were good data for development of assessment system.

2CC6 (21885)
Implementation of large scale e-assessment at the University Medical Center Utrecht, the Netherlands

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M. Manrique-van Woudenbergh*, University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands

J.E. Verhulst, University Medical Center Utrecht, Directorate of Information Technology, Utrecht, Netherlands

Background: The University Medical Center Utrecht is implementing a four year programme to boost the development of blended learning in all its educational departments: Medicine, Biomedical Sciences, Clinical Health Sciences and Nurses Follow-up Courses. E-assessment is an important building block of blended learning. The aim is to complete the transfer to e-assessment and e-grading by January 1st, 2016.

Summary of Work: Directors of the educational departments formulated targets for the development of e-assessment, which were translated into implementation plans. Tools, such as TestVision Online and Turnitin were selected for web-based e-assessment and e-grading of papers. Teachers were approached by a team of educationalists to assist and guide them during the transfer from paper based assessment to e-assessment.

Summary of Results: The logistical process of, and policies for, e-assessment were formulated with input from all parties involved. Hardware was purchased to facilitate simultaneous testing of 330 students. Educational guidance stimulated teachers to fully use the possibilities of the digital tools, like formative testing, the appropriate use of question types and replacing essay questions by closed question types.

Discussion and Conclusions: Although considerable efforts and costs are involved, e-assessment is now an indispensable part of education in the UMCU.

Take-home messages: Implementation of e-assessment demands full support of all management layers of an institution. Learning by doing has turned out to be a valuable approach, highly motivated teachers and staff are the key to success.
Tablet-based assessment in clinical biochemistry using LMS MOODLE

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Jaroslav Racek, Charles University in Prague, Medical Faculty in Pilsen, Department of Science Information, Prague, Czech Republic
Jitka Feberová, Charles University in Prague, 2nd Medical Faculty, Department of Science Information, Prague, Czech Republic
Alexandra Polášková, Charles University in Prague, 2nd Medical Faculty, Department of Public Health and Preventive Medicine, Pilsen, Czech Republic
Dana Müllerová, Charles University in Prague, Medical Faculty in Pilsen, Department of Histology and Embryology, Pilsen, Czech Republic
Jiří Polívka, Charles University in Prague, Institute of Clinical Biochemistry and Hematology, Pilsen, Czech Republic

Background: Computer-based testing is a well established method for objective assessment of students’ knowledge. Recently, significant lowering of tablet prices and huge improvement in their performance represent a great challenge for both teachers and students to effectively use tablets in assessment of medical students. However, it is quite frustrating to find easy to use, reliable, flexible and cheap solutions.

Summary of Work: We present our practical experience with tablet-based self-assessment and credit-bearing summative assessment using low-end 7” android tablet in combination with LMS MOODLE Quiz module and customized responsive webdesign theme. Basic recommendations and tips for avoiding major pitfalls are summarized.

Summary of Results: Generally, low-end 7” android tablet in combination with LMS MOODLE Quiz module and customized responsive webdesign theme can be successfully used in self-assessment and credit-bearing summative assessment. Major advantages of presented solution include intuitive user interface, broad offer of question types (we use multiple-choice, single best answer, matching, calculated and embedded-answer questions), open-source code, mobility and low price. To major pitfalls we can count relative instability of system caused by system or browser actualizations, relatively small (7”) screen (we recommend use of stylus pen), intermittent slow response of the system (can be significantly improved by strict avoidance of multitasking and batch-wise applications and system actualisation) and potential security issues.

Discussion and Conclusions: Our results support the idea that tablets can be an affordable, flexible, mobile and easy to use way of assessment in medical education.

Take-home messages: Tablet-based testing using LMS MOODLE Quiz module is an easy to use and flexible way of assessment.

Development and validation of a new instrument to assess communication skills

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Background: There are few validated instruments to assess communication skills (CS) and none that can be used both by faculty and standardized patients (SPs). Our aim was to design an instrument to assess CS.

Summary of Work: We organized focus groups with experienced faculty and SPs to make a list and of "good CS" descriptors which were then merged and rephrased by the research group (1 senior and 2 junior faculty physicians, 1 psychologist and 1 statistician) and presented again for validation. A prototype version was thus compiled and tested, by both faculty and SPs, during two objective structured clinical exam with more than 1800 student-patient encounters.

Summary of Results: Our scale had good internal consistency and reliability, and a fair correlation with the Calgary-Cambridge Communication Observation Guide. In comparison with the later, it was found to be more user-friendly.

Discussion and Conclusions: We developed an assessment scale for CS, which data suggest is valid, reliable and easier to use than a standard instrument. We think our scale can be applied in different contexts to effectively assess CS.

Take-home messages: We think our scale can be applied in different contexts to effectively assess CS.
**2CC9 (22715)**

**The Effect of English Language in the Multiple Choice Question Scores of Thai Medical Students**

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**Background:** Many universities in Thailand prepare for the ASEAN Economic Community (AEC) by increasing the numbers of tests in English language. However, English language is not the native language in Thailand. The difference in linguistic competency may affect the scores besides the knowledge. This research aimed to study the impact of English language in the multiple choice question test (MCQ) of medical students.

**Summary of Work:** The final examination of 4th year medical students in internal medicine rotation has a 120-MCQ. The ratio of test in Thai and English language is 90:30. The individual scores of tests in both languages were collected and the effect of English language in MCQ was analyzed.

**Summary of Results:** Two hundred and ninety-five students was enrolled. The Mean percentage of scores in Thai and English languages were significantly different (65.0±8.4 and 56.5±12.4, p<.001).

**Discussion and Conclusions:** The English language may affect the scores of MCQ especially in borderline students.

**Take-home messages:** The transformation of test language may cause decrease in overall scores of Thai medical students.

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**2CC10 (22156)**

**An Analysis of Prince of Songkla University (PSU) Medical Students’ Preparation for the Thai National Medical Licensing Examination (TNMLE) Step I, II and III**

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**Background:** The TNMLE is the examination to initial licensure for physicians in Thailand. PSU medical school requires students to record a passing score on the TNMLE step I, II and III to be qualified for studying in year IV, VI (externship) and internship (graduated), respectively.

**Summary of Work:** We report the results of surveys of the strategies and preparation used by PSU medical students to prepare for TNMLE step I-III. The surveys were conducted on medical students in July 2013 after the results of the examinations, using self-administered questionnaires about their study habits in relation to the number of hours spent studying each week, the types of materials they had used when studying and the strategies that affected their examinations.

**Summary of Results:** The percentage of PSU medical students who passed the TNMLE step I, II and III in 2013 were 94.6, 99.4, and 98.3, respectively. The affecting factors for TNMLE step I-III were lectures, clinical reasoning tutorial, clinical correlation, clinical learning, patient caring, ward round, patients' reports, the TNMLE and USMLE reviews, e-learning studying and OSCE.

**Discussion and Conclusions:** PSU medical students had used several different strategies while preparing for the TNMLE step I-III.

**Take-home messages:** The important factor affecting all medical students who passed the TNMLE was clinical learning.
2CC11 (21694)
Performance Assessment Traineeship: Self-assessment for learning

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Background: The Royal College of Physicians and Surgeons of Canada (Royal College) has developed a performance assessment traineeship providing an option for physicians to meet the new mandatory assessment requirements within the Maintenance of Certification (MOC) Program. The traineeship is based on a small-group education model and is led by one of the Royal College’s 14 Continuing Professional Development (CPD) Educators who serve as coaches to participants who develop and implement practice-specific performance assessment plans.

Summary of Work: The performance assessment traineeship pilot project enrolled participants across Canada in spring 2014. It uses a three-session virtual small-group coaching model to assist physicians in selecting an appropriate question or focus within their practice, in identifying an approach to access and analyze data, and in obtaining peer feedback to develop an implementation plan. The traineeship provides participants with an opportunity for individual work, group discussion, and personal reflection. It is supported by tools including an annotated bibliography of databases of validated measures and quality indicators.

Summary of Results: The poster will include a summary of the pilot traineeship results. The number of participants, the types of performance assessment questions created, and other pilot feedback will be shared.

Discussion and Conclusions: The performance assessment traineeship model is a supported self-assessment process which can be adapted to different specialty care contexts ensuring that an appropriate assessment focus is selected, suitable data are used, and peer feedback is obtained.

Take-home messages: Performance assessment is a vital component of planned learning in practice. Coaching and tools can assist physicians to execute self-assessment and create performance development plans.

2CC12 (22620)
Establishing Validity and Reliability of an Instrument Designed to Assess Mask Ventilation and Tracheal Intubation Skills in Anaesthesia Trainees

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Background: Procedural skills are often assessed through subjective evaluation by senior colleagues. Objective assessment using well defined criteria can greatly improve assessment of technical skills. The objective of this study was to evaluate reliability and construct validity of an instrument to assess competence of anaesthesia trainees in mask ventilation and tracheal intubation.

Summary of Work: Approval was granted by the Ethics Review Committee. Informed consent was taken from ten junior and ten senior residents. Assessment was done simultaneously by two senior consultants on a procedure specific assessment form while the residents worked in their assigned operating rooms. Each resident was assessed twice within 3-4 weeks. Percent agreement and kappa statistics was computed to assess reliability and independent samples t test was applied to compare median scores between groups to determine construct validity.

Summary of Results: The average kappa value for inter-rater reliability was 0.95 with mean agreement of 96% while test retest reliability showed mean kappa of 0.39 with 82% agreement. A significant difference was seen in mean scores between groups (p<0.05), demonstrating good construct validity.

Discussion and Conclusions: Anaesthesiologists perform complex clinical tasks which the trainees are expected to master during training. Objective assessment using procedure specific tools is essential to ensure achievement and retention of competence. Our results show that the instrument designed by us demonstrates inter-rater and test-retest reliability and has good construct validity.

Take-home messages: Direct observation of procedural skills using procedure specific tools is useful and important in ensuring achievement of competence.
The evaluation of a new Balint group scheme for Bristol medical students

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Background: Balint group participation may offer a number of benefits for medical students, supporting their professional growth and improving understanding of the doctor-patient relationship. A longstanding scheme at University College London has produced evidence of the effectiveness of psychodynamic teaching approaches; this is not currently widespread as part of the medical curriculum at other Universities in England.

Summary of Work: We have established a sustainable Balint group network for medical students on their 3rd year Psychiatry placement at Bristol University. Psychiatric trainee doctors lead the groups, meeting for an average of five sessions during the nine-week placement. An experienced psychotherapist provided weekly group supervision for group leaders. Group leaders kept process notes and summarised themes arising in each session. Students completed ending feedback questionnaires. These data were combined and used for analysis of the student experience.

Summary of Results: Students attended an average of four sessions and 80% said they would choose to continue to attend the groups if possible. Students were able to identify benefits arising from participation, which they believe will help them in their future career as doctors. Students rated the usefulness of participation with a median score of 8/10.

Discussion and Conclusions: We have launched a new psychiatric trainee-led Balint group scheme for Bristol Medical students; there has been high uptake and feedback has been positive. Participation has been demonstrated to enrich the students’ experience of the clinical placement as well as enhancing their communication and understanding.

Take-home messages: Balint groups are popular with students and can support the development of important skills and attitudes of a doctor.

Applying DeBono’s six hat strategy to facilitate student learning in small groups

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Background: Shifa College of Medicine follows an integrated medical curriculum with small group learning as a major instructional strategy. While this methodology has its merits, the discussion in small groups, more specifically the cognitive processes, can easily become non-directional ultimately concluding without achieving its objectives; hence the group’s thinking becomes ‘unruly’.

Summary of Work: An approach to problem solving by utilizing Debono’s Six Hat Thinking Strategy was introduced to the small group facilitators. Each color hat was assigned as a metaphor for a specific cognitive process. The facilitators were asked to put on a hat that identified with the direction of their thinking process, during the small group discussion providing direction to the cognitive process. The small groups were initiated and concluded with the ‘blue’; meta-cognition hat, while all discussions started with all participants wearing the ‘white’; the information hat.

Summary of Results: Feedback from the sessions showed that the faculty found this strategy to be effective in achieving the objectives, giving them a clearer idea of how to facilitate and guide students’ learning in small groups.

Discussion and Conclusions: The Six Hats strategy is effective for enhancing small group learning.

Take-home messages: Six Hats strategy should be used in small groups to improve its effectiveness in achieving its objectives.
2DD3 (22954)
Workshops: How and Why

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Background: Workshops are encountered in many Teaching and Learning contexts ranging from undergraduate to Continuing Professional Development level. Most doctors have at some point in time attended a workshop. However the terms workshop, tutorial and small group teaching are often used indiscriminately. It is therefore important to think/reflect as to what characterises a workshop, the learning theories behind the development of workshops and what learning needs workshops meet best. This, and looking at the available evidence in Medical Education for the use of workshops may guide doctors to decide when to use workshops as a teaching delivery method.

Summary of Work: The evidence for workshops in Medical Education is appraised and outlined. The principles governing how to conduct workshops are reviewed. The use of technology supporting and enhancing delivery is discussed. Data collected from an undergraduate Psychiatry course delivered in an Irish University has been collected via questionnaires from both the learners and teachers perspective.

Summary of Results: The results illustrate how utilising the principles described above contributes to optimising the use of workshops as part of then teaching process. Both learners and teachers find workshops help reach learning outcomes and rate workshops higher than other teaching delivery methods used in the course.

Discussion and Conclusions: Workshops can be an effective and interactive method of teaching when developed and delivered following the appropriate pedagogical principles.

Take-home messages: Consider workshops as part of your teaching delivery.

2DD4 (19803)
The tactic for plagiarism teaching: Team-based learning

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Background: The study of medical students’ views on plagiarism revealed a lack of their knowledge regarding the issue. Therefore, it is imperative that plagiarism should be taught to medical students. The aim of this study is to demonstrate the validity of TBL as a mean of plagiarism teaching.

Summary of Work: A 2-hour plagiarism class was carried out during the 4-week basic medical research course of 4th year medical students. Papers were assigned to the students. The iRAT was accomplished followed by the open-book tRAT. During the instructor clarification review, penalties and real life examples of plagiarism were highlighted. Post-class survey questionnaires were achieved to explore students’ attitudes regarding the topic and teaching strategy.

Summary of Results: Fifteen students were included. The mean score of iRAT was 50% compared with 100% that of tRAT. All students reported good understanding and preferred TBL to a lecture. Seventy-three percent of them had skimmed the assigned reading while 13% carefully read and 13% did not study the assigned paper. Two-thirds of the students described that they could learn from the others while one-thirds said that they were able to have new insight by sharing their thoughts.

Discussion and Conclusions: TBL is a valid method to teach plagiarism with positive feedback on students’ satisfaction. Aspects of knowledge and attitude could be demonstrated in this study while psychomotor outcome is yet to be evaluated by plagiarism rate in their written papers.

Take-home messages: Plagiarism can be taught through TBL because of its style of active learning with immediate feedback; moreover, peer support is beneficial on outcome monitoring.
Quiet please! Draw-along mind maps to focus students in a large classroom setting

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Background: Three basic histology tissues namely epithelia, connective tissue and muscle are taught by didactic lectures to a combination class of first year medical-, dietetics- and physiotherapy students in a large classroom setting. The group of around 400 students is of diverse academic backgrounds. As mind maps have been shown to aid in knowledge construction and memorability of work, a draw-along mind map session was introduced directly after each of the three lectures on basic tissues during the lecture time slots. The aim was to find a simple, affordable way to better engage and focus students during a large class lecture setting.

Summary of Work: The mind map was pre-prepared on a click advanced PowerPoint display to show students the ideal format as it unfolded during the drawing session. In addition, the lecturer simultaneously drew a mind map on a data projector which was projected onto a separate screen next to the Power Point display. Students were encouraged to use blank paper sheets to draw their own mind maps along with the lecturer at the students' pace. After the activity, students were given anonymous, voluntary questionnaires.

Summary of Results: Questionnaire results indicated that students enjoyed the activity, that it gave structure to the volume of work and that its use should be continued in future.

Discussion and Conclusions: As students were quiet and focussed while creating the drawings, it allowed the lecturer to give additional explanations and encourage creativity in the mind map construction.

Take-home messages: Introducing draw-along mind maps in a large class setting was successful in engaging first year students.

Available debriefing models and their success after in-hospital cardiopulmonary resuscitation: A literature review

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Background: Immediate intervention is crucial in a cardiac arrest. Studies report suboptimal quality of in-hospital cardiopulmonary resuscitation (CPR). Resuscitations are however infrequently the subject of review and learning. Debriefing after CPR can be one of several efforts to improve performance, but little is known about this subject.

Summary of Work: The aim of this review is to establish an overview of models for debriefing after in-hospital CPR as well as evidence and arguments for using these to improve CPR performance. A literature search was performed in 10 electronic databases. Papers were reviewed independently by two authors and results were categorized using a matrix and inspired by content analysis.

Summary of Results: Nine studies were included. Findings reported that debriefing after in-hospital CPR has two aims; 'improving knowledge and performance' or 'dealing with stress and emotions'. Debriefings with the aim to 'improve knowledge and performance' were linked to improved CPR delivery but did not attend to emotions. Debriefing 'dealing with stress and emotions' showed limited evidence for its effectiveness. Details on "who; is debriefing, when; time and what; are the elements" of debriefing were partly described. Less was described about "where; environment and why; theoretical foundation".

Discussion and Conclusions: Improvement of in-hospital CPR quality is imperative. Debriefings aiming at 'improving knowledge and performance' result in improved CPR. The process and elements of debriefing lack description in depth and consistency leaving some parts of the debriefing process unanswered or inadequately answered.

Take-home messages: An aim for future research should be to discover and describe the most effective debriefing formats and models.
Adaptive questioning in workplace learning: A scoping review to develop a conceptual framework

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Background: Questioning is a signature pedagogy of clinical workplace learning. To enhance learning, skilled clinical teachers adapt their questions to students’ prior responses. Questioning instantly adjusted to students’ prior response is defined as adaptive questioning in this study. With the assumption that adaptive questioning would promote students’ diagnostic clinical reasoning, this study aimed to explore how questioning can be adapted to support students’ learning.

Summary of Work: Theory-building review was performed using empirical, theoretical, and experiential evidence to develop a model of effective adaptive questioning. Search terms were adjusted and applied to 5 bibliographic databases including Google scholar, PubMed, ERIC, PsychInfo, and Web of Science. Three researchers independently reviewed the findings and agreed a conceptual framework.

Summary of Results: A total of 42 articles identified by the search were screened by title and abstract. Among them, 25 articles fulfilled the inclusion criteria and were reviewed in full text. Teachers’ content expertise, teachers’ questioning skills, type of question (e.g., classified in Bloom’s taxonomy), timing and frequency of questions, and wait time for responses contributed to the conceptual framework.

Discussion and Conclusions: This scoping review has developed a conceptual framework for adaptive questioning. It will be further elaborated in the next stage of the study.

Take-home messages: Questioning is an essential skill for clinical teachers. Consciously adapting later questions to students’ earlier answers is a promising, potentially teachable way of promoting deeper learning.

The effect of a daily quiz (TOPday) on self-confidence, enthusiasm, and test results for biomechanics in relation to gender and previously established study results

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Background: Recently, we found that active participation of students in daily quizzes (Two Opportunities to Practise per day, TOPday) via email improved confidence, enthusiasm, and test results for biomechanics. In this study we investigated whether the effect of TOPday differed between genders, taking also into account the previously established study results (PESR).

Summary of Work: In June 2010-2012, second-year students (N=292) received TOPday of biomechanics, including feedback, on every course day. Afterwards, a non-anonymous questionnaire was conducted. Students answered how many TOPday questions they completed (0-6 [A]; 7-18 [B]; 19-24 [C]), and if their self-confidence and enthusiasm for biomechanics were increased (no/yes). Sub-score biomechanics (0-10) and average PESR (0-10) were calculated per student.

Summary of Results: Men and women showed similar increase in self-confidence (96% versus 93%) and enthusiasm (84% versus 73%) for biomechanics due to TOPday. Only for men, active participation (B) resulted in higher sub-scores for biomechanics than would be expected from their relatively low PESR (p<0.05).

Discussion and Conclusions: Men who normally score below average can be stimulated with daily quizzes to improve their study results.
Dynamic strategies for teaching and learning: Looking for greater student participation in the construction of own knowledge

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Background: Our department is working to encourage the inclusion of new active methodologies in the Laboratory Medicine/Clinical Pathology (PC)(4th-year/Brazilian Medical School) subject contents focusing on students, content integration and team work.

Summary of Work: To introduce, as trial, active learning methods as opposed to the current model of discipline-PC, 22/39 students from the 1st-semester (A-control), and 17/30 of the 2nd-semester/2011; and 27/40 of the 1st-semester/2012 (B-test) enrolled in the PCII were included. The A-group worked on the standard format: lectures, structured seminars presented by 3-4 students with the default theme, discuss clinical cases and practices. The B-group was motivated to transform seminars in small group work: distribution of the theme and preparation for all students; on the scheduled day: students random allocation into groups and with one topic preparation for discussion to others (active seminars-AS). Structured evaluation questionnaire (Likert-scale) and portfolio were applied as assessment process.

Summary of Results: As the A-group showed resistance to Seminars without correlation with any parameter, B-group showed a positive correlation between those considered the AS appropriate and those that would indicate it to the coordinator (p=0.0001;PC:0.699); an inverse correlation between those who prefer lectures and those who prefer AS (p = 0.006;PC:-0.612) and would indicate it (p=0.01; PC:-0.610). By the portfolios, B-group stated that "the new format is innovative, and encourages discussion" in contrast to A-group.

Discussion and Conclusions: The involvement of students by active learning methodologies is an excellent strategy for enhancing learning and should be encouraged.

Take-home messages: Student involvement in the construction of their own knowledge is an important tool for learning and training the future health professional.

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**2DD11 (21549)**

Haemangioendothelioblastoma with pseudopseudohypoparathyroidism: Unravelling the challenge of medical spelling

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**Background:** While it is well established that medicine is as much an art as it is a science, rarely is it considered a language. Medical students however are introduced to a vast new vocabulary filled with complex and esoteric spelling. This poses a particular challenge for students with dyslexia or those for whom English is not their first language, a cohort estimated at 12% of the student population. Unfortunately, the naïve spell checkers of word processors fail to recognise medical terms, making it impossible for students to differentiate errors from correct spelling. Encouragingly, a student survey we conducted confirmed that 96% of 702 respondees saw value in addressing this.

**Summary of Work:** We therefore set out to develop a British medical spell checker for students, addressing challenges such as compatibility with Mac computers, used by an estimated 27% of students. We have begun to distribute the software, and will explore students’ experiences through focus groups addressing qualitative semi-structured questions. Using this feedback we will measure the software’s impact on students’ productivity and learning of correct spelling.

**Summary of Results:** We will present an outline of the software’s development and functionality along with the findings from focus groups.

**Discussion and Conclusions:** We have developed a widely compatible British medical spell checker for students and through our validation process we aim to enhance the software’s value via future modifications.

**Take-home messages:** Mastering the complexities of medical language poses a significant challenge to many students. Through the development of a medical spell checker designed with students in mind we hope to break down this barrier.

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**2DD12 (19473)**

Effectiveness of an education program for reducing blood culture contamination

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**Background:** Blood culture contamination leads to inappropriate or unnecessary antibiotic use. We tried to reduce contamination rates through educating interns on practical guidelines in collection of blood for culture. In this study, the authors describe and examine the effectiveness of education program.

**Summary of Work:** We provided manual book & DVD for hand sanitization and blood culture to all interns. We observed and evaluated interns’ performance of hand sanitization and blood culture, then gave feedback one by one. All interns participated in this education program. Any interns who have not reached standard criteria should participate in remediation program until achieving competence. We prospectively collected data of blood culture contamination rates and compared contamination rates of pre- and post- education program.

**Summary of Results:** Among 187 interns, five interns who failed achieving standard criteria participated in remediation program, and all of them passed in the re-examination. Blood culture contamination rate between pre- and post- education program showed no significant differences (1.22 vs 1.20, p=0.853).

**Discussion and Conclusions:** The education program alone failed to reduce overall contamination rates. Interfering factors that prevent interns doing blood cultures as standard methods should be defined and corrective action is needed.

**Take-home messages:** The education program alone for reducing blood culture contamination rates was not effective. A practical methods as well as education program should be applied.
2DD13 (21126)

Students’ Perspectives on compliance with Standard Infection Control Precautions

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Background: In Edinburgh University undergraduate medical students complete an e-learning program on infection prevention and control known as the Cleanliness Champions Program. Following completion of online units, students are asked to submit a reflective essay as evidence of learning. We found these essays gave insight into challenges students faced integrating this learning into practice. We therefore decided to analyse the contents of the essays.

Summary of Work: 30 essays were selected for analysis. The essays were analysed thematically.

Summary of Results: The key emergent themes were; the theory practice divide, the effect of role models and the impact of cultural norms and hierarchy on learning in practice. When following protocols and hospital policy, students were sometimes challenged by junior (and senior) staff or given conflicting advice. Poor role modelling contradicted previous learning causing uncertainty and confusion. Students also cited hierarchical cultures as a factor in reduced compliance to standard infection control precautions.

Discussion and Conclusions: This study indicates that students could be better supported in their efforts to comply with standard infection control precautions whilst learning in the clinical area. It is concerning that some junior doctors who have had recent teaching and learning about infection control have been found to be poor role models.

Take-home messages: Reasons for poor compliance within staff groups need to be further investigated. It may be that involving junior and senior staff in students’ learning and assessment in this topic might raise awareness of the students perspective and improve compliance.

2DD14 (21137)

Can microbiology classes improve students’ awareness about handwashing for surgical practice?

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Background: Handwashing can result in reductions in patient morbidity and mortality from infection being an essential part of surgical procedures. However, probably due to the interim between the acquisition of handwashing skill and the real application of it, medical students tend to underestimate its importance.

Summary of Work: Twenty six students from the second year of medical school underwent activities to measure handwashing efficiency. With their eyes closed, students “washed” their hands with water-soluble ink. After, ink coverage area was determined. Also, colony-forming units (CFU) were measured in agar plates. In one activity, using an agar plate divided in two, students touched one half before handwashing and the other half after handwashing with an antiseptic. In other activity, students touched an agar plate after handwashing using antiseptic surgical scrubs.

Summary of Results: None presented a 100% coverage area after ink “washing”. The coverage areas varied from 50% to 95%, where only 46% showed a coverage area above 75%. Washing hands with antiseptic reduced the number of CFU from 52 to 10 (mean values); however, only 15% of the students showed efficient antiseptic handwashing, with 0 CFU. Some of the students did not correctly perform handwashing using antiseptic surgical scrubs, as 22% of the plates showed colony formation.

Discussion and Conclusions: The association of microbiology activities with surgical scrub classes enhance students’ perception about the importance of following the correct handwashing procedures, giving them a tangible efficiency measure.

Take-home messages: Microbiology activities can improve students’ awareness about surgical handwashing.
2DD15 (22162)

Extracurricular activities and the seven learning outcomes

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Background: Once entering medical schools, students are always encouraged to participate in extracurricular activities. It is believed that this will promote their social skills. However, there is not much literature exploring what students actually learn from extracurricular activities.

Summary of Work: At Chulalongkorn medical school, Year 1-3 students were required to include their reflective writing on extracurricular activities in which they participated in portfolios – at least one activity per academic year. Seven of the twelve curriculum outcomes were used as a framework to reflect upon: holistic care (O6), medical ethics and laws (O7), critical thinking (O8), roles of doctors and social responsibility (O10), professional and personal development (O11), and leadership and teamwork (O12). We extracted and analysed 1,017 reflective writings from 281 portfolios of 3rd year students in 2011/2012 academic year.

Summary of Results: There were 40 extracurricular activities in the portfolios studied. Of the seven learning outcomes, O12, O11 and O10 were the most frequent outcomes students reflected upon (1.95, 1.08 and 0.97 pieces of reflective writing per student, respectively) while O7 was the least (0.05 pieces of reflective writing per student). The three most common activities students chose to reflect upon O12 & O11 were: freshmen orientation activities, Indian night (the traditional welcome ceremony for freshmen), and the annual inter-university traditional football match. The activities students reflected on O10 most were: Dharma club activities, community hospital visit, and the royally-sponsored cremation ceremony for cadavers.

Discussion and Conclusions: Extracurricular activities could contribute to valuable experiential learning of certain curriculum outcomes.

Take-home messages: A variety of extracurricular activities should be available for medical students.
2EE1 (22646) The Miniproject: A novel approach to engaging first-year medical students in scientific research

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Background: In order to expose first-year medical students to research early in their medical training and enhance their scientific skills and interest in research we developed a 4-day “Miniproject” course, comprising scientific information retrieval, formulating scientific hypotheses, lectures in study design and biostatistics and training in scientific communication.

Summary of Work: During the Miniproject, each student does a literature search based on a triad of MeSH terms, reads scientific abstracts and then individually gives a five-minute oral presentation comprising definitions of the MeSH terms, and a hypothesis based on the literature they have read. Peers and teachers give immediate oral feedback on the presentation and accompanying written summary.

Summary of Results: This pedagogic project has been ongoing for 5 years and resulted in a) better constructive alignment (CA) between learning outcomes and the activities; development and implementation of b) Miniproject community of practice including teachers from different disciplines and institutions; c) structured instructions for oral and written feedback; d) e-portfolio; e) novel assessment criteria; d) continuous on time course evaluations. Students’ and teachers’ are more engaged and feedback is very positive. The number of students attending the non-obligatory lectures has increased remarkably.

Discussion and Conclusions: The Miniproject is a novel approach to develop students’ scientific skills and interest in research, and to raise their motivation for science education and understanding of the impact of science in doctors’ clinical work.

Take-home messages: In order to raise students’ understanding of the scientific basis of medicine as well as the clinical practice, start science education early!

2EE2 (23066) How much do medical students know about clinical research? Delivering improvements through a one-day course

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Background: Clinical research skills are poorly taught in medical schools. The aim of this study was to investigate the baseline of medical students’ perception, confidence and knowledge about core concepts in clinical research and assess whether a focused one-day course on this topic could be a successful tool to deliver improvements.

Summary of Work: We designed a curriculum on different aspects of clinical research which was delivered as a seminar series by specialists in their respective fields. Students performed a self-assessment of their knowledge and skills relating to clinical research pre- and post-course using Likert scales. Data was captured using an electronic feedback form (pre-course) with the same questions asked immediately after each seminar. We compared responses from the cohort before and after the course to assess how effective it had been.

Summary of Results: Overall, there was an improvement in student confidence regarding research skills (73% post vs 41% pre). Despite a specific seminar on statistical skills, this area showed the least improvement (<20% change in confidence levels). Our dataset looks at specific seminars and their effectiveness as well as specific aspects of each seminar.

Discussion and Conclusions: Research skills need to be incorporated into the medical curriculum early in a structured system to help boost student understanding and confidence thereby promoting evidence-based medicine from an early stage in their careers. Despite specific statistics sessions, this remains the area that students struggle the most with.

Take-home messages: Research skills are poorly taught at undergraduate level and need increased focus.
2EE3 (19045)
Innovative Approach to Research Teaching with “R2R” Concept

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Background: “R2R”, abbreviated from “routine to research”, refers to the process of acquiring knowledge by a system of operations. The outputs aim simply to develop research from routine jobs for learning organization. The objective is to demonstrate the revolutionized learning process of research teaching using R2R concept.

Summary of Work: R2R has been implemented into health promotion discipline since 2011 for fourth-year students. There are 4 important elements of concept as follows (1) research question comes from routine activity (2) personnel must act primarily in research on their own (3) research results should be measured as practical outcomes (4) results are applied to solve a problem. Learning experiences included lectures and workshop such as R2R concept, basic research process such as finding problem and research question, basic methodology, case record form. Student satisfaction was assessed.

Summary of Results: The projects were developed from problems of learning & ward clerkship, health promotion related routine activity such as students’ lifestyle, awareness and self-injurious behavior prevention for accidental exposure to blood and body fluid. Satisfaction survey at the end of the course showed as follows: (1) 77.7% for content (inspiration, positive attitude toward research, simple practice, ultimate goal for learning organization and happiness), (2) 79.0% for process (small group workshop, learning by doing) and (3) 87.3% for facilitator (as instructor, consultant and commentator). The byproducts during learning are teamwork, creative thinking and fun. However, the limitation is inadequate time for complete practice and needs continuous learning.

Discussion and Conclusions: The revolutionized learning process of initiative research teaching using R2R concept includes lecture focusing on inspiration with positive attitude and only practical research methodology, learning by doing with facilitators.

Take-home messages: R2R concept can be pragmatically used as a new approach to research teaching and changes attitude toward research positively.

2EE4 (22068)
Evaluating an academic research program: An additional component

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Background: The Research skills program at Uttaradit medical education center, Thailand has provided academic support to 4th year medical students for 5 years. The clinical research learning is a complex process. Learning is influenced by the way in which the student goes about learning and studying as well as the conduciveness of the learning satisfaction. Objective was to evaluate an academic research program.

Summary of Work: An intervention study from Jan 6th to Feb 1st, 2014. The clinical research staff meet individually with medical students to improve study research learning process, test taking skills and time management in the context of basic clinical research courses.

Summary of Results: Thirty one students underwent a research program. There were 16 male (51.6%) and 15 female (48.4%). Before providing a research program, there were 26.97 mean scores (SD= 7.17 ) and after 72.1 mean scores (SD =10.62). Statistically significant differences were detected when two-sample t test with equal variances was undertaken on the scores (p<0.001).

Discussion and Conclusions: Improving the research learning effectiveness of study is the primary goal. The research skills program is a basic program that attracts many medical students, from the highest achieving to those in academic difficulty. Yearly positive evaluation of the research skills program have been important for funding and staffing. The research learning process is a useful tool for the effectiveness of process changes, and for evaluating individual research skills program sessions.

Take-home messages: Evaluation of research learning process of medical students is important.
**2EE5 (22610)**

**Intensive clinical experience for graduate research students: PhD-ICE**

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**Background:** Personal and professional development (PPD) was formalised in postgraduate science over 20-years ago, in recognition that students needed to develop generic and transferable skills. However, despite research units residing within the medical school contact with patients was, and remains, rare and thus a failing in the scientists’ PPD. Since the pilot (AMEE 2009) the programme has developed into a sophisticated short course tailored to the research interests of the scientists.

**Summary of Work:** PhD-ICE helps the science students understand the nature of the clinician-patient interaction by drawing on the principles of communication skills, listening and history taking. In the last of 4 sessions the students' research areas were matched as closely as possible to conditions available within the Patients as Educators volunteer programme. Student doctors coached, observed and provided feedback to the PhDs during patient interactions.

**Summary of Results:** The scientists learned how to listen to the patient story and finally to take a structured history. Student-doctors gained tutoring experience and together participants learned to communicate within a broad medical context. Evaluation indicated that the programme was well received, the scientists' motivation was raised and their research contextualised.

**Discussion and Conclusions:** Short courses tailored to the needs of the scientific community can offer significant benefits in contextualisation of the science and motivation of the scientists. Student doctors were able to hone tutoring skills and together the students learn something of each other’s skills and “language”.

**Take-home messages:** Scientists gained valuable insight into patient conditions related to their research whilst senior student-doctors had the opportunity to act as tutors and facilitators.

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**2EE6 (22521)**

**Developing research competency in basic medical sciences**

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**Background:** Currently, the research based learning (RBL) is being actively introduced into medical curriculum. The teaching of basic clinical sciences and physiology, in particular, should also be adapted to this new model of self-directed scientific inquiry.

**Summary of Work:** While learning physiology, the students received the research tasks, which required the use of ECG, EEG, reography, spirography, audiometry and other applied physiology methods in healthy subjects (other students). The tasks included the research in identifying the organism’s response to different stimuli depending on gender, physical parameters and functional status. Carrying out the experiments with no predefined results, the students could not only gain the knowledge on the use of equipment and interpretation of biological data, but also could actively search for information, process it, do statistical analysis and come to research conclusions. Discussing the results, students could also improve their communication and team working skills.

**Summary of Results:** The research-based learning in physiology stimulated the creativity of students, increased the motivation to study, created the atmosphere of integration with clinical science and research, allowed direct application of knowledge to life-like situations and actively engaged the students into the learning process.

**Discussion and Conclusions:** Modernizing the teaching methods in physiology with research-based learning has certainly made it more attractive to students and promoted the life-long learning.

**Take-home messages:** Research skills is an important competency of medical professionals and future doctors should start acquiring it from the very first years of medical school.
**2EE7 (22937)

The AcaMedics Symposium: A Novel Approach to Engaging Medical Students in Clinical Research**

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**Background:** Early exposure to clinical research helps develop skills and enthusiasm that can positively impact on a future research career. Medical students find it difficult to access projects and rarely acquire basic skills to do so in their undergraduate syllabi. AcaMedics is a student-led organisation that facilitates research projects and teaches medical students these skills thus catalysing their contribution to improving patient health-related outcomes. Students on the scheme were encouraged to present their work at the first AcaMedics annual symposium to gain experience of presenting work on a scientifically rigorous platform with peers.

**Summary of Work:** Medical students were assigned to clinical projects ranging from research and audit to systematic reviews. Research skills were taught through interactive seminars. Students presented their research at the AcaMedics annual symposium. The symposium generated an academic hub to showcase these projects where students were questioned on their work by panels of medical academics and clinicians. Panels judged the entries and prizes were awarded for the best work.

**Summary of Results:** AcaMedics facilitated 62 projects involving 112 medical students. 217 delegates attended ranging from student researchers, students interested in research, academic supervisors and clinicians. Panels judged the entries and prizes were awarded for the best work.

**Discussion and Conclusions:** The AcaMedics symposium can greatly benefit medical students in their clinical research endeavours.

**2EE8 (22893)

How we Know and What we Teach: Intersections of Intelligent Research Design and Curriculum Design**

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**Background:** Physics is fundamental to medical sciences. The rationale behind the medical-rescue education, globally, is poorly defined and would benefit from contribution to its horizontal and vertical discourse and inform the academic level description. The aim is to cogently and coherently explain research design and curriculum intersections in medical-rescue education through determining the epistemological value of physics in medical rescue education and practice.

**Summary of Work:** Multiple qualitative approaches are employed. Document analysis is used to appraise linkages between physics and rescue inherent in the curricula. The Delphi technique is employed to reach expert consensus on the typology of rescue scenarios. Using process tracing, the practical components of medical-rescue are deconstructed for underpinnings of physics principles. A criterion-referenced gap analysis enables understanding of what principles and theories of physics are missing, desirable and fundamental to the goal of medical-rescue pedagogy and practice. These processes are appraised for curriculum contribution.

**Summary of Results:** This study informs evidence-informed rescue training and efficient medical-rescue practice. Theories and ‘models of competence’ and ‘acting in context’ have relevance for knowledge integration of conceptual physics and medical-rescue. This study problematizes current medical-rescue curricula, critically analyses the conceptual physics upon which medical-rescue practice is predicated and provides a transformative approach to curriculum review.

**Discussion and Conclusions:** Critical reflection and inquiry into medical rescue practice is central to its professional growth. Impediments to learning include knowledge deficiencies and fragmentation, irreconcilable ontologies and paedagogic malpractice.

**Take-home messages:** Curricula transformation is preceded and proceeded by interrogating explanatory deficiencies and foundational prerequisite knowledge.
2EE9 (20168)
A peer delivered research methods course as a stimulus to increase trainee participation in research

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Background: Understanding of research principles is fundamental for all doctors but many have not had the opportunity to develop these skills during undergraduate training. We aimed to devise and deliver an introductory course in research methodology with the purpose of providing the basic tools to enable trainees to engage in research.

Summary of Work: We designed an intensive one day course of interactive “how to” sessions consisting of practical advice on initiation of research, abstract writing, case report writing, poster and oral presentations. The sessions were delivered by peers with significant research experience. To assess learning delegates scored their knowledge and confidence on a scale of one to five before and after each session. An emailed questionnaire was distributed three months after the course to assess whether candidates had translated their new knowledge and confidence into tangible outcomes.

Summary of Results: Forty-seven delegates in their first or second year post qualification attended the course. Evaluation of pre and post scores demonstrated that delegates felt that their knowledge and confidence increased for all components delivered (from 54% to 78%). The emailed questionnaire showed that the majority of delegates had engaged in research activity, attended conferences and a proportion had submitted and presented their work.

Discussion and Conclusions: Delivering a short research methods course for doctors in training can lead to an improvement in knowledge and increased participation in research activity.

Take-home messages: An intensive one day course on research methodology can provide the tools to enable trainees to engage in research. Providing a similar course at other sites may have a beneficial effect.

2EE10 (22443)
Core competencies in Medical Education: What Portuguese Medical Students think about scientific skills

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Background: The engagement of medical students in research-scientific works is one of the most fundamental underpinning of medical education. We aimed to study the relevance given by Portuguese medical students to a core of scientific skills (SK), and their judgment about own ability to execute them.

Summary of Work: Among the 796 eligible medical students attending the 1st, 4th and the 6th year of the medical course, 611 fulfilled a self-administered questionnaire. A Likert scale ranging from 1 (very important) to 4 (unimportant) was used.

Summary of Results: Three factors were identified explaining 38% of the total variance: “perceived importance of the SK to high school” (factor 1); “perceived importance of the SK to clinical practice” (factor 2) and “own ability to perform SK” (factor 3). Comparing to men, women attributed a lower score both to factors 1 (p=0.010) and 2 (p=0.002) and significant differences were observed between scores of all factors according academic years. Students who had undertaken research attributed a lower score for both factors 1 (p=0.008) and 3 (p=0.040) than students who did not. Negatives attitudes towards science showed an inverse association while positive attitudes showed a positive association with all factors. After adjustment for the variables, motivation to perform research maintained a significant association with all factors.

Discussion and Conclusions: Perception of Portuguese medical students about the relevance of SK, and the personal ability to execute them, was independently associated with the motivation to undertake research.

Take-home messages: Students must be aware that their clinical practice would greatly benefit with the enrolment in research activities, thus it is crucial to find a way to motivate our students towards research. Supported by FCT- EXPL/IVC-PEC/1302/2013.
The relationship of certainty and performance in medical students’ evidence-based argumentation in their own domain of medicine and the foreign domain of education

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Background: Evidence-based medicine (EbM) is of growing interest, as in many situations, physicians decide upon patients’ wellbeing based on scientific literature. One of the necessary skills to be able to evaluate scientific evidence is the critical judgment of articles. The relationship between performance and monitoring of students’ perceived certainty has been established in diagnostic research, but not in EbM thus far.

Summary of Work: Basing on standard validity conceptions nine rating items for empirical evidence were developed, and proved reliable (Cronbach’s α=.64–.70). 164 medical students completed two scenarios (one medical and one education scenario). They were given four extended summaries of original research papers, which they rated with the above-mentioned rating scale. Before and after, participants had to decide between two decision alternatives and specify the perceived certainty of their decisions. The absolute value of the distance between the participants’ and experts’ rating was added up as performance score; lower values mean better scores.

Summary of Results: The comparison of the performance for medicine and education scenarios showed better results for the papers from education than from medicine (F(1,163)=38.16;eta2=.19). However, perceived certainty significantly increased in the medical domain after reading the summarized articles, while in the domain of education it significantly decreased (F(1,163)=11.51;eta2=.07).

Discussion and Conclusions: This study showed our instrument can demonstrate that students are not able to reliably assess their performance. Independent from their actual performance their perceived certainty seems to decrease in another domain and increase in their own domain.
Discussion and Conclusions: RBL efficiently develops practical skills in students, while in the case of performance of individual research projects it develops skills of independent work, and in the case of participation in the group research projects, develops teamwork skills. As a result of the introduction of RBL students turn into a direct participants in the process of creating new knowledge.

Take-home messages: RBL is an effective method for developing students’ creative thinking and initiative in dealing with practical and research tasks.

2EE13 (22821)

Building capacity on students’ research: Using a grant to disseminate advisory skills

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Background: Our medical school received a grant to support a research project at community level. This project involves 11 medicine and nursing students, one faculty member and five health professions workers. This group has two years to do a research project and a community intervention for health promotion. The grant finances scholarships to the group members.

Summary of Work: The group was divided in 5 subgroups, couple of students and one worker. Each subgroup presented a research project on complimentary views of the main theme. Monthly meetings were used to train workers to support and advise their students on topics such as: research questioning, building a research project, data capture and analysis, presentation techniques and teamwork. Weekly meetings were used for subgroup work, without the faculty member.

Summary of Results: Five different projects were approved by the Ethics Committee of our school and data was collected at the Emergency care unit about elderly use and understanding of this care level. The views are: qualitative, quantitative, geographical referencing, prevention and narrative. Now the whole team is planning an intervention to deliver back to the community what was discovered. The Primary Care level will be also trained about elderly needs.

Discussion and Conclusions: It’s feasible to include health workers into research projects with students with the guidance of a faculty member.

Take-home messages: Medicine and nursing students must be prepared to consider the care environment for a research study and do research as they do for healthcare.

2EE14 (21393)

Descriptive statistical analysis of student research delegates: Contact via medical schools and social media is most effective

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Background: A total of 47 delegates attended a national undergraduate conference entitled, ‘A future in academic medicine’. This aimed to engage medical students and provide insight into research opportunities in medicine. Feedback was collected on all aspects of the conference using Yes/No questions and a four-point Likert-like scale.

Summary of Work: Completed feedback forms were analysed to address a number of questions: how effective were publicity strategies; what were delegates’ impressions of research; did the conference increase interest in academic medicine? Descriptive statistics and McNemar’s tests were performed using SPSS. P-values <0.05 were considered statistically significant.

Summary of Results: Rate of response was 77%. Publicity was most effective via medical schools directly (31%) and social media (25%). Majority of delegates had previous research experience (81%). Similarly, a large proportion considered themselves active participants in research (75%). No statistically significant relationship was found between those with previous research experience attended. A bigger sample size would have clarified whether previous research experience correlated with specific publicity strategies. This conference was successful in promoting academic medicine and increasing undergraduate interest in this field.

Discussion and Conclusions: Contact through medical schools and social media were effective publicity strategies. A small proportion of delegates without previous research experience attended. A bigger sample size would have clarified whether previous research experience correlated with specific publicity strategies. This conference was successful in promoting academic medicine and increasing undergraduate interest in this field.

Take-home messages: Social media has become increasingly efficacious in promotion of educational conventions in undergraduate medicine. Efforts encouraging medical students to attend without previous exposure to academic medicine need to be optimised.
2EE15 (22323)

Does a doctor need biostatistics? Critical appraisal of research articles by medical students

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Background: Biostatistics in medical school should give students the skills of critical appraisal of research from the point of view of evidence-based medicine. Thus, the methods of instruction should be adapted to this learning outcome.

Summary of Work: To apply and organize their knowledge in biostatistics, our students critically evaluated the research article. They were supposed to select one article they liked and then give the appraisal to its research topic, criteria of inclusion and exclusion, sample size, subject groups, selected variables, indicated p-values, statistical methods and software used, adequacy of results interpretation and conclusions.

Summary of Results: In their reports, the students described the generally acknowledged problems of published medical research: lack of rationale for sample size selection, failures to discuss clinical significance of acquired differences in data, use of t-test without prior normality testing, no indication of confidence intervals and exact p-values, use of frequency analysis without indication of confidence intervals and tests of significance. Students positively evaluated the use of Mann-Whitney, Wilcoxon, Kruskal-Wallis tests for small sample sizes. Of all the articles, none used multiple regression, factorial ANOVA, discriminant or other multivariate analyses.

Discussion and Conclusions: The students especially valued the opportunity to not just believe the published results, but also test their reliability and validity. They all had to revise biostatistics concepts and be creative. The students unanimously told that doctors need biostatistics to publish a good research.

Take-home messages: Besides calculating coefficients, the students need to apply biostatistics for medical research, and tutors should give them creative tasks such as appraising the research articles.

2EE16 (19794)

Teaching biostatistics in Gulf Medical University Ajman (UEA) – Our experiences and challenges

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Background: Gulf Medical University in Ajman, United Arab Emirates is an accredited reputable institution with 15 years of experiences in medical and health education in a multicultural society. Following integrated curriculum teaching, biostatistics is a core subject for undergraduate students and all postgraduate master programs. Medical students are a very heterogeneous group in respect of age, culture and previous educational experiences. Many of them start even postgraduate course with fear of learning mathematics and irrelevant subjects. For professors who have wide international experience also with undergraduate medical students it is already a traditional problem.

Summary of Work: The aim of this description is to understand and enhance students’ learning through integrating biostatistics with clinical sciences and to take advantage of students’ diversity. We paid specific attention to teachers and students before and after the course to find out problems and to evaluate understanding of the ‘today student-tomorrow doctor’ teaching approach.

Summary of Results: We compared this experience with our previous expectations and outcome from both teachers and students. A pragmatic approach in teaching and evidence-based medicine was found to be very important for students. Small groups of 5-6 students are considered as an advantage for teaching and learning biostatistics. By the end of the course of 15 weeks students understood the importance of an analytical approach in research and clinical medicine. They preferred the topics ‘with obvious medical application’ such as decision making, vital statistics, evaluation of diagnostic tests, practical work in computer lab using SPSS 21.0.

Discussion and Conclusions: With this evaluation we obtained precious information and guidelines for improvement of teaching approaches. Having a student’s impression is important for implementation of new interesting topics in the form of seminars and it helps them to acquire easier necessary knowledge and skills.

Take-home messages: Students and teachers are members of the same team for us, having a common goal to train students for their daily research and practitioner activities.
2EE17 (21542)
Have the future Spanish Health Professionals the required statistical knowledge before starting University?

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Background: In biomedical research, numerous papers show important deficiencies of statistical understanding in their publications. In general, medical researchers present poor statistical skills, although biostatistics subject is obligatory in any scientific curriculum. Unfortunately, misconceptions in statistics are a past and a current issue. Errors in scientific publications, design and development of experiments are recurrent. Even some authors have described this problem as scandalous and chronic.

Summary of Work: The aim of this work is to quantify these deficiencies analyzing surveys conducted to first year university students. We conducted a national survey to 638 first year students of Medicine, Nursing, Biology and Odontology coming from different Spanish Universities.

Summary of Results: Unfortunately, 45% did not know how to calculate the mean of a frequency distribution, 86% do not have a clear idea about cumulative frequency and percentile concepts, 89% do not know what is a standardized value, 96% cannot identify the cumulative frequency in a normal distribution and 98% are not able to identify Binomial distribution in a simple example. Multivariate analysis shows that an alarming 61% of students fail some of the most basic questions about statistics.

Discussion and Conclusions: An overwhelming majority of students of health sciences careers begin college without appropriate statistical knowledge despite these subjects being required in secondary education.

Take-home messages: Professors find serious difficulties when teaching statistics in the first course of the degree. In order to guarantee the educational quality of the students, and therefore, of the future researchers in health science field, it is necessary to solve this problem from its origin.

2EE18 (23047)
Curricular Integration of Research Training to Teach Skills for Evidence-Based Medicine

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Background: Evidence-based medicine requires medical students to critically appraise literature. To understand the process of acquiring evidence student must have performed research themselves(1). We show that skills necessary for evidence based medicine can be taught through activities threaded into a spiral dermatology curriculum.

Summary of Work: At Ross University School of Medicine, volunteer students were provided with cadaveric skin specimens from the anatomy laboratory. Students were guided from histological evaluation to the presentation of findings through collaborative supervision of the Departments of Anatomy and Pathology, and the Integument module leadership.

Summary of Results: Evidence based medicine requires skills, abilities and qualities such as communication and collaboration, understanding ethics, expertise, and curiosity. Through cadaveric lesions, a self-directed learning approach enhancing these skills and qualities were introduced and aligned with content for curricular integration.

Discussion and Conclusions: Evidence based medicine requires skills, abilities and qualities enabling students to critically interpret literature and research. Laboratory research experiences, threaded into the curriculum and aligned with lecture content, can raise research-awareness. Strategies for developing skills associated with understanding evidence based medicine include curricular design or the introduction of activities(1). Design and introduction of activities can be aligned and integrated.

Take-home messages: Student research aligned with curricular content can teach valuable skills relevant for evidence based medicine.

Implementing evidence-based medicine journal clubs in hospital seminar: A model for translation of knowledge into clinical practice

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Background: Evidence-based medicine (EBM) aims to provide clinicians with choices about the most effective care based on the best available research evidence. However, there are substantial gaps between the best evidence and clinical practice. EBM journal clubs are used by health care practitioners to critique and to keep up-to-date with relevant health literature. Implementing EBM journal clubs in hospital seminar, participants may decide if the rationales could be applied in their own practice.

Summary of Work: We set up an evidence-based practice team (EBPT) to provide support for clinical research review and management. EBPT was composed by the director of EBM center, and with physicians of overlapping clinical fields. Once a clinical issue has been brought to attention, the EBPT will extract available data banks, in attempt to provide the best evidence for current opinion and guidelines. Through the implementation of EBM journal clubs in hospital seminar, participants may decide if the rationales could be applied in their own practice.

Summary of Results: Evaluation surveys were completed by 30 medical students, 10 physicians and 11 nurses. The majority of 51 respondents agreed that implementing EBM journal clubs can improve the overall quality of hospital seminar, encourage active participation, and improve critical appraisal skills.

Discussion and Conclusions: Most students identified the importance of EBD. However, English skills remain a barrier to EBD education, because most lectures are conducted in Japanese. Promotion of EBD in Japan requires English education in reading research articles. This year, we will provide a novel hybrid course which includes both EBD and the application of English research papers into practice.

Take-home messages: Implementing EBM journal clubs in hospital seminar may strengthen health care quality.

Barriers to student learning of evidence-based dentistry in a Japanese dental school

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Background: Systematic dental education in evidence-based dentistry (EBD) is not available in Japan, and EBD in clinical practice remains uncommon. No explanation for this lack of implementation has been provided.

Summary of Work: Participants were 87 fifth-grade dental students at Kyushu Dental University. They attended a 180-min class focused on three concepts: 1) principles of EBD and clinical epidemiology; 2) formulating research questions using the PICO format; and 3) finding evidence using PubMed and reading the abstract. Each student was assigned a computer. Learning outcomes of the programme were assessed.

Summary of Results: For question 1, “Evidence-based practice improves the quality of patient care”, 92% of students agreed that it did. For question 2, “Do you actively try to search the literature when facing a clinical problem?”, 99% answered yes. For question 3, “How did you find reading the abstract of this research article written in English?”, 45% answered “painful”. For question 4, “If this English abstract had been written in Japanese, how would you have found reading it?”, 94% answered “I would have read it easily”.

Discussion and Conclusions: Most students identified the importance of EBD. However, English skills remain a barrier to EBD education, because most lectures are conducted in Japanese. Promotion of EBD in Japan requires English education in reading research articles. This year, we will provide a novel hybrid course which includes both EBD and the application of English research papers into practice.

Take-home messages: In non-English-speaking countries, education in evidence-based practice should be provided together with English education focused on reading research papers.
2EE21 (20488)
Evidence based medicine teaching in Indonesian medical schools

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Background: To find out the current practice and variation in undergraduate teaching of EBM in Indonesian medical schools.

Summary of Work: A questionnaire survey to all 72 medical schools in Indonesia. The person primarily responsible for EBM undergraduate teaching were requested to complete a questionnaire.

Summary of Results: The survey was completed by representatives from 21 (29%) medical schools. There is considerable variation in the methods and content of the EBM curriculum. Although the EBM concepts suggested by the Sicily statement were generally covered by all medical schools, emphasis were on literature searching, clinical questions development and critical appraisal of therapy. In many of the Indonesian medical schools, students had little opportunity to practice EBM skills.

Discussion and Conclusions: As competence in EBM is now required from medical graduates, the curricular time devoted to EBM was generally limited except in a few medical schools. A more detailed guidelines on EBM curriculum for undergraduate medical education is need to be developed in national level and the current national network of medical schools should encourage it.

Take-home messages: Effort to incorporate EBM teaching to medical school curriculum has reach as far as Asia Pacific Region (i.e. Indonesia). We identified a considerable amount of EBM activity across schools in Indonesia, with the majority covering most of the key elements of EBM. Although the EBM concepts suggested by the Sicily statement were generally covered by all medical schools, emphasis were on literature searching, clinical questions development and critical appraisal of therapy.

2EE22 (23193)
Examining medical students’ extra-curricular research activity through the lens of transformative learning theory

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Background: Programs designed to improve research capacity building among medical students continue to grow internationally, but reporting of program characteristics, challenges and lessons learned are limited in our context. Equally lacking is application of a relevant theory to the process.

Summary of Work: We present data collected between 2007 and 2012, illustrating voluntary research activities of undergraduate medical students and draw on transformative learning theory to explore ways research involvement transforms students as they achieve personal growth and development.

Summary of Results: Despite a decline in compulsory in-house research activity, we have managed to continue to nurture and harvest good ‘crops’ of research active students within a Middle-eastern medical school. This required concerted effort and support of students by medical educators, practitioners and clinical researchers primarily in well-known UK research centers. Evaluating the transformative nature of research activity among UAE students we found considerable evidence in support of transformative learning process and principles as described by Mezirow (1995,2000).

Discussion and Conclusions: Extra-curricula research education and training can foster meaning making and actions of a potential generation of physician scientists through learning about the subject of research, self, environment and others.

Take-home messages: Research is increasingly being embedded in medical undergraduate curricula internationally. Despite a decline in compulsory in-house research activity, it is possible to continue to nurture research activity among students. We found considerable evidence in support of transformative learning in research. Extra curricula research education and training can foster meaning making and actions of a potential generation of physician scientists.
“Welfa-demic Week”: A student-run combined welfare and academic initiative to reduce stress and increase preparedness of clinical medical students

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Background: Stress is recognised as part of medical school, particularly during examination periods. Coping strategies are emerging as a key factor and have been shown to improve exam results.

Summary of Work: Sheffield Medical Society (MedSoc) held its inaugural “Welfa-demic Week” which aimed to better prepare 3rd year students for clinical examinations. This included a mock OSCE, a lecture on dealing with stress, and welfare packs containing stress-reducing resources. An online questionnaire circulated after exams asked how beneficial students found the new strategy.

Summary of Results: 58 students completed the questionnaire including 40 females and 17 males (1 abstained). There was a significant increase in mean overall preparedness after Welfa-demic Week of 1.67 (out of 10), (95% CI 1.424 to 1.921, p<0.0001). There was also a significant reduction in mean overall self-reported stress levels of 0.983 (95% CI 0.5903 to 1.375, p<0.0001). Female students had a higher mean stress score than males before Welfa-demic Week (7.4 compared to 6.67) and after (6.33 compared to 5.89). Students reported that the improvement they would most like to see for future Welfa-demic Weeks was more instant feedback in the mock OSCE (12.1% of students).

Discussion and Conclusions: “Welfa-demic Week” was successful in increasing preparedness and reducing stress levels prior to the first clinical examinations. Although female students reported higher stress levels and lower self-perceived preparedness than males, they both decreased and increased respectively to a similar degree.

Take-home messages: The MedSoc “Welfa-demic Week” is a successful model for preparing students for exams and reducing pre-exam stress.

2FF2 (20305)
Compassion satisfaction and burnout during medical student clerkships: Internal locus of control, emotional stability, and self-esteem as mediators of academic performance

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Background: Common teaching strategies such as teaching medical knowledge, teaching medical skills, research training, and service learning pervade academic medical school education. This study examined the relations amongst medical students’ academic performance of these teaching strategies and their professional quality of life during the clerkship period through their personality tendencies of internal locus of control, emotional stability, and self-esteem as mediators.

Summary of Work: The study participants comprised 115 medical students from a medical university engaged in clerkships with a participation rate of 60% (N = 190) between September and December, 2013. A validated and structured questionnaire was first distributed online or by mail to collect the data of the participants’ demographics, academic performance, and personality tendencies. A second validated and structured questionnaire covering compassion satisfaction and burnout as professional quality of life was distributed each month online or by mail for three months and the responses were aggregated by the mean for each participant.

Summary of Results: Structural equation modelling was performed and indicated that only the medical students’ academic performance of medical skills was positively related to their internal locus of control (gamma = 0.42, p < .001) and emotional stability (gamma = 0.34, p < .05), and their internal locus of control tendency was then positively related to their compassion satisfaction (gamma = 0.44, p < .001) during the clerkship. In addition, medical students’ self-esteem related to increased compassion satisfaction (gamma = 0.31, p < .01) and reduced burnout (gamma = 0.27, p < .05) during the clerkship.

Discussion and Conclusions: Medical students’ academic performance of medical skills is a valuable factor in exerting their adaptation to clinical learning environments through internal locus of control.
Take-home messages: Future studies could focus on identifying the mechanisms of academic content and contexts which could enhance the self-esteem of medical students to equip their adaptation to the real clinical workplaces.

2FF3 (22413)
Medical students' burnout during clerkship: Impact of individual and organizational factors

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Background: Caregiver’s burnout syndrome can start during medical school. This research aims to measure the prevalence of burnout among medical students in a Belgian university and detect associated individual and environmental factors.

Summary of Work: A questionnaire was distributed to 7th year medical students after more than eight months of hospital-based clerkship. Validated instruments were used to assess burnout, mismatch in working environment and worries about future.

Summary of Results: A sample of 111 medical students participated to the study. We observed important level of emotional exhaustion and/or depersonalization among sample. Students’ worried about future predicted three dimensions of burnout. Organizational factors impact differently burnout dimensions; emotional exhaustion was predicted by workload, reward and community support whereas reduced personal accomplishment was predicted by control. Worries about future (i.e. worries about knowledge to acquire or career choice) reflects in our opinion lack of student’s preparation for their future profession. Lack of control over one’s workload and working environment appears to be another key aspect in medical student burnout.

Discussion and Conclusions: Given the burden of burnout on medical students and its consequences in terms of well-being and patient care, it seems essential that action be initiated to modify the factors involved. Each core aspect of students’ working environment needs to be further investigated, primarily regarding workload, control, and worries about future.

Take-home messages: During final year clerkship, medical students’ burnout is highly prevalent. Worries about future, workload and control are important individual and environmental aspects related to burnout which need to be considered by medical faculties and investigated in further studies.

2FF4 (21123)
Effect of stress management sessions on objective and subjective markers of stress and on clinical skills during simulated consultations in year 3 medical students

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Background: High levels of stress tend to induce deleterious effects on communication skills, clinical skills and clinical reasoning. Previous studies have shown high stress levels in medical students when practicing their first ambulatory setting consultations. The purpose of this study is to assess effects of stress management sessions on acute stress and, subsequently, on clinical and communicational performances during the first ambulatory consultations of year 3 medical students.

Summary of Work: A prospective randomized study was undertaken. Year 3 medical students had to perform and solve two simulated ambulatory consultations, respectively a high stress and a low stress scenario, in a random order. Volunteer students were randomized in two groups to benefit, or not, from a 2 X 4 hours stress management session the week before the consultations. The primary endpoint, subjective (STAI, VAS and CA) and physiological (blood pressure, pupil diameter, electrodermal skin activity, heart and respiratory rates, salivary cortisol) stress responses, has been assessed before, between and after each consultation. Secondary endpoints were clinical skills (taking a history, physical examination), communications skills, diagnostic accuracy and argumentation.

Summary of Results: 64 students have been included (32 in each group). The statistical analysis is still under way but in August 2014 we will be able to provide comparisons of stress levels and their influences on clinical and communicational performances, as well as diagnostic accuracy and argumentation, between the groups.

Discussion and Conclusions: The hypothesis we hope to confirm is that stress management sessions could decrease stress before and during the consultations with a beneficial effect on clinical and communicational performances.
2FF5 (20857)
Stress Levels and Stress Coping Methods in Pre-Clinical and Clinical Medical Students of Phramongkutklao College of Medicine

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Background: Previous studies demonstrated that medical cadet programs at Phramongkutklao College of Medicine (PCM) possibly increase the level of stress to medical students.

Summary of Work: To study the stress levels, factors associated with stress and coping methods among medical students of PCM during pre-clinical and clinical years, self-administered questionnaires were completed by the candidates. Descriptive statistics was used. Fisher exact test, Mann-Whitney U test, Kruskal-Wallis tests were used as appropriate.

Summary of Results: 78.8% of medical students responded to the questionnaire. Pre-clinical medical students had higher rate of high to severe stress levels than those of clinical medical students. The 2nd year medical students demonstrated a significantly higher rate of stress than others (p=0.009). The most common causes of stress among pre-clinical medical students were taking examinations, grades, lecture hours, army practice programs and disciplines. For clinical medical students, taking examinations was the major cause of stress, following by worrying about future after graduation, grades, writing report and portfolio, respectively. The common coping methods were sleeping, followed by doing favorite activities, positive thinking and trying to forget the stress. There was no significant difference of factors associated with stress between students having high to severe stress levels and those with mild to moderate stress levels.

Discussion and Conclusions: The 2nd academic year demonstrated the highest rate of stress primarily from taking examinations. Most of them had a positive way of stress coping. Detection and supporting systems should be well established to minimize the level of stress especially for the 2nd year medical students.

Take-home messages: Detection and supporting systems should be well established to minimize the level of stress especially for the 2nd year medical students.

2FF6 (21967)
Stress Treatment for Medical Students: Essential or dispensable? A 2014 basic survey of psychosomatic symptoms in medical students at the University of Freiburg

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Background: The majority of medical students report diverse stress-related psychosomatic symptoms during a course of Psychosomatic Medicine.

Summary of Work: To be admitted to the course, psychosomatics medical students had to submit a pre-course assignment wherein they report their own experiences with psychosomatic symptoms during their studies. In a qualitative research we analyzed these reports looking for students' self-reported symptoms and their origins.

Summary of Results: The majority of students cited stress induced by medical studies as a reason for psychosomatic symptoms. Of these, 66% referred to themselves and 24% to fellow students.

Discussion and Conclusions: We conclude that there is a high demand for psychological-based interventions as stress-coping strategies for medical students. Many German medical universities implement mentoring programs to help students develop professionalism and provide counseling for individual problems. Because of high competition in classes, students fear a potential damage of reputation when becoming associated with mental problems. When anonymity was guaranteed, medical students showed a high acceptance of an online forum to discuss mental problems.

Take-home messages: Since the majority of our students are willing to report stress-related mental problems associated with their medical studies, we intend to launch an online platform to tackle these problems.
Resiliency to Depression and Burnout among Medical Students: The Role of Coping Style and Social Support

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Background: A high prevalence of depression and burnout exists among medical students, and mental health services are underutilized. This study explored factors that might promote resiliency to mental health issues among medical students.

Summary of Work: A cross-sectional study including validated measures of depression and burnout was used to survey 253 students at the University of North Dakota School of Medicine and Health Sciences (UNDSMHS) with a response rate of 63.6%.

Summary of Results: Seventeen percent (95% CI [11.0%, 23.0%]) of respondents were experiencing moderate to severe depression and 48.5% (40.0%, 57.0%) were experiencing burnout. Of the depressed, 80.8% (65.7%, 95.9%) were not diagnosed and 84.6% (70.7%, 98.5%) were not being treated. Students who did not get the support they needed from family and friends (p < 0.01), fellow medical students (p < 0.05), and the UNDSMHS (p < 0.01) were at significantly greater risk for depression. Using more approach coping strategies such as increasing study time than avoidant strategies such as drinking alcohol was associated with significantly decreased risk of burnout (p < 0.05) and depression (p = 0.051).

Discussion and Conclusions: Students at the UNDSMHS have rates of depression and burnout similar to medical students across the United States. The majority of depressed students underutilized treatment services. A combination of approach coping style and utilization of social support is associated with decreased rates of depression and burnout.

Take-home messages: Although medical students may often not be appropriately diagnosed or treated for mental distress, promotion of approach coping strategies may be helpful in supporting medical student resiliency and well-being.

Quality of life and depression among medical students and health care workers

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Background: Health related quality of life and risk of depression varies by age, sex and socioeconomic environments of people. The study aims to compare quality of life and depression among medical students (young adults) with health care workers (adults) from the same University hospital.

Summary of Work: A survey was conducted during a periodic health examination program offered to health care workers in the hospital and during orientation for medical students. Quality of life was measured using SF-36 questionnaires and risk of depression was classified using PHQ-9. Stratifying by gender, comparison between quality of life and depression among student and workers were tested using t-test and chi-squared.

Summary of Results: 1,204 students (80.05% of all medical students) and 3,204 health care workers (59.7% of all workers) completed questionnaires in the survey. Among men, medical students had higher physical and mental quality of life and less depression compared to health workers. However, the difference in mental quality of life was much smaller than physical quality of life. Among women, medical students had higher physical quality of life but lacked evidence in mental quality of life. Moreover, female medical students had more depression than female health care workers.

Discussion and Conclusions: The difference seen in physical quality of life between medical students and health care workers may be due to older age and underlying medical conditions. For mental quality of life, the two groups were similar.
2FF9 (22449)
What are the causes of stress in medical students? An investigation into medical students' support networks, and their role in resilience

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Background: Doctors are expected to confront, and overcome, the many intellectual, physical and emotional challenges they meet during their medical career. This requires clinicians to develop a high degree of resiliency. Unfortunately, this expectation can often prevent doctors from seeking help when feeling stressed, which can compromise patient safety. Although research has been conducted into resilience in military contexts and children, relatively little has concerned doctors and students. It has been hypothesised that a strong support network could contribute to an individual’s ability to combat stress, thereby developing their mental fortitude and resilience, (Dunn, et. Al., Acad. Psych. 2008, 32, 44). This study aims to identify the causes of stress in medical students, to ascertain the role that students believe resilience plays in combatting “burn-out” and to better understand the use of support networks.

Summary of Work: Questionnaires, focus groups, and semi-structured interviews were conducted with medical students at Barts and the London School, (BL), to assess the causes of stress and the role of support networks.

Summary of Results: Our findings suggest that BL students have a good understanding of resilience, however; many have incomplete understanding of burnout. When faced with a problem, students are more likely to approach their family or friends, whilst few would contact their mentors.

Discussion and Conclusions: We believe that our research will provide further insight into the role of support networks in the development of resilience in medical students. Our findings also provide additional evidence for the need for resilience training and guidance.

Take-home messages: Better support may be provided through enhanced understanding of medical students’ support networks, and the barriers to seeking help. Further research regarding resilience in medical students is essential. JE and KA contributed equally to this work.

2FF10 (20493)
A Study on the Development and Validation of the Stress Scale for Medical Students in Korea

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Background: Medical students have experienced various stresses induced in a special environment. However, there’s no specific stress scale for medical school students considering their environment in Korea. Therefore, in this study, we have developed and verified the validity of stress scale for Korean medical school students.

Summary of Work: The preliminary survey was conducted on 97 medical school students and the main study was conducted on 646 medical school students. We conducted the factor analysis for the verifying the validity of stress scale. We used the t-test and ANOVA for measuring the differences according to individual characteristics.

Summary of Results: The 6 factors with final 41 items were extracted: academic stress (10 items), clinical practice stress (11 items), interpersonal relationship stress (7 items), medical career stress (8 items), mental & health problem stress (3 items), and tuition stress (2 items). This scale was named as “The Medical Student Stress Scale in Korea (M3S-K)” The characteristics of the M3S-K was analysed according to socio-demographic variables (types of medical educational institution, grade, gender, religion, and economic level). Graduate entry medical students (GEMS) showed higher scores in tuition stress than undergraduate medical students (UMS). There was no significant difference between gender and religion. But there was significant difference in academic stress and medical career stress according to the school year. It was found that the higher stress of grade 1 and 2 in particular.

Discussion and Conclusions: The M3S-K developed on this study will be used as the first measurement of understanding the area of stress of Korean medical school students. It may be used for further various studies. Also, it is expected to provide the individual stress profiles to students to help more effective stress management and adapting to school life.
Physical Activity and Emotional Distress among Brazilian medical students

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Background: Previous studies have shown an inverse relation between physical activity (PA) and emotional distress (ED).

Summary of Work: Scores in questionnaires indicating the presence of depression, anxiety, and burnout symptoms among Brazilian medical students were compared to their PA levels. Students from a randomized sample from 22 medical schools answered questions about PA as well as the following questionnaires: Beck Depression Inventory (BDI), State-Trait Anxiety Inventory by Spielberger (STAI) and Maslach Burnout Inventory (MBI).

Summary of Results: The response rate was 81.2% (Females=714; Males=636). Males exercise more than females (p<0.005) in Low-PA students (<200 METS/week; IDB-median=10; T-anxiety=55) when compared to Moderate-PA students (201-1050 METS/week; IDB=8; T-anxiety=52) and to High-PA students (>1051 METS/week; IDB=6; AI-trait=50). S-anxiety scores were significantly different (p<0.005) only between Low-PA (median=55) and High-PA (median=51) students. Women had more symptoms of depression and anxiety than men in every PA level. According to MBI, Low-PA students presented greater emotional exhaustion (median=28) than Moderate-PA (median=26) and High-PA students (median=26), and less personal accomplishment (median=34) than High-PA (median=35, p<0.05).

Discussion and Conclusions: Physical exercise may be a protection factor against emotional distress symptoms in medical students.

Take-home messages: Medical students should be encouraged to exercise and their curriculum should include the practice of physical activities.

Self care for medical students, restoring love back to medicine

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Background: Doctors have high rates of burnout, addiction and suicide. These issues may arise as doctors are not fully aware of how to care for themselves. This module was developed to enhance the ability of students to self-care and was founded on the principles of love.

Summary of Work: Twelve third year medical students undertook a 3 week module on self-care. Many topics were covered eg. the energetic nature of the human person, listening to the body, emotions, sleep, diet and more. Practical sessions included gentle breath meditation, yoga, conscious presence, body scan, and energy exercises. Students were invited to experiment with different choices and observe the effects on their body.

Summary of Results: All students reported a deeper understanding of themselves and how their daily choices, diet and emotions affect their health and wellbeing. 11/12 students did not know before the module that there essence was love. All became aware of how their ability to care for themselves impacts their ability to care for another and the importance of listening to their own body and honouring what they feel.

Discussion and Conclusions: The majority of students were unaware that their essence was love. All students reported beneficial changes in their ability to self-care. A self-care module based on the understanding that the human person is love is key to engendering self-caring medical students who will then be more equipped to care for themselves and their patients equally so.

Take-home messages: As one student commented: ‘before you can provide quality care to another person you must be providing quality care to yourself. This is something we are not taught at medical school but is vitally important’.
Quality of life differences between medical and speech therapist students

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**Background:** Quality of life (QoL) is an important issue that may impact the professional learning. It is known that medical school may influence students’ QoL. However, there are few studies that compare their QoL with the QoL of other health students.

**Summary of Work:** We randomized medical and speech therapist students from several Brazilian universities. We used self-evaluation of QoL and Portuguese-Brazil validated versions of WHOQOL-BREF and DREEM questionnaires. As the vast majority of speech therapist student is female, male students were excluded from both groups.

**Summary of Results:** Our sample consisted of 714 medical and 472 speech therapist students. The QoL self-evaluation showed that medical students had higher scores of QoL in their overall lives (P<0.001). At WHOQOL-BREF, medical students had higher scores at the environment domain (p<0.001) and lower scores at the psychological domain (p<0.009). There was a difference between the global scores of DREEM, revealing that speech therapists students had better perception of their program (p<0.001). Discussion Both groups considered QoL in the program worse than the QoL in their overall lives. However, speech therapist students had a more positive perception of their courses according to DREEM. The exposure to more stressful factors during the years may explain why medical students had lower scores at psychological domain of WHOQOL-BREF.

**Discussion and Conclusions:** Female students of different health professions have different perceptions of education environment and quality of life.

**Take-home messages:** Strategies of student support shall be individualized according to each health profession program.

Academic Wellbeing Profiles in Medical Students of Chile

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**Background:** Health careers are among the most efficient in the Chilean educational system. However, 27% of their students’ drop-out before finishing the career. On the other hand, during training, students report problems like stress, anxiety and even bullying that may affect their wellbeing. Improving educational processes and increasing retention and academic wellbeing, demands comprehending our student’s adaptation process. Objective: To analyze the academic wellbeing profiles of students from first to third year of medical schools in Chile.

**Summary of Work:** Quantitative, non experimental and cross-sectional study sponsored by FONDECYT 1121002. 618 students from 8 medical schools were surveyed. Their academic wellbeing was assessed in terms of the perception of academic environment, study programs, burnout, academic engagement and satisfaction with the career.

**Summary of Results:** Two academic wellbeing profiles were identified using the Ward method of hierarchic cluster analyses. To assign each student to their profile a non-hierarchic cluster was used applying the K-Means analyses, showing that 261 (44, 24%) students were in the first cluster and 329 (55, 76%) in the second. Significant statistical differences in all assessed variables were found, converging that the first one corresponded to a lower wellbeing and the second to a higher one. Significant statistical differences were found in the initial academic expectations, but not in their academic achievements.

**Discussion and Conclusions:** Personal and environmental aspects converge in two groups with polar profiles demonstrating that academic wellbeing is an integrating construct.

**Take-home messages:** The assessment of success in medical schools must consider students’ academic wellbeing.
2FF15 (20152)
Evaluation of Mindfulness-Based Curriculum Strategies within a Veterinary Medicine Program

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Background: Studies from human medicine suggest that mindfulness-based stress reduction training and mindfulness interventions are effective strategies in reducing symptoms of stress, anxiety and depression. Further empirical work is needed in mindfulness training in veterinary education.

Summary of Work: Mindfulness training sessions were developed for a veterinary preparatory program. Enrolled students attended one self-care session and three mindfulness techniques sessions. Questionnaires addressing academic and psychological distress were employed to assess the effectiveness of the program (pre-post design).

Summary of Results: Study results explore: (1) students’ engagement in practicing mindfulness techniques through the Mindful Attention Awareness Scale (MAAS), (2) the link between the revised NEO Personality Inventory and openness to practicing mindfulness, as well as the effectiveness of mindfulness training through the Depression, Anxiety and Stress Scale (DASS) and Counseling Center Assessment of Psychological Symptoms (CCAPS).

Discussion and Conclusions: Expected study results will demonstrate that mindfulness strategies are effective towards: (1) reducing psychological and academic distress as measured through the DASS and CCAPS, (2) increasing state and trait-level mindfulness as measured through the MAAS, and that (3) personality factors will be associated with attitudes, ability and effectiveness to utilize mindfulness in/out of sessions towards reducing distress. Specifically, we hypothesize that students scoring high on ‘Openness to Experience’ will more likely believe in the benefit of and practice mindfulness; that students scoring high on ‘Conscientiousness’ will more likely practice mindfulness; and that the effect of mindfulness towards decreasing psychological distress will be strongest for students scoring high on ‘Neuroticism’.

Take-home messages: Student attitudes and preferences must be considered when instituting mindfulness training.

2FF16 (20836)
A study to explore the effect of comprehensive lifestyle education program

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Background: We need to teach medical students to promote patients’ healthy lifestyle. We examined the effect of comprehensive lifestyle education programs which consist of evaluation of personal lifestyle, self-learning and discussion on healthy lifestyle, and individualized health promoting activities.

Summary of Work: Total of 46 juniors of school of Medicine in INHA University on 2013 participated in this study. We checked anthropometric data and investigated depression and anxiety risks, sleep quality, dietary habit, alcohol drinking habit, smoking history, exercise habit, fatigue, and stress scale of their daily life with self-administered questionnaire. After the evaluation and the discussion in a small group composed 8 to 9 students and a professor of family medicine, the professor assigned the specific subject of lifestyle modification to every student considering an individual priority. The students were required to change the appointed unhealthy lifestyle as well as write a life style diary for two weeks.

Summary of Results: After 1 year, we investigated students’ lifestyles and their self-rating on lifestyle modification skills with self-questionnaire. Two out of 8 smokers had stopped smoking. Two thirds of student acknowledged the improvement of their lifestyle after this program.

Discussion and Conclusions: Comprehensive lifestyle education program improved medical students’ health habits and enhanced the ability of lifestyle modification.

Take-home messages: Comprehensive education program including individualized health promoting activities improved medical students’ own health and ability to modify lifestyle.
2FF17 (20846)
The influence of physical activity on the quality of life of Brazilian medical students

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Background: Previous studies have shown that physical activity positively influences quality of life (QoL). We studied QoL among Brazilian medical students according to their physical activity intensity (PA).

Summary of Work: A randomized sample of medical students from 22 medical schools answered questionnaires on QoL including WHOQOL_Bref, VerasQ, questions related to physical activity, and a self-assessment score to QoL in general and in the medical school. PA level was categorized as Low-PA (< 200 METS/week), Moderate-PA (201-1050 METS/week), and High-PA (> 1051 METS/week).

Summary of Results: Response rate was 81.2% (Females=714; Males=636; mean age=22.8±3.01). Males had higher levels of PA than females (p<0.001). Scores in all questionnaire domains were higher as PA level increased, with significant differences between Low and Moderate and between Low and High PA (p<0.05). There were also significant differences between Moderate and High PA (p<0.05) in the physical health and psychological domains of WHOQOL-BREF, and in the physical health, time management, and global domains of VERAS-Q. These results were observed in both male and female medical students.

Discussion and Conclusions: PA is positively associated with medical students’ QoL. We observed larger differences between Low and Moderate PA than between Moderate and High PA, thus suggesting a non-linear dose-effect behavior. Although men exercised more than women in our sample, QoL increased with PA for both. Our results suggest that PA is an important determinant of QoL for medical students.

Take-home messages: Medical schools should include physical exercise programs for students in their curriculum.

2FF18 (21756)
Effects of 10 minutes meditation on an immediate memory and memory span in the 1st year medical students

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Background: This study was interested in meditation effects on increasing memory aimed at studying both immediate memory and memory span from reading, tested before and after 10 minutes of meditation.

Summary of Work: An experimental and cross-sectional analysis was used. 72 of the 1st year medical students of Suranaree University of Technology were enrolled. The reading consisted of a total of 60 simple Thai words. Recall was tested 2 minutes after the reading. Analysis of the data was performed using computer program.

Summary of Results: The participants were a mean age of 19 years, 42% were male, and the average measure of intelligence (IQ) was 113.22 (89-168). The memory span before meditating was at 5-9 word samples (56.9%) (x̅= 7.02) compared with a memory span 20-24 word samples (31.9%) (x̅= 20.25) after 10 minutes of meditation. The study compared the increased number of words recalled after meditating by dependent T test as an increase of 13.39 words, which reached statistical significance (p<0.001).

Discussion and Conclusions: 10 minutes of meditation before a reading test was associated with an increase in immediate memory and memory span in 1st year medical students.

Take-home messages: 10 minutes of meditation before a reading test was associated with an increase in immediate memory (7.02 words to 20.25 words) (p<0.001) and memory span (5-9 words to 20-24 words) in 1st year medical students.
Sleep patterns and sleep quality in medical students and graduated doctors in Buriram medical education center, Thailand

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Background: Sleep deprivation (SD) and poor sleep hygiene are common in doctors and may be dangerous for patients. However this concern has not been raised in Thai medical students. This study aims to describe sleep hygiene, perception of sleep hours and daytime functions in medical students and junior doctors.

Summary of Work: Self-administered questionnaires were registered among 4th-6th year medical students and juniors doctors. Baseline characteristics, overall sleep hygiene, Epworth Sleepiness Scale (ESS), day time functions and reduction of sleep hours were analyzed.

Summary of Results: Response rate was 81.2% (Females=714; Males=636; mean age=22.8±3.01). Males had higher levels of PA than females (p<0.001). Scores in all questionnaire domains were higher as PA level increased, with significant differences between Low and Moderate and between Low and High PA (p<0.05). There were also significant differences between Moderate and High PA (p<0.05) in the physical health and psychological domains of WHOQOL-BREF, and in the physical health, time management, and global domains of VERAS-Q. These results were observed in both male and female medical students.

Discussion and Conclusions: Sleep deprivation and daytime sleepiness are common in medical students particularly those in training and affect daytime functions and healthcare performance.

Take-home messages: The presence of duty hours, work shifts, overnight duty as part of medical students training should be concerned to optimize both training and patients care in Thailand.

Trending in the wrong direction: Changes in sleep behaviors, attitudes and knowledge over time

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Background: Sleep deprivation among resident physicians has been the subject of much interest and debate.

Summary of Work: 194 interns entering a large U.S. pediatric residency program between 2010-2013 were surveyed anonymously prior to the start of training. The survey was part of the Sleep Alertness/Fatigue Education in Residency Curriculum developed by the American Academy of Sleep Medicine. Survey questions addressed measures of daytime sleepiness and sleep behaviors, attitudes and knowledge.

Summary of Results: The mean Epworth Sleepiness Scale score was greater than 8 (concerning for excessive sleepiness) for the past 3 years. There was a statistically significant (SS) decrease (p<0.05) in the number of reported hours of sleep on weeknights during the same time period. 95% of all incoming interns in 2010 got >6 hours of sleep on weeknights compared to only 83% during 2011-2013 (p<0.05). 62% of all incoming interns needed an alarm to wake up every day (2012-2013) compared to 39% in 2010 (p<0.05). The 2013 cohort was less likely to perceive that they made an error because of sleep loss and fatigue (p<0.05) compared to previous years. Four of fifteen sleep knowledge questions showed a SS decrease in correct responses among the 2013 cohort of incoming interns.

Discussion and Conclusions: Prior to the start of training, residents report concerning levels of sleepiness and suboptimal sleep habits.

Take-home messages: Interventions instituted at the medical school level (or earlier) will be necessary to change the suboptimal behaviors, attitudes and knowledge that are already developed by the time residency training begins.
2FF21 (20121)
Effect of Simple Happiness class to quality of life of medical students

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Background: Medicine education has an influence on medical students’ quality of life including physical and mental health. Happiness is a skill and an essential component of studying. This study was to investigate changes in quality of life of medical students before and after attending a Simple Happiness class.

Summary of Work: One hundred seventy-eight medical students studying in sophomore preclinical years (response rate: 96%) participated in the Simple Happiness class including stress management, self-awareness, happy hour, empower living and learning, meaningful relationships as well as self-development. The quality of life of medical students was evaluated before and after class using the World Health Organization Quality of Life questionnaire (WHOQOL-BREF). The findings were compared by dependent-samples T Test.

Summary of Results: The comparison indicated significant improvements their overall quality of life after the classes (Before: 95.16; After: 98.88; p <0.01). Furthermore, average WHOQOL scores after class were significantly higher than before learning on the physical health (Before: 21.99; After: 23.32; p <0.01), psychological health (Before: 21.52; After: 23.61; p <0.01), psychosocial health (Before: 11.23; After: 12.20; p <0.01) and environmental (Before: 29.35; After: 31.74; p <0.01) quality of life domains.

Discussion and Conclusions: The findings in this study provided evidence to support those medical students who perceived all quality of life domains as better after Simple Happiness learning. The results suggest that the happiness and life skill class was also necessary for medicine education.

Take-home messages: Happy medicine education will change the world. Is it possible? Let’s start with your happiness class.
2GG POSTERS: Residency training
Location: South Hall, Level 0, MiCo

2GG1 (20690)
Quality of life and The Burnout Syndrome Among Medical Residents In Brazil
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Background: Residency is a period of ambiguous feelings. Although the young doctor is under training, he is directly responsible for his patients. The vivid experiences of this period, the contact with human suffering, particularly when associated with poor reflection, may lead to emotional exhaustion, Burnout and a worse quality of life.

Summary of Work: Medical residents (n=85) from different specialties of a Brazilian university hospital completed the Maslach Burnout Inventory (MBI) and OMS’s WHO-qol BREF Quality of Life questionnaire at the beginning of the residency program and at the end of the first year. We performed a pretest-posttest analysis for both measures and a Spearman’s correlation test among the MBI subscales (Depersonalization-DP, Emotional Exhaustion-EE and Personal Accomplishment-PA) and the WHO-qol domains (social, physical, psychological and environmental).

Summary of Results: We observed a worse score in all MBI subscales and WHO-qol domains through the year. There was a significant correlation between burnout and quality of life, including every domain and subscale (P<.01).

Discussion and Conclusions: The Burnout Syndrome increases during the residency, at the same time that occurs a decrease in Quality of Life of residents, and both are correlated.

Take-home messages: There is a worsening in quality of life and in Burnout Syndrome during medical residency, and both are correlated.

2GG2 (21680)
Educating internal medicine interns on medical documentation: Does consultant co-signing the ward round note makes a difference?
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Samantha Mathieson, Auckland City Hospital, Auckland, New Zealand
Tina Baik, Auckland City Hospital, Auckland, New Zealand
Nicholas Szecket*, Auckland City Hospital, Auckland, New Zealand

Background: Aim of this study was to assess whether consultants co-signing improves the quality of the post acute ward round (PAWR) notes.

Summary of Work: General Medicine consultants at Auckland City Hospital were asked to co-sign PAWR notes written by interns for one week. Consecutive series of patients admitted in the one week prior to and one week after this intervention were identified. All PAWR notes of these patients were independently reviewed by two investigators and graded for quality using a grading scale. Pre and post intervention groups were compared.

Summary of Results: Total of 396 patients were identified (189 pre and 207 post intervention) and 100 patients from each group was randomly selected. Thirty post intervention patients met inclusion criteria (consultants co-singed note). In the post intervention group, the consultants changed the impression and plan in 43% and 35% of cases respectively. Documentation of date, time and consultant name increased from 84% to 93% (p=0.56). There was no significant difference in the quality of the primary impression and plan in the two groups; 87% and 93% had a logical impression and plan in the pre and post intervention groups respectively (p=0.55). However the consultant input significantly improved rate of logical secondary impression and subsequent plans (46% in pre-intervention and 89% in post intervention groups, p=0.02). No significant change in logical reasons for medication changes (78% and 93%, p = 0.23) or recoding of contact numbers (84% and 75%, p = 0.21) in the two groups.

Discussion and Conclusions: Results of this audit shows requesting the consultant to co-sign the post acute ward round note improved the documentation of secondary impressions and subsequent plans. A large person of impressions and plans were also changed by consultants.

Take-home messages: Consultants actively involving and reviewing the ward round notes may improve the quality of the notes and also provide opportunities for teaching the interns.
2GG3 (22631)
E-handover and the multifactorial benefits in an NHS Foundation Trust

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Background: RDGH NHS Foundation Trust identified general medical handover as a key failing area during 2013-14. Traditional handover procedures in RDGH were initially observed and reviewed. Problems identified included lack of formal leadership, structure, & coordination. In particular concerns regarding poor handover; antiquated use of bleeps / landlines; and communication were expressed.

Summary of Work: Prospective service review with interval analysis performed Sept – Nov 2013. An Android application with desktop software was developed to support the handover process. Two pilots of the electronic handover system were completed during the analysis period. Feedback was collated and problems identified were actioned and remedied. To facilitate the electronic handover a coordinating night practitioner & medical rota changes were introduced.

Summary of Results: Pilot tests revealed several benefits including a reduction in unnecessary bleeps and more accurate task allocation where tasks were no longer lost and a clear audit trail was available.

Discussion and Conclusions: Once the full handover system is in place we expect our results to mirror other units who have introduced similar systems (e.g. Nottingham). We also anticipate financial savings, and an improved record of tasks completed thus allowing doctors to access the system for their training log.

Full roll out of the electronic handover system is planned for introduction in April 2014.

Take-home messages: Electronic handover has a key function in enabling effective task management – accurate documentation for trainee portfolio’s and log books; and an essential clinical governance directive in maintaining a precise audit trail of patient management.

2GG4 (19521)
Time is of the essence: What do Internal Medicine Residents do while on duty?

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Alan J Forster, The Ottawa Hospital, General Internal Medicine, Clinical Epidemiology, Performance Measurement and Innovation, Ottawa, Canada

Background: Long resident duty hours have been under scrutiny as a factor in patient safety. However the current system of resident workflow and education needs to be studied in order for teaching hospitals to effectively optimize the distribution of resident duty hours.

Summary of Work: Twenty Internal Medicine residents from two tertiary care sites were shadowed during six-hour blocks of time. All tasks and their durations were tracked using an iPad application. Tasks were categorized as Direct Patient Care, Indirect Patient Care, Transit, Education, Communication, Documentation, Administration, Non-physician tasks, or Personal.

Summary of Results: A total of 17,709 tasks (521 hours of observation) were recorded. The majority of resident tasks were in Direct Patient Care (27.5%), followed by Communication (22.7%), Personal tasks (14.6%), Documentation (13.2%), Education (11.5%), Transit (5.8%), Indirect care (3.8%), Administration (0.6%), and Non-physician tasks (0.4%).

Discussion and Conclusions: Findings of note were that while residents spent the majority of their time in direct patient care, actual time spent at the bedside was low (9.2%). Results also showed a need to increase the quantity of education residents received from attending staff. Successful use of a time-motion application enabled high-quality data collection for workflow analysis and future assessment of the impact of changes to resident duty hours. These results will be used to assist a review of the current medical resident education model and tasks, in the hopes of optimizing their learning, professional development and personal experiences.

Take-home messages: This time-motion study identified room for improvement in residents’ education and physician-patient interactions.
The feedback based on an oral case presentation checklist can improve presentation skills of medical residents

Take-home messages: The feedback based on an OCP checklist could be a useful tool to improve residents’ overall OCP skills. A prospective multi-centered trial is needed to determine whether the feedback based on this OCP checklist improves residents’ OCP skills.

Background: We developed an oral case presentation (OCP) checklist that enables faculty and residents to rate residents’ OCP skills and provide timely contextual feedback. The objective of this study was to examine whether the feedback based on an OCP checklist improved residents' OCP skills.

Summary of Work: This was a retrospective observational study. OCP checklists had 24 presentation competencies. Each competency was assessed on a three grade scale: A, superior, B, satisfactory, C, unsatisfactory. All residents (n=66) in postgraduate year 1 enrolled in the general internal medicine inpatient rotation from 2008 to 2013 participated in the study. The rotation was organized into two 6-week blocks a year. The presentation was evaluated using the OCP checklist in each rotation, and the presenters received feedback based on the OCP checklist. The evaluators were faculty members and other residents. To examine whether the feedback based on an OCP checklist improved residents' OCP skills, the outcome measure was the ratio of rating A between the first and second rotation.

Summary of Results: 132 oral case presentations were included. The average ratio of rating A between first and second rotation was 75.3 % +/- 12.7 and 79.9 % +/- 10.0 (p=0.003). There was statistically significant improvement between them in such competencies as presence, delivery, past history, concise physical examination by systems, and understanding of diagnostic tests. The greatest improvement among the competencies was in delivery skills.

Discussion and Conclusions: The feedback based on an OCP checklist improved residents' OCP skills. Many competencies were improved, with delivery skills showing the most improvement.

2GG6 (19645)
Management of uncertainty by resident physicians in critical incidents

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Iwin Leenen, Universidad Nacional Autonoma de Mexico, Secretaria de Educacion Medica, Ciudad de Mexico, Mexico

Background: During their training, medical residents have responsibilities and obligations while participating in a hierarchical clinical system. In their medical practice they are exposed to critical incidents where uncertainty appears in decision making.

Summary of Work: This paper explores strategies developed by residents to handle uncertainty, and advance successful outcomes in the health and safety of the patients. This management affects their learning, personal satisfaction and achievement of institutional goals. From a qualitative exploratory study an instrument was built to investigate the types of uncertainty and the strategies used by residents during a critical incident. A pilot study of 120 cases, determined the validity and reliability of the questionnaire (Cronbach Alpha 0.909 and 5 types of uncertainty -technical, conceptual, communication, ethical and systemic- derived from the factorial analysis). On July 2013, the instrument was delivered online to 8596 residents registered at the Postgraduate Division of the Faculty of Medicine at the National University of Mexico, of who 3181 responded.

Summary of Results: Uncertainty augmented as the liability increased on clinical decision-making. Differences were significant according to the year of the residence; there were variations between specialties, but not by age and sex. The most common strategy used to cope with uncertainty was consulting a senior doctor.

Discussion and Conclusions: Strategies to manage uncertainty in a critical incident affect patients' outcomes, residents' learning and hospital systems' functioning.

Take-home messages: Teaching residents to handle uncertainty streamlines the processes of health care, avoids errors that affect patients, and reduces the waste of hospital resources. The hierarchies in the health team function efficiently in critical incidents.
**2GG7 (21565)**

A novel mentor selection process: Results from six years in an Internal Medicine Residency

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**Background**: Mayo Clinic Florida has 30 internal medicine residents. With increasing numbers of residents competing for sub-specialty fellowships and a new research requirement in our program, a novel method to successfully pair interns with mentors in the first few months of training was needed.

**Summary of Work**: Mentor proposal forms were sent to all faculty members in the Department of Medicine at the beginning of the academic year. Interested faculty were asked to list all current IRB approved research projects and potential ideas for research, national committee assignments, and their own training and experience. Proposals were distributed in October of the intern year. Interns were asked to select at least three potential mentors they felt matched their own interests, and set up individual face-to-face meetings with those faculty members. They were told to “interview” the faculty member, noting research experience, communication skills and personality, and available time to devote to mentoring, and then select their own mentors.

**Summary of Results**: The program started with the 2008-2009 intern class, and used with each class thereafter. Numbers of annual publications showed a nine-fold increase from 2007 (4 publications) to 2013 (36 publications). Presentations at national meetings have also increased, as well as improved fellowship match rates.

**Discussion and Conclusions**: This mentor selection process is highly successful because it gives trainees information on available mentors and research projects early in the intern year, while allowing them autonomy to interview and select their own mentor. 

**Take-home messages**: The novel mentor selection process described here could be used at the start of any training program to better pair mentors and trainees in their field of interest, while giving the trainees the autonomy of selecting a mentor they find easy to communicate with and with similar interests.

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**2GG8 (19080)**

Implementation of Ultrasound Curriculum in Internal Medicine Residency Training

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**Nabeel Azeem**, Mayo Clinic, Internal Medicine, Rochester, United States

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**Background**: Point-of-care ultrasound is a rapidly evolving component of internal medicine (IM) residency training; however the optimal curriculum for teaching and learning this skill remains unclear.

**Summary of Work**: During orientation, all PGY-1 residents attend a simulation-based ultrasound workshop with both didactic and hands-on components. Pre- and post-tests were performed, asking for identification of the following images: ascitic fluid, kidney, thyroid, pleural fluid, inferior vena cava (IVC), and internal jugular vein. To potentially aid in knowledge and skill retention, an ultrasound curriculum (UC) was initiated during inpatient medicine rotations which included a morning report and afternoon ultrasound rounds. Six months after implementation, a follow-up test was sent out to all participating residents.

**Summary of Results**: Forty-eight residents completed the orientation post-test and the six-month follow-up survey, 24 (50%) of which participated in the UC. Those without the UC had a decline in the identification of ascitic fluid (88% vs 38%, p=0.005), pleural effusion (67% vs 17%, p=0.003), and IVC (63% vs 33%, p=0.008) at six months, whereas those who participated in the UC showed a non-significant change.

**Discussion and Conclusions**: The addition of a longitudinal component to an UC for PGY-1 residents aids in knowledge retention at six months compared to a single workshop alone. These results are promising for IM residency programs working to teach their trainees this useful skill.

**Take-home messages**: The incorporation of a longitudinal ultrasound curriculum can result in improved retention and interpretation of basic ultrasound images.
2GG9 (20332)
Training environment and resident performance

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Nitipatana Chierakul, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: The overall atmosphere of program training including workload, nurturing, knowledge and skill acquisition, and emotional climate, may influence resident behavior and academic performance.

Summary of Work: We extracted the data of a formal satisfaction survey among internal medicine residents in academic year 2012, conducted by the Royal College of Physicians of Thailand. The survey consisted of 3 parts including training activities, faculty supportiveness, and physical and mental environments. Association between scores from satisfaction survey and board certifying examination were then analyzed.

Summary of Results: There were 12 training centers with 535 residents in that academic year. The mean satisfaction score for second-year residents was 77.1 ± 6.1, and the mean written examination score was 56.4 ± 4.6, with the intraclass correlation (ICC) of 0.487 and p-value 0.046. For the third-year residents, the mean satisfaction score was 78.5 ± 6.5 and the mean clinical examination score was 71.1 ± 1.6, with ICC of -0.002 and p-value 0.503. In the subgroup analysis for ICC in second-year residents, training activities had the strongest influence (ICC 0.552) as compared to faculty supportiveness (ICC 0.407) and physical and mental environments (ICC 0.460).

Discussion and Conclusions: Resident perception of positive training environment, especially the training activities, is associated with the performance in terms of knowledge achievement, but not for the clinical skills accomplishment.

Take-home messages: If you treat the residents well, potential for being specialists may be enhanced.

2GG10 (22164)
Theory Versus Practice: The Use of Evolutionary Medicine in Everyday Clinical Practice in the UK

Parveen Herar*, Durham University, Anthropology, Durham, United Kingdom

Background: Evolutionary medicine (EM) explores human vulnerability to present disease and illness through speculation about and study of past human environments, selection pressures, genetic factors and host-parasite interactions using Tinbergen's 4 questions for explaining behaviour as a framework. Anthropologists have been discussing the ideas of EM since the 1960’s, but not until the last 8 years has literature in the field expanded. EM can add a measure of certainty in public health and health promotion where evidence-based medicine (EBM) falls short. The integration of EBM into clinical practice can be used as a model for integrating EM into clinical practice.

Summary of Work: Grounded Theory was used as a framework for delivering Think Aloud methods for interviewing participants to gain insight if EM principles are used in everyday clinical practice and of the learning needs of clinicians. N=10 UK practicing clinicians.

Summary of Results: Although the majority of participants did not use EM in daily clinical practice, participants are keen to learn more and deemed EM most useful to National Institute for Health and Care Excellence (NICE) clinical guideline developers.

Discussion and Conclusions: It is evident that EM is used by NICE who provide guidelines for practicing clinicians in the UK. An EM “tool-kit” published in a high profile medical journal would be the best way to disseminate EM knowledge as specified by participants, for it to be integrated into everyday clinical practice.

Take-home messages: EM can be useful to modern day clinical practice but is not taught as a regular part of medical education of doctors in the UK.
2GG11 (20095)
Translating Research in the Digital Age

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T Shaw, The University of Sydney, Workforce Education and Development Group, Sydney Medical School, Sydney, Australia

Background: The Sydney West Translational Cancer Research Centre (SWTCRC) is an innovative organisation funded to help grow translational research in cancer in western Sydney. It is a geographically dispersed network, encompassing members from a wide range of expertise areas. The centre’s target demographic is time poor and often resistant to communication methods that required significant deviation from existing schedules.

Summary of Work: The SWTCRC developed the Sydney West Knowledge Portal: an online community that utilises technology to bridge the real world divides in the network and support research translation. A needs analysis was conducted which informed the design and development of numerous push and pull activities for the site. Additionally, there were periodic surveys of members to evaluate the site utility and respond as needed. Finally, semi-structured interviews were conducted to evaluate site impact on user perception of knowledge translation as well as behaviour change.

Summary of Results: The site supported significant growth in membership since launch, increasing its ability to engage with the geographically dispersed demographic targeted by the SWTCRC. Several successful online initiatives have been developed to support research translation within the network.

Discussion and Conclusions: Research translation in a dispersed network is incredibly challenging, but can be supported through the utilisation of targeted online resources.

Take-home messages: It is challenging to create an autonomous sense of place in online communities, and it is important to link the virtual to the physical world.

2GG12 (22582)
Characteristics and results of the scientific production of a master’s degree course for managers and workers of the public health service

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João Manuel Costa, University of Minho, School of Health Sciences, Public Health, Braga, Portugal
Antonio Carlos Pereira, Faculty of Dentistry of Piracicaba, Public Health, Piracicaba, Brazil

Background: In 2003, the Faculty of Dentistry of Piracicaba created program of postgraduate training for managers and workers of the public health service, supported and financed by the Brazilian Department of Health. The goal of the program was to integrate the public service with the university.

Summary of Work: This paper describes the course, the local context, professional statistics, and conclusion and dropout rates of the first 5 classes. The program runs every two years for a class of approximately 17 students, selected through a written test and interview. For completion of the course is necessary having a scientific paper submitted for publication.

Summary of Results: The course admitted 83 students out of 480 applicants. There were approximately the 50% females in every class. The age of the students was between 24 and 57 years. Students were graduates in medicine, dentistry, nursing, psychology, pharmacy. The positions in the public health system were mayor, health secretary, and manager of health region, manager of dental and medical specialty centers, and health surveillance coordinator. 75% (n=62) of the students achieved graduation, 72% were female. The percentage of students who left the course was less than 3%. Students with post of secretary of municipal health were more extended the deadline for completion.

Discussion and Conclusions: Most of the students who finished the course in the allotted time were female. The group presented scientific publications in national journals of impact. Scientific production was important and generated new knowledge to the public health planning actions. Students with secretary of municipal health were more extended the deadline for completion.
2GG13 (21067)
The application of School business plans (BP) to the management of General Medical Council (GMC) approved programmes in Health Education Kent, Surrey and Sussex (HE KSS)

Angela Fletcher, HE KSS, London, United Kingdom
Kevin Kelleher*, HE KSS, London, United Kingdom

Background: To help Specialty Schools scope, plan, cost and deliver the elements involved in trainee management, a business planning process was introduced. This articulates with and informs the overall BP of HE KSS.


Summary of Results: The BP allows planning and tracking of key tasks and provides an early alert system where pressures arise.

Discussion and Conclusions: The BP encourages Schools to plan ahead and ensures resources.

Take-home messages: A BP is a tool that can be applied to the management of all PGME programmes, and adapted to the individual circumstance of the Schools.

2GG14 (21426)
Personal and professional development effects of involving interns as responsible for improvement processes

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Ellinor Almquist*, Institute of Medicine, Department of Internal Medicine, Gothenburg, Sweden
Ulla Strandman, Institute of Medicine, Department of Internal Medicine
Paulin Andréll
Caterina Finizia

Background: Program Directors at Sahlgrenska University Hospital operate a continuous improvement process (CIP) in which they involve the ~100 concurrent interns. An Intern Council (IC) with 14 members was formed to better enable interns to actively participate in the development and improvement of their training. IC members collect input from interns which is delivered in a structured form to program directors. The IC is also consulted by the program directors and works closely together with them on CIP issues.

Summary of Work: We have performed a survey to evaluate the personal and professional development (PPD) of IC members. The survey included 38 Likert-scale questions where the members reported their own perception of PPD related to their IC involvement.

Summary of Results: Results from the survey show that IC members have gained experience that contribute to strengthen personal development, leadership and communication skills. Participants also highlighted improved skills in meetings management and team work. Furthermore, results indicate they had gained an increased ability and interest in terms of organizational structure, improvement processes and management within the clinical setting.

Discussion and Conclusions: The IC structure for continuous improvement has earlier been shown to be effective for the interns as a group and for the quality of training. This evaluation has shown that the work as an IC member is of great value in terms of PPD. The survey will be repeated for longitudinal evaluation.

Take-home messages: The Intern Council system has been of great benefit to personal and professional development of member interns.
Background: In recent years, the incidence in the news of residents’ death from fatigue has increased. This is attributed to resident working hours, fatigue and workload. The references also show that extended working hours will cause serious impact on resident learning effectiveness and patient safety. Therefore limitation in the working hours of residents has been a source of controversy both in United States and Europe, and Taiwan is no exception. Under current regulations of ACGME, residents working hours are 80 hours per week in the US. In Europe, by employing EWTD to restrict residents working hours, it is 48 hours per week. By contrast, there is no relative regulations to limit the working hour of residents in Taiwan. Labor Standards Law is also not applicable to physicians and residents. We sought to survey the association between resident working hours, burnout, and patient safety.

Summary of Work: Selecting subjects from the teaching hospitals, the target population consisted of residents who are in a graduate medical education program, including PGY, and R1-R4. The instrument of working hours, burnout of residents was measured by questionnaires – “Occupational Burnout Inventory”. The variable of patient safety was included by using the questionnaire. Statistical analysis methods included descriptive statistics, t-test, One-way ANOVA and multiple-regression analysis.

Summary of Results: The result reveals that the resident working hours will affect their learning effectiveness, such as patient safety, professional knowledge and so on.

Discussion and Conclusions: In the future, we are hoping to developing a new program to evaluate residents’ learning effectiveness, where responsibility is afforded in a safe, total number of working hours, and the amount of rest they were getting and so on, in order to improve patient safety as well as resident education and quality of life.

Take-home messages: Develop a new instrument to evaluate residents’ learning effectiveness, get feedback, and keep improving the process.

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2GG16 (20336)
An application of cognition, skill, support, and ethical apprenticeships on clinical teaching to the well-being of interns in the workplace

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Der-Yuan Chen, Taichung Veterans General Hospital; National Yang-Ming University; National Chung Hsing University; Chung-Shan Medical University, Department of Medical Education and Research; Faculty of Medicine; Institute of Biomedical Science; Institute of Microbiology and Immunology, Taichung, Taiwan
Yung Kai Lin, Taichung Veterans General Hospital; National Chung Hsing University, Division of Cardiovascular Surgery; Department of Business Administration, Taichung, Taiwan
Cheng-Chieh Lin, China Medical University; China Medical University Hospital, School of Medicine, Department of Family Medicine, Department of Health Services Administration, Taichung, Taiwan

Background: A crucial indicator of the comprehensive planning of medical education is how clinical teachers at medical institutions use high-quality apprenticeship systems to provide clinical learning environments. This study examined how the clinical teaching effectiveness of cognition, skill, support, and ethical apprenticeships relate to the well-being of interns in the workplace.

Summary of Work: Sixty-eight interns from various medical schools who rotated in one tertiary medical centre were recruited and signed informed consent forms, yielding a participation rate 75% (N = 90) for this prospective longitudinal study. All participants were first required to complete a validated, structured, and self-administered questionnaire regarding their demographics and academic performance by mail. Then, the participants were mailed by the other validated, structured and self-administered questionnaire addressing the teaching effectiveness of cognition, skill, support, and ethical apprenticeships, compassion satisfaction, burnout, and clinical teaching contexts each rotation each month from August 2012 to June 2013 and 823 completed responses were obtained.

Summary of Results: Structural equation modelling was performed to validate the constructs of cognition, skill, and support apprenticeships to a second-order construct (renamed as professional apprenticeship) and the causal model were tested. It indicated that professional (gamma = 0.258) and ethical apprenticeships (gamma = 0.140) related to increased compassion satisfaction amongst the interns and professional (gamma = –0.180) and ethical apprenticeships (gamma = –0.269) also related to reduced burnout, all at p < .001 level. In addition, female interns reported less compassion satisfaction and more severe burnout than did male interns.

Discussion and Conclusions: Regarding compassion satisfaction, professional apprenticeships exerted
stronger effects than did ethical perspectives; by contrast, concerning burnout, ethical perspectives exerted stronger effects compared with professional perspectives.

Take-home messages: Different mechanisms existing for the interns' well-being in their clinical training deserve further explored and additional concerns go to the gender as well.

2GG18 (21172)
Social networks and communication issues with residents

Guy Labrecque*, Laval University, Quebec, Canada
Julien Poitras, Laval University, Quebec, Canada

Background: Given the massive amount of emails and spams our residents receive, postgraduate medical education offices often have a hard time reaching the residents in their programs to share them useful information, including information on faculty activities, evaluation for rotations, etc.

Summary of Work: A survey among our residents has revealed that more that 8 out of 10 use social networks, especially Facebook. Of that number, two thirds have said they are willing to be contacted through social networks by our office. Therefore, in March 2013, a private group entitled « UL residents » was created on Facebook.

Summary of Results: Within a few weeks, one third of our residents had joined the Facebook group. Since the creation of the group, we have continued to send official messages by email, while using social networks to send some reminders or post in a « secure » setting some news articles, videos or surveys allowing us to touch base with residents. The initiative seems very promising as new R1 have massively joined the group in July 2013. New residents also use it more regularly than residents nearing the end of their schooling.

Discussion and Conclusions: Residency programs and affiliated units in hospitals, even more than postgraduate medical education offices, should make use of social networks to reach and engage residents.

Take-home messages: Social networks will probably not dramatically change the way of managing residency programs, but they clearly are very useful to communicate with residents and share them information.
How to involve clerks and residents in a System of Educational Quality Management (SEQM)

Tadek Hendriksz, Albert Schweitzer Hospital, Department of Radiology, Dordrecht, Netherlands
Robert Oostenbroek, Albert Schweitzer Hospital, Department of Education, Dordrecht, Netherlands
AAV Bestuur, Albert Schweitzer Hospital, Dordrecht, Netherlands
Francois Verheijen, Albert Schweitzer Hospital, Department of Clinical Chemistry, Dordrecht, Netherlands
Monica Van De Ridder, Albert Schweitzer Hospital, Department of Education, Dordrecht, Netherlands

Presenter: Jeanette van Vooren*

Background: A safe educational environment is crucial for learning: it influences patient safety, motivation of trainees and supervisors, and it creates learning opportunities. The quality of education can be enhanced and managed when trainees and staff reinforce the good points in teaching and learning and acknowledge and report the points that can be improved. How can clerks and residents participate in a System of Educational Quality Management (SEQM)?

Summary of Work: From 2009-2013 in a Dutch Tertiary Teaching Hospital the SEQM was developed and evaluated. The system consists of several instruments: annual evaluations of the learning climate in clerkships, residency training programs, and supervisors' teaching qualities. General quality of residency training programs are measured biennial through internal audits and baseline measures. When residents leave the hospital an exit-interview is conducted. Previsitation for accreditation is also part of the SEQM.

Summary of Results: Clerks and residents have the role of information providers when they fill out evaluations. They fulfill the role of assessors when they are member of the Internal Audit and the previsitation for Accreditation Committee, and when they conduct exit-interviews. In their role as sparring partner they discuss together with the faculty how to act upon the results from the SEQM.

Discussion and Conclusions: By involving learners in the SEQM, they learn early in their career about the importance of a well-functioning quality system. This experience can also serve as a good foundation for helping to keep the learning environment healthy when these learners become faculty themselves.

Take-home messages: A SEQM works if clerks and residents collaborate with faculty in being transparent about the educational quality.
**2HH POSTERS: Clinical methods and procedures**
Location: South Hall, Level 0, MiCo

**2HH1 (22209)**
Comparison of the impact of traditional and multimedia independent teaching methods on operation room students’ practical skills

*Saghi Moosavi*, Guilan Medical University, Rasht, Iran
*Saghar Fatemi*, Guilan Medical University, Rasht, Iran
*Ahmad Taheri*, Rasht, Iran

**Background**: One of the most important principles of education concepts and establishing skills in operation room students is the use of proper goal-based educational methods and applicable to operation room conditions. Special attention has to be paid to: practical skills of circulation, scrubbing, preparing instruments and implants. The aim of this study was: Identifying the best educational way for practical skills by operation room students. This experimental study was conducted to compare the impact of traditional and multimedia independent teaching method on cognitive knowledge and psychomotor skills of first year operation room students.

**Summary of Work**: in an experimental study 38 operation room students participated and were randomly divided into 19 samples of experimental and control groups. The control group was taught by traditional method and the experimental group by multimedia independent (short movie) teaching method. Evaluation method was performed by DOPS for both groups. Comparison of basic specifications of two groups were performed by X2 test. Data normalization were measured by Kolmogrov-Smirair test. Non parametric Mann-Whitney were used for groups comparison. Also mean and standard deviation were calculated.

**Summary of Results**: Based on the results of evaluation between two groups’ performance by resemblance evaluation instrument, a significant increase in mean and standard deviation (P<0.0001) was observed in the case group.

**Discussion and Conclusions**: Analysis of data indicated that cognitive and psychomotor skills were statistically increased in multimedia teaching method.

**Take-home messages**: Multimedia teaching will improve cognitive and psychomotor skills of operating room students.

**2HH2 (22473)**
How to train your students in procedural skill

*Komol Praphasit*<sup>*</sup>, Prapokklao Hospital (Medical Education Centre), Otolaryngology, Chanthaburi Province, Thailand

**Background**: Attending in ENT unit of 5th-6th year medical students, teaching for “tracheostomy technique” was performed by lecture and video tape review. These techniques may cause the students boredom and decrease confidence. To improve this skill, we use the DIY Model for training the tracheostomy technique. By this Model, the students can repeat this procedure as much as they wish to improve their confidence before performing on real patients.

**Summary of Work**: We use the latex from the rubber tree for making “The Tracheostomy Models”. We can get the good-quality, low-price latex from the farm in our town. So, we can save the budget of our training centre, because latex is one of the important community products in our town. We use this Model for teaching & assessment of tracheostomy skill in 5th -6th year medical students attending for a short period (1-2 weeks) in Otolaryngology unit. Repeating the procedure can done for some students to improve their confidence.

**Summary of Results**: The students’ and teachers’ satisfaction for the tracheostomy models was excellent. Although performing the tracheostomy procedure in the workshop, it looked like the real situation in the operation room. The confidence of medical students to perform tracheostomy in real patients after training was higher than teaching by lecture & video tape review.

**Discussion and Conclusions**: We can improve the quality, efficiency, and students’ confidence in teaching the procedural skill by using DIY teaching Model.

**Take-home messages**: Improve the model texture, try use of latex for another procedure, use Model for commercial purposes.
**Clinical Skills Methodologies: From, to and beyond**

Liris Benjamin*, Ross University School of Medicine, Department of Clinical Medicine, Picard, Portsmouth, Dominica
Griffin Benjamin, Ministry of Health, Dominica, Ross University School of Medicine, Psychiatry, Roseau, Dominica

**Background:** Medical education continues to evolve. With this growth, various medical curricula approaches have been utilized. These include the Apprentice, Discipline-based, Organ-System Based, Problem-Based Learning clinical presentation based models. This paper aims to present the clinical skills training methodologies utilized over the years at Ross University School of Medicine (RUSM) and the lessons learnt during the process.

**Summary of Work:** The clinical skills methodologies utilized over the years at RUSM were reviewed from a historical perspective. The lessons learnt in the clinical skills methodologies were discussed.

**Summary of Results:** At RUSM, the Discipline-based model was the major curricular approach and this was later supplemented with Problem Based Learning. Clinical skills were taught mainly in semesters three and four with the basic sciences standing as separate disciplines. However in 2010, with the birth of the Organ systems-based curriculum, there is increased teaching of clinical skills from semester one. The clinical skills methodologies utilized at RUSM include physical examination labs, the standardized patient program, history taking and write-us, reflective practice and different types of simulation ranging from Harvey (cardiovascular system) to various clinical presentations related to basic science modules.

Several lessons were learnt at the various stages of implementation of the curriculum include those related to the content, delivery, methodologies, assessment and class size in relation scheduling. However there is still need for further integration with the clinical years.

**Discussion and Conclusions:** The curriculum at RUSM has evolved through various models including Discipline-based, Problem-Based Learning and Organ-System Based. Several lessons have been learnt in the process. The clinical skills methodologies had greatest evolution with integration into the basic science years.

**Take-home messages:** Clinical skills methodologies have significantly integrated into the basic science years.

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**Enhancing surgical education with active participation of medical students in operative camps in remote areas of Brazil**

Nathália Macerox Ortolan*, University of São Paulo Medical School, São Paulo, Brazil
Luiz Fernando Ferraz da Silva, University of São Paulo Medical School, São Paulo, Brazil
Maurício Simões Abrão
Joaquim Edson Vieira
Rebecca Rossener
Giovanni Favero

**Background:** One of the major issues regarding medical education is surgical teaching, especially endoscopic procedures, demanding innovative strategies to connect medical students (MS) to these new operative technologies. This study aimed to analyze the MS evaluation of an active participation into a minimally invasive surgical procedures (MISP) camp in Brazil.

**Summary of Work:** The Project Bandeira Científica (University of Sao Paulo Medical School) intends to deliver health care services to underprivileged populations in Brazilian remote areas since 1957. In 2013, the project was designed to provide gynecologic MISP in Brazil’s Midwest. During one week expedition, 13 MS had active participation in 31 different minimally invasive surgeries, from anesthesia to post-operative follow-up, constantly supervised by experienced professionals. All involved MS were asked to evaluate the activities completing a post campaign questionnaire based on a semantic scale of grades (0 low – 5 high) and additional personal opinions.

**Summary of Results:** The survey was fulfilled by 11 students (85%) and the mean grade of all different activities was 4.1. The stratified evaluation revealed a mean grade of 3.9±0.54 for surgical activities, 4.7±0.46 for anesthetic procedures and 3.1±1.1 for the postoperative follow-up. The additional personal opinions showed that MS were satisfied or very satisfied with this complementary educational tool.

**Discussion and Conclusions:** Surgical expeditions with educational purposes are feasible and all their medical activities are very well evaluated by students.

**Take-home messages:** Extramural immersive activities may play an important complementary role in surgical teaching, especially regarding MISP, providing a new scenario for students’ learning.
ABSTRACT BOOK: SESSION 2
MONDAY 1 SEPTEMBER: 0830-1015

**2HH5 (21606)**
Evaluation of a course of minor surgery for medical students

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Peter Mccoll, Escuela de Medicina Universidad Andres Bello, Viña del Mar, Chile
Marcelo Vera, Escuela de Medicina Universidad Andres Bello, Viña del Mar, Chile
Alberto Caro, Escuela de Medicina Universidad Andres Bello, Viña del Mar, Chile
Ignacio Cortes, Escuela de Medicina Universidad Andres Bello, Viña del Mar, Chile

**Background:** The skills and knowledge in minor surgery are essential in the training of general practitioners.

**Summary of Work:** Objective: Evaluate the implementation of a course of minor surgery in medical students. A theoretical and practical course of minor surgery was designed, including the creation of a Minor Surgery Manual (home study 14 hours), 9 lectures (4 hours) and a surgical skills workshop (4 hours) that included the following stations: Washes hands and armed surgical table, Knots, Removal of lesions in inanimate and Application of anesthesia, Incisions and sutures. Eighty three students participated, group A: 33 from 4° degree, group B: 32 from 6° degree and group C: 18 from 7° degree. Before and after the course a multiple-choice test is applied. A score from 1 to 7 was used. The score was calculated using average, standard deviations and the t Student test, to measure differences in average.

**Summary of Results:** In group A, the score average of the test was: initial test=4.84 and final test=4.98; in group B was 4.82 and 4.79 and in group C was 4.94 and 4.60 respectively. In all three groups the observed differences were not statistically significant when applying the test of mean differences of t student.

**Discussion and Conclusions:** There were no significant differences between the initial and final test score. The multiple choice test structure and the differences conditions that the test was apply, could explain this result.

**Take-home messages:** Redesign the course: improve the instructions for home study; incorporate nail avulsion technique; improve the assessment instrument (multiple choice test) and incorporate skills assessment and feed back.

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**2HH6 (21562)**
Perception of medical students at Universidad de Chile about Peer Physical Examination as a teaching methodology for competence acquisition in physical examination. Qualitative study

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Pilar Brüning González, Universidad de Chile, Santiago, Chile
Katherine Lee Angulo*, Universidad de Chile, Santiago, Chile
Diego Garcia Prado, Universidad de Chile, Santiago, Chile
Marcela Silva Roman, Universidad de Chile, Santiago, Chile
Daniella Gatica Morales, Universidad de Chile, Santiago, Chile*

**Background:** Peer Physical Examination (PPE) is a teaching methodology that aims to develop competences for physical examination in health students, based on each other’s examination. Despite standing concerns, international experience shows that attending students are usually comfortable. PPE was implemented during fifth semester of Medicine at Universidad de Chile, 2013. There are no previous records of PPE at this university; therefore there is interest on students’ perception, which was registered in a qualitative study.

**Summary of Work:** A sample of 39 students attending sixth semester of Medicine was divided in two groups. Group 1: Students that participated in PPE (n=29). Group 2: Students that did not participate (n=10). An auto-administered survey and a focus group guideline were designed and applied. Results are presented in three approaches: expectations, experience and effects.

**Summary of Results:** Students agree that good relations generated within the group allowed a trustful environment. They perceive PPE as useful for later hospital practice, and reinforcing theoretical knowledge. As main effects of PPE rise: to generate a mental structure to schematize steps of physical examination, and to generate empathy towards patients.

**Discussion and Conclusions:** PPE is a transition tool, from theory to practice, carrying benefits for students, with focus on significant learning, and for present and future patients. With progressive implementation of PPE, it will be possible to deepen on its impact. Students experienced PPE in an adequate psychosocial environment, fulfilled their learning expectations and perceived development of competences for physical examination.

**Take-home messages:** Teaching methodologies for future health professionals need to be innovative and sensitive to a rapidly changing society.
**2HH7 (22371)**  
**Introduction of a Standardized Approach to Teaching of Clinical Skills: Vital Signs Day**  

*Dilini Vethanayagam*, University of Alberta, Medicine, Edmonton, Canada  
*Laurie Mereu*, University of Alberta, Medicine, Edmonton, Canada

**Background:** Medical students are introduced to clinical skills in their very first semester at most schools in Canada. Early training avoids most systematic errors in performance of tasks later in training. We wanted to evaluate the introduction of a small group vital signs session for year 1 medical students at the University of Alberta. This session primarily focused on obtaining an accurate Respiratory Rate (RR), Pulse and Blood Pressure (BP).

**Summary of Work:** In September 2012, as part of the Gilbert’s Clinical Skills course curriculum, a Vital Signs Day was introduced to the curriculum, where first year medical students were brought in to teach the basic performance (including troubleshooting) and review normal values in groups of 30, with both nursing and physician facilitators. Their comfort level for this basic clinical skill was recorded on a 5 point scale. The process was so well received, that some second year medical students also requested a similar session, which was provided 2 weeks later.

**Summary of Results:** Comfort was high in all parameters (RR 3.84; pulse 4.15; BP 3.15, 131 scored) in year 1 students, and similarly in year 2 (RR 3.81; pulse 4.33; BP 3.91, 149 scored).

**Discussion and Conclusions:** Comfort level was high following the session. It is interesting to note that there was less comfort with RR following the standardized teaching session in year 2 students.

**Take-home messages:** The Vital Signs day is one way for medical schools to introduce a key aspect of clinical skills early in the training of future physicians. Vital Signs day has been maintained in the early introductory curriculum for year 1 medical students in the following academic year.

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**2HH8 (21687)**  
**Analysis of factors that influence nurses’ intention of CPR initiation: Differences among reference groups in a hospital with an application of the extended theory of planned behaviour**  

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*Jisung Lee*, Soochunhyang University Medical Center, Statistics, Seoul, Republic of South Korea  
*Hyunsook Cho*, Soochunhyang University Bucheon Hospital, Nursing Administration, Bucheon-si, Republic of South Korea  
*Yeonsuk Lee*, Soochunhyang University Bucheon Hospital, Nursing Administration, Bucheon-si, Republic of South Korea

**Background:** A significant difference in both response times (time from arrest to CPR) and survival rates exists depending on hospital location and hospital departments. We investigated factors that influence the intention of CPR initiation by studying nurses that take up the most part as first responders when confronted with patients in cardiac arrest.

**Summary of Work:** An extended Theory of Planned Behaviour (TPB) model informed the study design, completed with nurses (n = 628) at a single tertiary hospital. An elicitation study was used to identify nurses’ salient beliefs and develop a closed-ended questionnaire. Five determinants were assumed to influence the intention of CPR. The three reference groups used in the analysis, monitored areas, wards, and non-monitored areas.

**Summary of Results:** The response rate was 89% (628 of 704). 54% of variance in intention of CPR initiation was explained by direct TPB measures. The five determinants were somehow affected by the nurses’ intention of CPR initiation to a group of all nurses, however, in perspectives of individual group, the determinants were influenced differently by their types and degrees. Determinants that affected all reference groups were subjective norm and perceived behavioral control.

**Discussion and Conclusions:** The usage of TPB was helpful understanding the nurses’ intention of CPR initiation. Furthermore, this study suggests that influencing factors for nurses’ intention of CPR initiation could be different for each reference group even in a single hospital.

**Take-home messages:** Reference group-specific strategic approach is required in CPR education and campaigns.
**2HH9 (22952)**

**Introduction of A Standardized Teaching Tool: The Clinical Skills Passport**

**Laurie Mereu**, University of Alberta, Medicine, Edmonton, Canada

Allan Ho, University of Alberta, Surgery, Edmonton, Canada

Dilini Vethanayagam, University of Alberta, Medicine, Edmonton, Canada

**Background**: Clinical skills are important to introduce early on in the medical school curriculum. Standardizing the teaching of these skills is also essential. To enhance bedside teaching of clinical skills at the University of Alberta, a clinical skills passport was created for both students and faculty in 2012-2013 academic year. This tool was designed for students to practice bedside clinical skills in a small group setting and improve knowledge of the pathophysiologic mechanisms relating to the demonstrated clinical findings.

**Summary of Work**: The passport is a pocket sized booklet (hard copy and electronic versions) with “quick notes” on each of 18 stations followed by a checklist: needs improvement, satisfactory, excellent. Each station outlines specific measures for key competencies, including communication and focused exam. This was implemented during the first 2 years of the four year undergraduate curriculum.

**Summary of Results**: There were 167 students in first and 164 students in second year enrolled in clinical skills course. The passport allowed students to do a self reflection and assessment (formative), thereby helping them identify areas of strengths and weaknesses prior to entering clerkship. The passport brought the students and facilitators into the same framework.

**Discussion and Conclusions**: The passport allowed standardization of the teaching of bedside clinical skills amongst faculty and students. Learners and facilitators found it to be a helpful tool and an asset to competency based teaching.

**Take-home messages**: Due to its success as a tool, it has been continued into the next academic year.

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**2HH10 (21599)**

**Hierarchical clinical skills matrix in medical school**

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**Background**: In addition to instructor excellence in different medical specialties, pedagogical excellence is also vital to the quality of medical courses. The use of proper educational technologies is crucial to qualify students as competent professionals. Poor teacher participation has been a major obstacle in reformulating the curriculum of a traditional Brazilian medical school. A workshop focused on the daily practice of clinical skills teaching, a cornerstone of medical training, was organized to engage teachers in daily practical activities.

**Summary of Work**: Thirty-three preceptors of all years of undergraduate school and of clinical and surgical residency participated. The teachers were divided into five groups of clinical skills: communication, history taking, physical examination, clinical reasoning and procedures, based on competencies domains of the University of Adelaide, Australia, and of the University of California, USA. Each group specified the clinical skills that have to be achieved at each graduation year in order to acquire the necessary proficiencies.

**Summary of Results**: A matrix of hierarchical clinical skills of medical students in the areas of communication, history taking, physical examination, clinical reasoning and procedures.

**Discussion and Conclusions**: The collective reflection on practical teaching of clinical skills in medicine schools provides a rational basis for structuring didactic activities and assessments that are constantly permeated by subjectivity.

**Take-home messages**: Collective development modifies collective practice.
2HH11 (19768)
Checklists: The benefits of applying them in the teaching of clinical skills in surgery

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Background: Checklists are specific assessment instruments with well-determined values based on measurable objectives which help students to be aware of what is expected of them upon assessment of their clinical skills, regardless of when the assessment is performed and of the examiners.

Summary of Work: In order to evaluate the abilities, the students demonstrate their clinical skills in simulators called part task trainers. The variables evaluated are those included in a previously prepared checklist and which are based on the following competences: vascular access, insertion of a nasogastric tube and a Foley catheter, surgical techniques and hand washing, peripheral vascular examination, breast examination, acute abdominal pain, and suturing.

Summary of Results: The procedure is well accepted by the students because it has an effect on the prioritization of the actions to be performed. Checklists enhance cognitive functions, prevent common errors and emphasize decision-making in real clinical situations. Students become more fully aware of certain procedures to be carried out when they check them against a checklist.

Discussion and Conclusions: Checklists improve diagnostic reasoning and reduce cognitive errors by prioritizing the order of procedures in a correct sequence. When evaluating the clinical skill, the students use a list of items with a scale of assessment or checklist to appraise the achievements made.

Take-home messages: Checklists permit the detection and correction of flaws when evaluating the clinical abilities and skills of the students in order to appraise the achievements made.

2HH12 (19981)
"Mind the Dip": Ranking of Diagnostic Procedures, an Online Survey Among 266 First Year Medical Students at Two German Universities

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Heike Kielstein, Martin-Luther-University of Halle, Institute of Anatomy & Cell biology, Halle, Germany
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Background: Urine dipstick is able to analyse pH, specific gravity, proteinuria, bilirubinuria, glucosuria, ketonuria and nitrite. It is one of the most frequently used diagnostic tests and a screening tool for many diseases and and therefore part of a guideline based work up ranging from urinary tract infection to assessment of cardiovascular risk and chronic kidney disease. The aim of our study was to investigate the attitude of first year medical students (in a 6 year curriculum) towards urine analysis and ranking it among other frequently used diagnostic tests and procedures.

Summary of Work: 549 first year medical students received an e-mail invitation to fill out an online questionnaire consisting of several questions concerning medical diagnostic tests. The return rate was 47.4 %. Of the 266 participants 64.9 % were female.

Summary of Results: - Urine dip stick analysis and blood pressure measurement were viewed as least important tests.
- Auscultation was selected as the most important test.
- Interestingly 98.1 % of the medical students selected the stethoscope as the most important object conveying the image of a doctor, followed by white coat (95.5 %).

Discussion and Conclusions: Weighing the importance of diagnostic procedures should be an integral part of medical auscultation, keeping in mind that auscultation is closely related to the self (and perceived) image of physicians.
ABSTRACT BOOK: SESSION 2
MONDAY 1 SEPTEMBER: 0830-1015

2HH13 (22707)
Monkey See, Monkey Don't, The impacts of observing errors during clinical skill acquisition

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Background: Observation of skilled performances that includes flaws can be beneficial to trainees. The idea is that observing the scope of variability within a skilled movement allows learners to develop strategies to manage the potential for and consequences associated with errors. Our study explores if the observation of errors improves novice performance of central line insertion (CLI) skills.

Summary of Work: Following a CLI tutorial, participants were randomized to one of three observational practice groups: a flawless (F; n = 15) group that viewed and assessed videos of an expert performing CLI without any errors, an errorful (E; n = 11) group that viewed and assessed videos that contained flawless and errorful performances, and a feedback-augmented (FA; n = 13) group that viewed the same videos as the E group but also received information concerning the correctness of their assessments. Following a one week observational learning period, the participants returned to the simulation lab and performed a video-recorded CLI, which was assessed by experts using CL and GRS.

Summary of Results: GRS analysis revealed a main effect of group, F (2, 36) = 4.51; p = .018, in which the FA group scored significantly higher than both the E and F groups.

Discussion and Conclusions: Trainees are able to learn the procedural components of the CLI without physical practice of the skill. Furthermore, observational practice that includes errors can improve the global performance.

Take-home messages: A hybrid program of physical and observational practice may provide an educationally-robust, cost effective model for initial learning and long-term maintenance of clinical skill competence.

2HH14 (21391)
Experience and confidence to perform medical procedural skills of medical students and graduate junior doctors, Buriram medical education center, Thailand

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Yupin Prawai, Buriram Medication Education Center, Obstetrics and Gynecology, Muang Buriram, Thailand
Thanatpong Thienwuttiwong, Buriram Medication Education Center, Physical Medicine and Rehabilitation, Muang Buriram, Thailand
Surasak Aumkaew, Buriram Medication Education Center, Medicine, Muang Buriram, Thailand

Background: The Medical Council of Thailand classified essential medical procedural skills of medical students into four categories including I). Self performed confidently II). Self performed under supervision III). Under assisted IV). Observed/ seen. The aim of this study is to evaluate experience and confidence to perform procedural skills between medical students and junior doctors.

Summary of Work: Self logbook questionnaires of 4th to 6th year medical students and interview questionnaires of graduated junior doctors during post graduated visiting two times per years. Baseline demographic data, frequency of procedural skills and 10-point rating scales of confidence were collected in those categories.

Summary of Results: Seventy two of medical students (60.5%) and 47 of graduated junior doctors were collected. Female were 56.3%, grade point averages were 3.2±0.3. The categories I and II frequency of procedures in medical students were blood smear/gram stain, venipuncture, medication injection (23.1±7.5, 7.5±2.9, 3.8±1.9 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7. The junior doctors reported frequency of arterial puncture, endotracheal intubation, venesection/central venous measurement (20.0±11.6, 16.4±8.1, 15.0±8.8 times, respectively) with confidence scale 7.5±0.7.
Discussion and Conclusions: More cases finding to increase exposure to procedures and emphasize the important points of actual teaching specific procedural skills may improve performance of Thai medical students.

Take-home messages: The medical students were proficient to perform basic medical procedures above the requirement of Thai Medical Councils.

2HH15 (20054)
Development and validation of veterinary clinical skills teaching models

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Brady Little, Ross University School of Veterinary Medicine, Basseterre, Saint Kitts and Nevis
Robin Fio Rito, Ross University School of Veterinary Medicine, Basseterre, Saint Kitts and Nevis

Background: There are a variety of manufactured models available to educators for use in medical training, but availability of models for veterinary medicine has traditionally lagged behind. The purpose of this study was to develop and validate a variety of veterinary models for teaching clinical skills.

Summary of Work: The researchers developed eight training models for vascular access, injection techniques, and surgical ligature placement. Content validity, or comprehensiveness, was assessed by surveying experts to evaluate whether the model taught all that is necessary for each procedure. Face validity was evaluated by surveying model users about each model's realism.

Summary of Results: The models rated strongly in face and content validity with modal responses of "strongly agree" or "agree" on a 5-point Likert scale for realism and comprehensiveness. Participants issued several recommendations for improvement of the tested models.

Discussion and Conclusions: These models allowed students to practice clinical skills in a standardized, low stakes environment while receiving feedback. This protected the student from feelings of stress and failure and preserved the welfare of animals involved subsequently in the student's training.

This study provided initial evidence of the tested models' value in teaching veterinary clinical skills. Now that face and content validity have been established, further study is necessary to evaluate construct, concurrent, and predictive validity, linking these models with improved clinical skills and patient outcomes.

Take-home messages: Models developed to teach common veterinary techniques rated well in face and content validity, appeared to improve student learning, and alleviated animal welfare concerns.

2HH16 (22868)
Electromyographic examination as a useful tool for laparoscopy training evaluation: A way worth considering?

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Background: Utilization of devices, which simulate conditions similar to those in the operating theater is a safe and effective way to familiarize a trainee with basics of laparoscopy. Acquiring a proper surgical technique is associated with decreased muscular tension, increases level of precision. We believe that a perfect way to estimate muscle relaxation is superficial electromyographic examination.

Summary of Work: 11 Medical Students from our Faculty of Medicine with no experience in laparoscopic surgery was enrolled to the study. The task was to tie as many surgical knots as possible in 15 minutes using a laparoscopic simulator. Superficial electromyographic examination was performed including following muscle groups: flexor pollicis longus, abductor pollicis brevis, flexor carpi ulnaris, palmaris longus muscle, deltoid muscle, trapezius muscle bilaterally. Students were then educated and trained with standardized set of exercises and retested using the same exercise.

Summary of Results: Before training highest muscular activity was registered in deltoid muscles and thenar muscles. After training all muscle activities noticeably decreased, with statistical significance for thenar muscles (p<0,05).

Discussion and Conclusions: Muscle activity stays in correspondence with increasing skills level of a trainee. Feedback is essential for improvement. Continuous electromyographic examination is a useful tool during laparoscopic training which provides feedback and thus helps to decrease muscular tension and improve surgical technique.

Take-home messages: Superficial electromyography is an efficient method to give feedback to a surgical apprentice.
2HH17 (22368)
Basic life support retention skills after two years in students 3rd and 6th degrees of medicine

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Rodrigo Avila Dominguez, Universidad Andres Bello, School of Medicine, Viña del Mar, Chile
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Peter McColl Calvo, Universidad Andres Bello, School of Medicine, Viña del Mar, Chile

Background: Basic Life Support (BLS) is a competency that medical student should acquire and manage. In the Andres Bello University School of Medicine (MEDUNAB), 100% of students were trained in BLS by an American Heart Association (AHA) Training Center, having approved 100%.

Summary of Work: Objective: compare the retention of learning BLS in medical students 3rd and 6th degrees after two years of formal AHA training course. Seventy eight MEDUNAB students, 34 of 3rd degree and 44 from 6th degree, were evaluated by pairs, through a clinic case in a simulator. In a five minutes time, the most important item of BLS, were examined. Every Item was scoring 1 point if fully achieved or 0 if not. A survey before evaluation, asking for personal perception response to a cardiac arrest and importance of BLS, was performed.

Summary of Results: Perception of the students about their own ability to respond to a cardiac arrest is 59.3% and the BLS handling importance is 97.8%, on average. In 3rd and 6th degree average achievement were: 61.8% and 58.3%, respectively. Of the 39 groups, only one scored 100% achievement, which means the other 97.43% do not perform the technique correctly after two years.

Discussion and Conclusions: A high percentage of students trained in BLS, do not perform BLS correctly after two years. So it demands continuous training, at least every two years.

Take-home messages: Measure the percentage of medical students compliance with BLS recertification prior to expiration date validate the recommendation to repeat the training after two years.

2HH18 (23044)
Implementation of a focused training scheme improves trainee confidence in performing diagnostic lumbar puncture and documentation of consent

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Background: Within our trust concerns had been raised as to the quality of patient experience surrounding diagnostic lumbar puncture (LP). Information had been received via Datix forms and patient complaints to senior clinicians. An audit of patients’ notes demonstrated that documentation of the consent process was poor. It was felt that a gap in the trainees’ knowledge and practical skills contributed to these events. A decision was made to implement a programme of education and awareness aimed at all trainees who undertook LPs.

Summary of Work: The one-hour training session involved small group lectures on topics including GMC guidance regarding consent and a one to one practical session using a LP mannequin. 52 trainees (ranging from FY1 to Registrar) completed the training in 6 months. Self-rated feedback was collected from 25 trainees. They were asked to rate their confidence surrounding the LP process on a scale of 1-10 (1 being least and 10 being most confident) before and after the session. An audit pre- and post-introduction of the training session evaluated the presence of consent forms in randomly selected LP patient records.

Summary of Results: -Average self-rated confidence scores: BEFORE: 3.94 AFTER: 7.90 = percentage increase of 100%.
-Consent forms completed: BEFORE: 3% (1/29 records) AFTER: 76% (19/25).

Discussion and Conclusions: This short training session produced, on average, a 100% increase in self-rated confidence scores. It also improved the completion of consent forms.

Take-home messages: A simple inexpensive training scheme involving both lectures and practical session will improve trainees’ confidence in LP and consent.
-This could be extended to many practical procedures.
Using Augmented Reality to expand medical teaching

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Background: The Teaching and Learning Resource Centre (TLRC) of The Chinese University of Hong Kong has been actively implementing new ideas and technologies to aid medical teaching. Recently, TLRC has successfully incorporated flipped-classroom approach into the curriculum. In addition to developing pre-class materials onto the mobile platform, TLRC is now creating contents using an App called Aurasma to help students be familiar with equipments and procedures.

Summary of Work: Aurasma allows teachers to link instructional videos or images to a real-life object, thus, creating an augmented reality to an object. For example, teachers can link a how-to video to a machine; when students use the app to capture the machine, the image will be recognized and the video will be played on the handheld for students’ immediate educational needs.

Summary of Results: TLRC has now completed over ten such linkages, or Aura: from advising students on introducing themselves to patients; teaching them on how to perform an IV cannulation; to a steps-by-steps instruction on how to use the ECG machine.

Discussion and Conclusions: This new app allows students to be self-taught. By creating such linkages between equipments and instructional materials that students can study on their own, the need for a teacher to teach routine how-to-use lectures on different equipments can be greatly reduced. Revisions on such topics can also be done without the need of any tutors.

Take-home messages: With this new technology, a virtual teaching lab can be created for any topics and the contents can be shared among different institutes, thus encourage sharing and benefiting the whole community.
2II (21962)

Impact of peer feedback on lecture quality

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Anna Schill, Goethe University, Department of Surgery, Frankfurt, Germany
Jasmina Sterz,
Ingo Marzi
Felix Walcher

Background: Though often criticised, the lecture remains a substantial part of medical training as it represents an economical and efficient method for teaching both factual and experimental knowledge. However, if administered in the wrong way, it can be boring and useless. The aim of this study is to analyse the impact of written peer feedback on a lecture series in emergency medicine for undergraduate students.

Summary of Work: Using a 21 item assessment instrument, 13 lecturers in 15 lectures were videotaped and analysed by trained reviewers. The written feedback was presented to each lecturer prior to the beginning of the next year’s lectures series and its effects were assessed in the same way.

Summary of Results: A significant improvement in the lecturers’ scores in the categories ‘content and organisation’ and ‘visualisation’ could be demonstrated. The highest and most significant improvements after written peer feedback were in the items ‘Provides a brief outline’, ‘Provides a conclusion for the talk’ and ‘Clearly states goal of the talk’.

Discussion and Conclusions: This study demonstrates the high impact of a single standardized written peer feedback on a lecture.

2II2 (21671)

Medical Teacher Competences and Academic Performance of Medical Student

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Background: The knowledge society and health require physicians with good professional practice. This is a challenge for teacher performance. The aim is to identify medical teacher competences and their relation with student academic performance.

Summary of Work: A descriptive-transverse, correlational study with a quantitative approach was achieved. This measures student academic performance and teacher competences through two questionnaires with centesimal scale applied to a representative sample: students (n=171) and medical teachers (n=106). The results were analyzed through descriptive, correlational, and comparative statistics with level of significance 0.05.

Summary of Results: The teaching competences better evaluated in this study were: to show students the academic program (89.35), recognize a need to develop teaching competences (87.46), using electronic means (84.37), are congruent (83.46), promote medical values in the students, (82.76) planning evaluation (81.94) teaching and learning (81.72). However, to a lesser extent, involved in research (29.41), promote community practices (54.51) apply methods: clinical-epidemiological investigation (55.14) cases (57.46) projects (57.46) and peer assessment (59.21). We found a significant correlation between recognize the development of teaching competences and analyzing the educational intervention (r.61) contribute to the formation of creative and innovative students (r.0.64) to solve problems with articulating different disciplines (r.0.52), and medical values (r.65).

Discussion and Conclusions: The competences best assessment: planning, continuous training and promoting professionalism, however least valued were investigation, teaching intervention and evaluation, that influence the academic performance of students.

Take-home messages: It is important to develop teaching competencies proposed by AMFEM (2012) in a process of continuous training to contribute to the ethical and humanistic performance of physicians.
2113 (20376)  
Student to PBL Tutor Feedback; the Impact of Mobile Technology

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Background: Student feedback to their teachers is an important part of student-centred teaching methods. Course evaluation feedback from students is often late, and not specific to a single tutorial session. We considered that mobile application-based feedback from students might be more timely and relevant.

Summary of Work: The setting was problem-based learning tutorials for first year students at a single medical school. Tutors were interviewed individually and collectively, at the start of the academic year, and based on their input, a standard feedback questionnaire was designed, and distributed to students by two methods. Over the period of ten consecutive PBL tutorials, paper-based feedback was sought in the first five, and mobile application-based feedback was introduced for the last five. Both schemes were announced at a lecture, and students encouraged periodically to give feedback. All responses were anonymised, summarized and sent on to individual tutors.

Summary of Results: We compared response rates and quality of feedback using the two systems. Only 10 responses were received from the first five tutorials. 33 responses were received from the two tutorials after the introduction of the mobile application; 124/240 students registered on the website and 66 downloaded an Apple iPhone specific app.

Discussion and Conclusions: Student to tutor feedback is important, as most tutors wish to learn and improve their skills. An effective system is beneficial if tutors have to undergo appraisal and revalidation in their teaching role, and can facilitate tutor recruitment. A mobile application method of seeking feedback shows promise in improving rates and quality of feedback.

Take-home messages: Mobile phone applications increase student participation in feedback, in close to real time.

2114 (21703)  
Competences Assessment for Academic Performance Enhance Physician in Training

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Background: Assessment as learning strategy involves visualizing it as a learning process that helps to improve the academic and professional performance of physicians (Parra Vazquez and Del Val, 2012). The aim is having a diagnosis of the evaluation process of learning and its relationship to academic performance of doctors in training.

Summary of Work: Descriptive-correlational study with a quantitative approach used to evaluate the practice of teachers. The research technique is a survey with a questionnaire with a Likert scale. It was applied to 152 students (basic and clinical semesters). The results were analyzed with descriptive, correlation and comparative statistics with level of significance 0.05.

Summary of Results: Students valued to a greater extent than teachers disclosed, forms and evaluation criteria (4.3) and establish strategies and assessment methods early in the course (4.2). However they consider to a lesser degree show opening for the revision and correction of errors in tests (3.3), between them allow them to be assessed (3.1), identify knowledge and skills to the course (3.2) which is related to achieving the objectives of the subject (r. 0.38) are fulfilled.

Discussion and Conclusions: Teachers further disclose the methods and evaluation criteria. However, to a lesser extent the knowledge and skills identified from the beginning of the course.

Take-home messages: Teachers to give out forms, criteria, strategies and assessment methods early in the course refer to the planning of the evaluation according to Diaz- Barriga (2002) encourages students to have certainty about this process.
**2115 (20012)**

**SETQ-co-Smart: An instrument for the evaluation of clinical teachers during clerkships**

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**Background:** Individual teaching qualities of those supervising and teaching during clerkships are generally not systematically evaluated, however this is essential for optimizing the quality of medical education. The past years the System for Evaluating Teaching Qualities (SETQ) was developed and validated to provide individual faculty with teaching performance feedback from their residents. The SETQ was recently revised (SETQ-Smart) to better fit modern ideas about graduate medical education. In this study validity evidence is sought for using an adjusted SETQ-Smart in an undergraduate setting.

*www.professionalperformanceonline.nl*

**Summary of Work:** The SETQ-co-Smart is the adapted version for medical students to evaluate their clinical teachers. The questionnaire consists of 30 items and 7 domains of teaching performance combined with narrative feedback. A validation study is planned during a 6 months period including the clerkships internal medicine, surgery and pediatrics at one university hospital and 2 non-university hospitals.

**Summary of Results:** The face validity of the instrument was assessed by the research group including experts in the field of professional performance and medical education, a clinician and medical students. At the time of the conference first results on the psychometric properties and the feasibility of the SETQ-co-Smart in undergraduate medical education will be available.

**Discussion and Conclusions:** When validated, the SETQ-co-Smart can be a useful instrument to provide feedback to faculty in undergraduate medical education.

**Take-home messages:** Reliable information on individual teaching qualities is needed to stimulate and support further improvement of medical education. Once feedback is acquired faculty can use this to achieve improvement by transforming feedback into action.

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**2116 (21205)**

**Teachers’ self evaluation on their lecture was different from those done by the students**

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**Background:** Despite the fact that many medical schools today utilize lecturers’ self-assessments and students’ lecture evaluations with the aim of improving course curricula, few studies have been reported regarding the difference between teachers and students in perception of a lecture evaluation.

**Summary of Work:** A study was carried out to analyze the distinctions in perception and attitudes toward lecture evaluation using a questionnaire including 11 questions. Eleven students who consistently attended a series of 14 lectures and the 14 lecturers answered the questionnaire. Wilcoxon signed-rank test was used to compare each lecturer’s self-assessment and the students’ evaluation on his/her lecture.

**Summary of Results:** The purpose of doing / attending the lecture appeared to be an inadequate question. Most teachers simply answered the GIO written in the syllabus. The student’s view on the purpose of a lecture varied according to individual. Perceptions about the relevance of a slide, a handout and opportunity of interacting and questioning appeared to differ significantly between the teachers and the students. The teachers tended to value their slides and handouts better than the students did.

**Discussion and Conclusions:** A slight gap in the initial perceptions between the purpose of doing and attending a lecture seemed to decrease the relevance of the evaluation questionnaire. As far as the adequacy of slides and handouts and the opportunity of questioning are concerned, teachers’ self-evaluations were more positive than those of the students.
Research quality of the various abstract categories at AMEE: Is there a difference?

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Background: PhD/research paper and short communications (SC) are commonly perceived as being more prestigious than poster presentations. However, Zdravkovic (2011) reported that there is no difference in research quality of poster versus SC for AMEE 2010 abstracts. We therefore aim to determine if there is a difference in research purpose, study design, and aims statement between different AMEE abstract categories.

Summary of Work: We conducted a systematic review of 281 eligible AMEE 2012 abstracts comprising: 1) all PhD/research papers (n=43); 2) 20% randomly selected SC abstracts (n=86); and 3) 20% randomly selected poster abstracts (n=152). Abstracts were classified as descriptive, justification or clarification purpose using Cook’s 2008 framework. We also compared the study design and presence of a clear statement of study aims. We performed chi-square tests to examine associations between different abstract categories.

Summary of Results: The proportion of PhD/research papers with a clarification purpose was higher than SC and poster abstracts (86.0% vs 24.2% vs 9.9%, p<0.001). There was a predominance of experimental study design amongst posters (61.8%), compared with PhD/research papers and SC with a higher proportion of non-experimental designs (64.0% and 69.8% respectively), comprising mainly qualitative, psychometric and observational approaches. PhD/research papers have a higher proportion of clear study aims than the other 2 categories (p<0.01).

Discussion and Conclusions: Our results support a difference in research purpose, study design and aims statement among the abstract categories, with PhD/research papers having the highest quality.

Take-home messages: Our results affirm a difference in measures of quality between different AMEE abstract categories.

Data analytic practices in published articles: A methodological review of health professions education journals

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Background: The ability to analyze and interpret quantitative data is one of the key competencies needed for research and scholarship in health professions education. The aim of this study is to review the trends in current data analytic practices and to compare these trends to recommendations from related fields of medicine, psychology and education.

Summary of Work: We reviewed articles published in 2013 from 8 health professions education journals. Articles that reported quantitative data will be coded for the type of data analytic procedures used, editorial guidelines, statistical software used, study design, type of data collected and profile of the authors. Coding will be done by 2 independent coders.

Summary of Results: One thousand, six hundred and nine articles published in 2013 were extracted. Five hundred and ninety-two articles reported collection and analysis of quantitative data. Data analytic procedures in these articles will be tabulated and compared across various potential determinants. Comparisons will also be made to similar reviews in related discipline and to data analytic recommendations and guidelines.

Discussion and Conclusions: Results from this review will allow us to look at commonly used data analytic practices, variations across potential determinants, similarities and differences in data analytic practices between related disciplines and discrepancies with recommendations and guidelines. Suggestions to improve current practices and to be better informed quantitative training can also be made.

Take-home messages: It is important to keep up with developments in data analytic practices so that quantitative training will be adequate and relevant which in turn leads to better research and scholarship in health professions education.
Challenges in an educational RCT

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Background: Societal changes demand efficient surgical training. Module based skills training combined with clinical operative training may be a future model. This study set out to measure the effect of such a module based training programme applied in laparoscopic cholecystectomy in surgical registrars.

Summary of Work: 35 Danish surgical specialty trainees (registrars) were randomized to either a fast-track module with performance of 20 procedures or standard clinical training. The performed laparoscopic cholecystectomies were blindly rated by three trained raters using a former validated assessment tool, GOALS.

Summary of Results: Due to heavy drop-outs only ten participants completed the study and furthermore the inter-rater reliability showed Cronbach’s alpha=0.37 in spite of three independent raters. However, data do show effect of the fast-track program on technical skills compared to standard training at one year follow-up despite equal number of performed procedures in the two groups (p=0.010).

Discussion and Conclusions: This study highlights some major challenges in educational randomized studies as only few trainees completed the study and inter-rater reliability was low. Especially use of an “of the shelf”-assessment tool was challenging and rater training seems to be an important issue. Rater training must be thoroughly designed. In conclusion; module based training seems to be a promising surgical training design, though rater training needs more attention across different cultures.

Take-home messages: Randomized educational studies face many challenges.

Eye-tracking, retrospective think-aloud (RTA) and learning process of 1st year medical students on ECG material: A novel protocol for medical learning research

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Background: Eye-movement recording, combined with verbalization protocols, has been successfully used for reading process studies and web page usability testing. We explored relationship of eye movements and learning process in medical studies.

Summary of Work: We recorded eye-movements of 1st year medical students (n = 42) while they studied learning material concerning ECG basics. Eye-movement recordings were replayed to the readers and they were asked to verbalize their learning process (retrospective think aloud, RTA). We extracted individual eye movement data from the recordings (fixation time and amount). Thematic analysis of the verbalizations was paired with the eye-movement data and their associations explored with Pearson correlation analysis.

Summary of Results: We found association between total fixation time of the text and verbalizations categorized as deeper processing of content (r=0.464, p=0.034). The higher the level of element difficulty was, as commented by the readers, the more they spent on graphics (r=0.662, p=0.001). The relation between text-to-graphics of individual fixation times did not correlate with scores of exercises done after reading.

Discussion and Conclusions: Dynamics of reading process can be studied with RTA to unravel learning process. Surprisingly, learning outcome did not depend on the usage rate of graphics, although ECG is very visual topic. Orientation to the learning content through questions that evoke uncertainty or test previous knowledge is important.

Take-home messages: Combining RTA data to eye tracking parameters reveal novel ways to describe learning. The methodology presented here offers novel way to further enhance the rapidly developing eye tracking research.
Towards a translational paradigm for outcomes-based medical education research

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Background: Outcomes-based medical education research (MER) should aspire to translate research from bench to bedside. McGaghie (2010) adapted the biomedical framework of translational science to simulation research: basic sciences controlled educational setting discoveries (T1); research in patient care settings (T2); and improved patient care practices and outcomes (T3). We propose a modification of the McGaghie framework to include in the T1 phase non-experimental studies without clearcut outcomes, yet are important in broadening the evidence base to inform T2/3 translation. We aim to determine the feasibility of the modified McGaghie framework in classifying MER abstracts.

Summary of Work: We studied 281 eligible AMEE 2012 abstracts comprising: 1) all PhD/research papers (n=43); 2) 20% randomly selected short communication abstracts (n=86); and 3) 20% randomly selected poster abstracts (n=152). T1 studies were classified as educational setting with learner outcomes corresponding to Kirkpatrick's hierarchy (T1a), educational setting with other outcomes (T1b) and no learner outcomes but aims to broaden the scientific base of education research (T1c).

Summary of Results: Only about half of the studies had a clearly defined outcome. Of these, the majority (>90%) are classified as T1a, with a small subset having other outcomes (i.e. T1b). For the remaining studies without outcomes, around two-thirds were classified as T1c studies that illuminate the field through study designs such as qualitative, observational, psychometric, and translational approaches.

Discussion and Conclusions: A significant proportion of studies without clearly defined outcomes contribute meaningfully to the evidence base of outcomes-based MER. The overwhelming majority of studies are in T1 phase.

Take-home messages: The modified McGaghie framework provides a viable translational paradigm to classify outcomes-based MER.

The development and evolution of a consultation service for educators and educational researchers: Needs, challenges, and opportunities

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Background: Within academic medical centers, educators and educational researchers often lack the resources and supports for career and program development afforded to basic science, clinical, and translational researchers. Herein, we describe the consultation needs, challenges, and opportunities that have emerged from the development of an educator-focused consultation service over its four-year evolution.

Summary of Work: The Educational Innovation Institute (EII) at Georgia Regents University (GRU) addressed this issue through a new consultation service (CS) designed to facilitate educational research, scholarship, curricula, and teaching skills competencies. Early tasks included defining the scope of the CS, CS marketing, refining the CS process, and developing CS evaluation tools.

Summary of Results: Since 2009, the EII CS has provided 176 consultations in four categories: educational research (32.4%), curriculum/teaching (31.3%), statistical (19.3%), and educator mentoring (17.0%). CS user outcomes include grant awards, educational scholarship, implementation of innovative teaching methods, and appointments to leadership positions.

Discussion and Conclusions: CS challenges have included underestimating demand for statistical consultation, defining utilization limits, determining fee structures, demonstrating return on investment, maintaining mission consistency, and developing a business model within an academic environment. Opportunities that have emerged include internal consulting relationships resulting in modest support and external consulting contracts providing more substantial funds. Despite challenges, the EII CS has been successful in meeting four types of needs prevalent in the GRU health sciences educational community.

Take-home messages: The EII CS may serve as a model for other institutions interested in meeting the unique needs of health sciences educators and educational researchers.
**Summary of Results:**

90% of the residents took part on at least 3 FM and 72% participated in 3 or more role-play sessions. According to 71.8%, advance directives were discussed in more than half of these FM. Residents considered the feedback provided during these activities an outstanding part of their learning process. After this rotation, the majority of residents reported feeling more comfortable to break bad news, propose palliative care, discuss DNR/DNI orders, discuss prognosis and support bereaved family members. While 52.3% of the residents referred performing less them 1 FM every 3 months before the rotation, after this intervention 60% were conducting FM at least once a month and 80% reported being able to use these skills in other non-oncological contexts.

**Discussion and Conclusions:**

Despite being a retrospective study, analyzing residents self-perceptions without external evaluation of their actual performance, it seems that a specific training intervention focusing CS is likely to improve residents abilities to better establish patient-physician communication.

**Take-home messages:**

CS improvement could be attained by exposure to practice and constructive feedback.
**2JJ3 (19470)**

**Dental student-patient communication**

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**Background:** Dental student-patient communication is included in the clinical assessment at the University of the Western-Cape (UWC), however, without formal communication training in the clinical years. Embedding a communication course in the curriculum would require support of the teaching staff and clinical teachers. The purpose of this study is to explore the perceptions of the lecturers regarding dental student communication and its training.

**Summary of Work:** The study had a two-phase, sequential exploratory, mixed methods research design. The first phase explored the lectures’ perceptions of dental student-patient communication by means of a focus group interview (n=5). Descriptive data analysis was applied in Microsoft Excel to the closed-ended questions and common themes were identified for the open-ended questions.

**Summary of Results:** Sixty-three per cent rated the dental student-patient communication good. All the respondents thought communication skills should be included in the dental curriculum. To teach communication skills in second and third year was the suggestion of 64% and 26% suggested that it be taught throughout the five-year curriculum. Of the total, 47% strongly agreed that students just want to get on with the work – not attending to communication or displaying empathy. Sixty-eight per cent strongly agreed that developing and teaching a communication module should be shared amongst the Faculty.

**Discussion and Conclusions:** Clinical supervisors agreed that communication-skill training and clinical assessment in the dental curriculum is important.

**Take-home messages:** The study raised awareness among the faculty members about the importance of communication skills and ensured initial buy-in for the development of such a course.

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**2JJ4 (20956)**

**Development of communication skills in medical students of Srinakharinwirot University, Thailand**

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**Background:** Communication is a key factor to create the good doctor-patient relationship. This study aimed to develop communication skills in the fourth year medical students of Faculty of Medicine, Srinakharinwirot University.

**Summary of Work:** Medical ethic camp for the fourth year students was offered for 2 weeks. First week, the contents were focused on the lectures of ethics and communication theories, movies about communication issues, and also group activities to solving ethical dilemmas. In the second week, the students were focused on developing communication skills by military and Buddhism methods at Armed Forces Academies Preparatory School. 115 and 119 fourth year medical students in academic year 2011 and 2012, respectively, were included in our study. Period of time in observing the camp was 2 years (academic years of 2011 and 2012). Research tools were before-and after-camp rationales and communication skill evaluating tests.

**Summary of Results:** In academic year 2011, 93.50% of the fourth year medical students developed their communication skills, and in academic year 2012, 90.70% of the fourth year medical students developed their communication skills.

**Discussion and Conclusions:** The results demonstrate that an integration of strategy in medical, ethical, military and religious methods successively develops communication skills in the medical students.
Personality differences in communication skills and attitudes in a sample of Italian medical students

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Background: Communication skills and relational attitudes are widely recognized as fundamental elements of medical education that can be supported by educational intervention aimed at increasing students' attention to and awareness of their emotions, attitudes and behaviour in the medical conversation (Smith, 2004; Benbassat e Baumal, 2005).

Summary of Work: The aim of this research is to study individual differences in the communication style of medicine students. 21 role playing of third, fourth and fifth year students were videotaped and analyzed with RIAS and Verona Network on Sequence Analysis and classified regarding the patient-centredness. Personality profiles were assessed with a set of questionnaires (IRI, Self Monitoring Scale, PPOS, and a Personality Scale).

Summary of Results: Younger students show a more patient-centered communicative behavior and a deeper exploration of emotions; older students have a patient-centered attitude, without exploring emotions, students in the middle have a more complex profile. These differences in communication style are linked to specific personality differences.

Discussion and Conclusions: Some aspects of empathy (Perspective Taking) and caring were linked to a more patient-centered behavior. High emotional control was linked to a less patient-oriented interviewing style.

Take-home messages: First: it is possible to identify specific differences in personality linked to communication style as measured by objective measures. Second: to better understand how attitudes are linked to behaviours in medical communication it is necessary to identify specific facet of the general personality dimensions evaluated by the usual assessing instruments.

Communication-related anxiety in UK undergraduate medical students

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Background: Communication training and assessments can provoke anxiety in medical undergraduates and a proportion of express problems approaching patients. However, medical students can be reticent to seek support for communication-related anxiety due to stigma associated with admitting to experiencing anxiety.

Summary of Work: An online questionnaire was circulated to medical students across UK Medical Schools which included scales measuring social interaction anxiety, perceived stress, attitudes towards communication training, support seeking behaviour and alcohol use.

Summary of Results: A total of 479 participants completed the questionnaire, from 15 UK Medical Schools. Gender played a key role in the experience of social interaction anxiety (Female mean = 25.3, Male = 22.2, t = 2.2, df = 281.4, P = 0.035), perceived stress (F = 6.89, M = 5.39, t = 3.93, df = 416, P = 0.000), attitudes towards communication training (F = 102.4, M = 96.87, t = 3.86, df = 430, P = 0.000) and alcohol consumption (F = 3.71, M = 4.79, t = -3.92, df = 384, P = 0.000). Dichotomous responses regarding whether they agreed or disagreed that peers, staff, and medicine in general would view them negatively if they admitted anxiety were given by participants.

Discussion and Conclusions: Gender and other factors influenced participant experiences of communication-related anxiety and support seeking. This greater understanding of student experiences of and their attitudes towards communication-related anxiety and stress will assist in developing acceptable support.

Take-home messages: Medical Schools should aim to create an environment whereby all students are confident in seeking support for communication-related anxiety.
**Analyzing Clinical Talk Project**

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**Background:** The most effective way of teaching doctor-patient communication is through experiential interactional workshops using simulated patients (SPs). Students learning is facilitated through reflection on the interactional process and receiving feedback from SPs, peers and teachers. This process requires meta-analytic skills to unpack the complexity of human communication, which, however, is not part of the training either for teachers or students. Reflection and feedback varies with people’s various professional, disciplinary and personal experiences. Unpacking the complexity of clinical communication and elaborating on what counts as good practice remains a challenging task.

**Summary of Work:** This project aims to firstly devise an analytic tool, drawing on techniques in Discourse Analysis (DA) and Conversation Analysis (CA); and secondly produce a hard copy handbook and an e-learning package to assist learning and teaching. The tool and the learning package will be piloted with undergraduate medical students and communication trainers. The project will be evaluated through pre-& post-intervention assessments of participants’ analytic skills. End of project evaluation questionnaires will also be used.

**Summary of Results:** On conclusion of the project in August 2014, the presentation will report the analytic tool, the e-learning package and the evaluation results.

**Discussion and Conclusions:** The tool allows a systematic and sustainable learning through developing the ability to conduct in-depth reflection of communicative interactional behaviours. The whole package can be used for either organised teaching or self directed learning. Clinicians may also find the tool useful.

**Take-home messages:** Clinical communication education can benefit from the analytic methods of sociolinguistics, which are closest to the heart of communication studies.

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**Tailored education in communication skills after early assessment Experiences of the Pharmacy bachelor program at Utrecht University**

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**Background:** At Utrecht University pharmacy students are trained in communication skills to prepare them for their role as health care provider. Yearly, at least 200 students enter the bachelor and have to be educated and assessed on their communication competences, whereas limited resources are present.

**Summary of Work:** Students are assessed on their communication skills in year one after having received limited training (total: 3 hours). Using this strategy students’ deficiencies in communication skills are detected early. Students who fail to pass the assessment are offered different workshops (e.g. listening, structuring, questioning, reflecting) Does this optional tailored education increase students’ success rates in the re-examination?

**Summary of Results:** From 2009 until 2013, 698 students participated and 298 students failed (42%) in the year 1 assessment. In the re-examination (n=193), workshop-attenders (n=58) were significantly more successful than non-attenders (n=135) in passing the assessment: 86% versus 71% (Chi-square, p<.025).

**Discussion and Conclusions:** Early examination of students’ communication skills can be used to determine students’ needs for additional education and provide tailored education which in turn proved out to contribute to students’ success rates in re-examination.

**Take-home messages:** Offering tailored education after early assessment is efficient and effective.
2JJ9 (21701)
The Medical Intheatreview Workshop (MIW) as a teaching-learning methodology for communication skills in undergraduate medical students at Campus Occidente, Universidad de Chile

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Background: The Medical Intheatreview Workshop (MIW) emerges during the course of Medical Semiology as a practical learning space for medical students to uncover, develop, optimize their communication skills and empathy, in order to improve their performance in clinic. Tools adapted from dramatic arts’ pedagogy are used: corporal and vocal training, role-playing, and constant and personalized feedback.

Summary of Work: A qualitative research on students’ feedback about this methodology, based on a questionnaire and a focus group.

Summary of Results: The questionnaire establishes MIW as a methodology for the generation of significant learning in effective communication, acquisition of confidence for clinical interview, promotion of empathy and leveraging the integral development of a future medical doctor. In the focus group, students highlighted the importance of getting feedback from the teaching staff, and the value of continuous work where achievements were noticed over time, allowing them to potentiate their strengths and improve their deficiencies in interpersonal communication.

Discussion and Conclusions: MIW is perceived as a positive instance for the development of communication skills that improve the performance in clinical interviews, and also represents a practical space for personal development. This study is presented as the first compilation of experiences in the implementation of this kind of methodology, aimed to directly reinforce the communication skills of the students in this course. Relying on this compilation, an enhancement of MIW for future implementations is proposed.

Take-home messages: Just like an actor, medical doctors must know themselves and handle their strengths, potentials and limits, in order to masterly perform their role, and therefore obtain a healthy “Oscar”.

2JJ10 (19729)
Enhancing undergraduate students’ communications skills

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Background: Being teachers in Clinical Course of Family Medicine since 1995, we have developed two schemes for communication analysing purposes called the Consultation Logic (CL) and Consultation Analysis (CA), based on the Patient-Centred Consultation. To investigate the effect of various teaching methods in communication skills we have developed a scientific tool (DanSCORE) based on CL and CA to measure the students’ analysing ability.

Summary of Work: It has earlier been shown, that enhancing students’ ability to analyze communication precedes change in communication behavior. The course include an eight days stay in General Practice, where the student is the doctor seeing real patients and video record. These days are scattered over a five weeks period and they alternate with five plus four hour’s sessions of assessing, analyzing and discussing the videos in small groups with a peer (university teacher) and fellow students. We focus in our project on communication skills. 600 medical students are enrolled in the project. Changes in analyzing ability are qualitatively explored. We have introduced video-clips on a learning platform. The ways the students use them will be discussed as well.

Summary of Results: Will be presented at the Conference.

Discussion and Conclusions: The results will be presented at the Conference.

Take-home messages: Teaching Communication skills using different methods, including e-learning. Development of a method to measure students’ analysing ability.
2JJ11 (20997)
Precise Feedback, acceptance of a new teaching course in communication skills

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Background: Communication skills can be improved by specific training (CST). Typically, feedback is an integral educational element used in training courses. However, it is unclear whether the didactic element of feedback is responsible for this improvement. Therefore, we developed a CST with a strong reliance on feedback to investigate the role of precise and specific feedback in a teaching course with medical students.

Summary of Work: The new CST integrated various methods of providing feedback: Standardized patients were trained in providing precise behavioral feedback, peers used an observational survey for feedback, facilitators summarized specific recommendations on a feedback sheet. 35 medical students in their first clinical year participated in a research orientated CST after informed consent. Participants were asked to evaluate the course by giving grades to the CST and were asked to give a forced choice to evaluate the helpfulness of specific elements.

Summary of Results: Results show high acceptance of CST by the participants: The students rated feedback by standardized patients best with 1.11 (1:= best; 6:= worst), feedback by trainer with 1.26 and feedback of the peers with 1.51. Students rated in the following order in the forced choice question: Practicing with standardized patients, feedback by standardized patients and feedback by peers.

Discussion and Conclusions: Feedback is an important and well accepted element in CST.

Take-home messages: Precise feedback should be integrated in CST.

2JJ12 (22822)
Integrating communication skills training in the clinical setting, A qualitative study of four hospital wards

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Background: Since 2004 post-graduate medical communication training in Denmark predominantly has taken the form of short courses separated from everyday clinical work. Theories concerning situated learning, transfer, and communication skills training, however, suggest that this type of skills training will be more effective if it was integrated in everyday clinical practice.

Summary of Work: This project developed and implemented a communication skills training concept in four different hospital wards (i.e. neurosurgery, gynecology, pediatrics and lung medicine) in Denmark in 2013. Building on the Calgary-Cambridge Observation Guide, the education consisted of between 8 and 15 weeks of communication training, involving role-play, videosupervision and facilitator training. Observations and qualitative interviews with participating doctors (n=38) were conducted and thematically analyzed.

Summary of Results: In general doctors express a positive experience with the training: they identify a personal outcome and recommend that the training continues on a long term basis. The further the training has run the stronger are personal benefits and positive changes of collegial culture. Time issues, heavy workloads and changes in staff are all obstacles for participation. Hierarchical structures and collegial relations create ongoing challenges for this type of training in as much as they influence video supervision and can prevent constructive collegial feedback.

Discussion and Conclusions: Integrating communication skills training in the clinical setting is an effective and meaningful educational tool across specialties.

Take-home messages: Flexibility, external support and awareness of barriers make communication skills training in the clinical setting effective and meaningful across specialties.
Giving effective feedback to improve trainee communication skills

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**Background:** Communication skill is one of core competencies of family physicians. At Prince of Songkla University, Family Medicine trainees were assigned to video record one of their consultations once a month. Video reviews by their colleagues and trainers were conducted every 2 weeks. There was no structure of giving feedback.

**Summary of Work:** In 2012, Pendleton’s rules were adopted as a feedback model. Start with letting trainee give background to video record of their consultations. Then, ask trainee what she/he did well. Followed by discussion from observers about what went well. Then, ask trainee what went less well and how it could be improved. Finally, observers discuss what went less well and how it could be improved. A focus group of trainees and a focus group of trainers were conducted a study to explore effectiveness of giving feedback.

**Summary of Results:** There was opportunity for residents to do self-assessment. Both verbal and non-verbal issues were discussed. Moreover, feedback dialogue will help lead to things that need to be improved from trainees. On the other hand, it was difficult for both trainer and trainee to differentiate between what went well and what things need to be improved. Structured feedback was time consuming.

**Discussion and Conclusions:** Using Pendleton’s rules in trainee feedback will allow trainees to realize on their ability to communicate with patients and help them improve their overall communication skill.

**Take-home messages:** Pendleton’s rules is an effective feedback tool to improve trainee communication skills.

The Audio-COT (Consultation Observation Tool) – a friend or foe? Assessment of GP trainers’ interest in and use of this clinical assessment tool

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**Background:** The use of telephone triage and consultations in healthcare has increased in recent years, requiring GP trainees to not only develop face-to-face communication skills, but those using the telephone. It can be challenging for trainers to find ways to teach and assess these skills in an authentic way. This project piloted and evaluated an audio-COT (consultation observation tool) which aimed to increase trainers’ ability and confidence in using this assessment tool with trainees.

**Summary of Work:** Trainers completed a pre-session questionnaire to ascertain their awareness of the audio-COT, its perceived relevance for GP training and confidence in teaching telephone consultations skills. Trainers then attended a facilitated session, which included sharing telephone consultation teaching experience, guidance on useful clinical models to use, potential equipment to support learning and tips to facilitate trainee engagement. Examples of audio-COTs were assessed and scores discussed within the group, to consolidate learning and facilitate assessment benchmarking. After the session trainers provided feedback and information about their subsequent use of audio-COTs.

**Summary of Results:** This work is in progress. Early analysis indicates increased awareness of and willingness to use the audio-COT following the session; trainers seem more prepared and confident in facilitating trainee learning and assessment of telephone consultations.

**Discussion and Conclusions:** The use of audio-COTs allows trainers an additional supervised learning episode to formally assess and develop the clinical competence of trainees’ telephone consultation skills.
SESSION 3: Simultaneous Sessions
Monday 1 September: 1045-1230

3A SYMPOSIUM: Where is the line between sloppy and scientifically irresponsible? A discussion to promote excellence in medical education research
Location: Gold Plenary, Level +2, MiCo
Panel: Erik Driessen, Maastricht University, the Netherlands
      David A. Cook, Mayo Clinic College of Medicine, Rochester, United States
      Lorelei Lingard, Western University, Canada
      Cees Van der Vleuten, Maastricht University, the Netherlands
      Nynke Van Dijk, University of Amsterdam, the Netherlands

In 2011, a Dutch “media star” professor in social psychology appeared to have drawn on fantasy instead of flesh and blood respondents for his studies. Some of these studies were published in high impact factor journals such as Science. This case brought into the spotlight the very thin line between correct and incorrect scientific behavior. This symposium reflects on this thin line to stimulate a nuanced discussion of scientific sloppiness as it relates to medical education research. We will consider varying scenarios. For example, if you try a statistical test other than the originally-planned test and this gives “better” results, which should you report? Where is the line between intuitive interpretive leaps and distortion in qualitative research? What degree of contribution truly justifies co-authorship? Does incomplete reporting inadvertently (or intentionally) hide important study details? We invite all researchers, both seasoned and aspiring, to join this conversation on how to prevent “sloppiness” in our research.

3B SYMPOSIUM: Validity Issues in Medical Education Assessment
Location: Auditorium, Level +3, MiCo
Panel: Katharine Boursicot, Lee Kong Chian School of Medicine, Singapore
      Christy Boccardin, UCSF, United States
      Richard Fuller, University of Leeds, United Kingdom
      Marjan Govaerts, Maastricht University, the Netherlands
      Saskia Wools, CITO, the Netherlands
      Trudie Roberts, University of Leeds, United Kingdom (Chair)

There are changing ideas, definitions and debates about the concept of validity in the assessment world. While the traditional psychometric discourse has been, and is still, dominant in medical education assessment, there are growing concerns that there are limitations to this view. This symposium scrutinises medical education assessment in relation to more modern argument-based approaches to validity, by bringing together different researchers to provide an international perspective of how far the modern views of validity have impacted on medical education testing.

The presentations will explore validity issues in a range of assessments used in medical education and evaluate to what extent their claims for validity match the criteria described in Standards for Educational and Psychological Testing. Participants will be able to engage in discussions about the wider concept of validity, with its requirement to consider a range of different factors/evidence when making interpretations of test results, especially in high-stakes situations.

3C SYMPOSIUM: Diversity drives innovation: Bringing together healthcare simulation and clinical educators to develop scholarship through collaboration
Location: Brown 3, Level +2, MiCo
Panel: Ryan Brydges
      Walter Eppich
      Elizabeth Molloy
      Doris Ostergaard
      Simon Edgar (Co-chair)
      Debra Nestel (Co-chair)

The use of simulation as an educational method in healthcare education is wide reaching. Within the simulation community, scholarly activity is undertaken with simulation educators and researchers working with colleagues from diverse disciplines. Similarly, clinical educators in the workplace support diverse educational activities. This symposium explores the critical concepts of feedback and debriefing. We start in a simulated setting identifying considerations for feedback associated with learning psychomotor skills using task trainers and then progress to learning teamwork skills through debriefing after immersive simulations. We then shift our focus to the workplace and consider feedback in two scenarios – clinical supervision and high stakes assessments. By exploring feedback and debriefing practices from four different contexts and two important settings, we seek to advance educational scholarship by identifying areas of intersection in feedback and debriefing practices in these different settings.
might be enhanced, and a deficiency of representation of some CanMEDS competencies in the observed behaviors of MTU preceptors. Our study provides more empiric evidence to affirm the strengths of the CanMEDS framework in guiding the overall training of physicians. Although these data apply to MTU preceptor physicians, aspects of the study results may be generalizable across disciplines for academic physicians working with learners within a multidisciplinary team and to Internal Medicine physician practicing outside of an academic center. This study provides a novel perspective on the actual conduct of MTU physicians and how those behaviors align with the CanMEDS framework. These results may be of value to the current revision of the CanMEDS framework. Future study should explore why MTU physicians are not always able to role model all the CanMEDS core competencies and what is required to close the gap between espoused and observed behaviors. Data emerging from such grounded-theory research may prove invaluable as we evolve to medical training that considers designing programs based on future competency needs.


3D2 (18692)
Five teacher profiles in student centred medical education

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Introduction: Teachers’ conceptions on learning and teaching are partly unconscious. However, they are critical for the delivery of education and they affect students’ learning outcomes. Lasting changes in teaching behaviour can only be realized if conceptions of teachers changed accordingly. [1] Previously we constructed and validated a questionnaire named Conceptions Of Learning and Teaching (COLT) to...
measure teachers’ conceptions of learning and teaching. In the present study we investigated whether different teacher profiles could be identified based on conceptions. These teacher profiles might have implications for individual teachers, faculty development activities and institutions. Our research questions were: (1) Can we identify teacher profiles based on the COLT? (2) If so, how are these teacher profiles associated with other personal and occupational teacher characteristics?

Methods: All teachers in the first three years of the undergraduate curriculum of Medicine, in two medical schools in the Netherlands with student-centred education, were invited to fill out the questionnaire. The COLT (18 items, 5 point Likert scales) comprises three scales, i.e. ‘teacher centredness’, ‘appreciation of active learning’ and ‘orientation to professional practice’, and was sent electronically. We also collected participants’ personal and occupational characteristics. Teacher profiles were identified by using a K-means clustering analysis and calculating chi squares.

Results: The response rate was 49.4% (N=319/646). A five-cluster solution fitted the data best, resulting in five teacher profiles based on their conceptions as measured with the COLT. We named the teacher profiles: Transmitters (most traditional), Organizers, Intermediates, Facilitators and Conceptual Change Agents (most modern). The teacher profiles differed significantly from each other in personal and occupational characteristics. Between the two medical schools the distribution of profiles differed significantly.

Discussion and Conclusions: We identified five useful teaching profiles. At the individual level, we expect that feedback on one’s teacher profile will trigger reflection on their teaching role. It might also contribute to changing teachers’ conceptions, especially if discussed with a mentor or peers. For faculty development purposes, we expect that insight into teacher profiles will enable faculty developers to tailor their activities to the needs of teachers. At the institutional level, in a curriculum change towards more student-centred education, an overview of teacher profiles might be a useful starting point. And finally, it is equally important to realize that institutions and their departments can influence teachers’ conceptions: by a collaborative leadership style, by stimulating ownership of the curriculum, and by a positive educational climate.[2]

Conclusion: Five teacher profiles are found in student-centred education, based on teachers’ conceptions of learning and teaching. Theoretical and practical implications are discussed.


3D3 (18738)
The AMA Learning Environment Study: A Longitudinal Investigation of Context and Professional Development in 27 Schools of Medicine

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Win May, Keck School of Medicine, Chicago, United States

Introduction: This paper describes a large-scale collaborative research project designed to explore the relationships among characteristics of students, features of the medical school context, student perceptions of their learning environment, and their professional development.

Methods: The Learning Environment Study (LES) is a prospective longitudinal cohort study of the medical education learning environment supported by the American Medical Association. Participants are medical students (N = 4,795) matriculating in 2010 and 2011, from 27 medical schools in the United States and Canada. Primary variables examined in this paper at baseline in the first year of medical school include student perceptions of their learning environment and self-assessment of empathy. Mixed models with random student and school factors were run on the empathy and learning environment data to look for gender, time, and grading environment effects, and to control for school differences. Multiple comparison adjustments were used to assess the relationships between gender and empathy over time, and the relationship between gender and grading on the perception of the learning environment.

Results: As measured at the end of the first year of matriculation, student perceptions of the medical school learning environment differed widely by gender and by school. Students in schools that offer pass/fail grades viewed faculty members as more distant but also more likely to respond to students’ needs. They also viewed the curriculum as more integrated. Students in schools with ‘grades’ viewed competition as more intense and felt that upper level students were more likely to guide them through the curriculum. Across schools, female relative to male students viewed the curriculum as more integrated and felt that fellow students were more likely to help each other. Female relative to male students also felt that it was difficult to find time for family and friends, and that the environment failed to allow enough time for outside interests. There were no meaningful differences in empathy scores related to school. Across schools female students scored higher on total
empathy and three empathy subscales: importance, perspective taking, and feelings. Male students expressed experiencing more difficulty with empathy. On average, students exhibited a decrease over time on total empathy, importance, perspective taking, and feelings. There was no change over time on the ease of empathy subscale. Female students experienced a significantly stronger drop in consciousness over time compared to male students.

Discussion and Conclusions: This study found wide variance among students and schools in student perceptions of the learning environment, and evidence of strong relationships among these perceptions and characteristics of the school and of the student. Factors within empathy are differentially related to gender and change over time. These observations provide information that will facilitate strategic planning and reform in medical education.


3D4 (18710)
Cretans in research: Do recalcitrant respondents disturb outcomes of perception studies?

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Anouk Wouters, VU University Amsterdam and VUmc School of Medical Sciences Amsterdam, Institute for Medical Education, Center for Research and Innovation in Medical Education, Amsterdam, Netherlands
J Cohen-Schotanus, University of Groningen and University Medical Center Groningen, Institute for Medical Education, Center for Research and Innovation in Medical Education, Groningen, Netherlands

Introduction: In medical education, student perceptions are often used as a basis for research in education and for improving education.1 However, over-reliance on student questionnaires may lead to “evaluation fatigue” and, as a consequence, to low response rates and response bias. Similarly, if respondents consider instruments as tedious, irritating or too self-evident, this may result in biased outcomes.2 Research outside the medical education setting revealed that a small, but non-trivial proportion of respondents – called Cretans – intentionally provide incorrect answers, which may seriously distort the outcomes of perception studies.2 Since this Cretan bias may also apply to research in medical education, we investigated whether the medical student population contains Cretans. Based on previous research, we expected that Cretan responses deviate from non-Cretan responses.3

Methods: We performed two studies at the University of Groningen. Participants were first-year bachelor medical students (Study 1), and first-year bachelor and first-year master medical students (Study 2). Participants in Study 1 completed a 10-item course evaluation instrument on a 4-point Likert type scale. Participants in Study 2 completed a questionnaire battery containing 23 questions to collect background information and three instruments: two motivation instruments on a 5-point Likert scale (SRQA, 16 items, and SMMS-R, 15 items) and an engagement scale on a 7-point Likert scale (UWES-S-9, 9 items). In addition, all participants completed a validated survey to identify Cretans (12 items on a 5-point Likert scale) of which 3 items are used to identify Cretans.2 Cretan and non-Cretan evaluation scores were compared using MANOVA.

Results: Study 1. Of 148 respondents (response rate 80%), 35 (24%) were identified as Cretan. No differences were found in evaluation scores provided by Cretans and non-Cretans (F(10,121)=1.257, p=n.s.). Study 2. Of 115 bachelor students who responded (response rate 34%), 22 (19%) were identified as Cretan. No differences were found in scores provided by Cretans and non-Cretans (F(3,101)=1.81, p=n.s.). Of the 126 master students who responded (response rate 72%), 18 (14%) were identified as Cretan. Scores provided by Cretans and non-Cretans differed marginally significantly (F(3,116)=2.437, p<.10).

Discussion and Conclusions: Our medical student populations contained substantial proportions of Cretans. The fact that we did not find significant differences between Cretans and non-Cretans in Study 1 may be explained from the brevity and/or the focus of the evaluation form. The instrument contained only 10 items. Therefore, hardly any irritation may have been caused by instrument length or repetition in the items. Additionally, its focus was on medical education rather than on personal aspects (contrary to the referred study), which may have prevented the inclination to answer rebelliously. In Study 2, instrument length was longer and its focus was on personal aspects. Finding only marginal differences between Cretans and non-Cretans in the master student sample may indicate that having been exposed to (course evaluation) questionnaires for some years during (medical) studies may spark off irritation more easily. Especially among more advanced medical students, prudence is in order when investigating their self-perceptions about personal aspects and using lengthy instruments, since research outcomes may be distorted due to a Cretan bias.

2. Merckelbach H, Giesbrecht T, Jelicic M, Smeets T. The problem of careless respondents in surveys [Kretenzers in surveys: Het probleem van
3D5 (18608)
Quality improvement and continuing professional development: an exploration of their integration in mental health?
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Elizabeth Lin, Centre for Addiction and Mental Health, University of Toronto, Department of Psychiatry, Toronto, Canada
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**Introduction:** The integration of continuing professional development (CPD) and quality improvement (QI) will benefit healthcare delivery and patient care. While the relationship between these concepts has been explored more broadly in medical education, the stigma, the significant burden of mental illness and the world-wide lag in the application of mental health performance measures are unique challenges to the integration of QI into CPD in Psychiatry. The objective of this study was to examine the relationship between and opportunities for integrating QI and CPD in Psychiatry in a Canadian setting.

**Methods:** We used snowball sampling to recruit psychiatry administrative and CPD leaders from 19 academic affiliated hospitals at the University of Toronto. Participants were interviewed on their perceptions regarding CPD and QI in Psychiatry, specifically, the definition, relationship and integration of these two concepts. All interviews were recorded and professionally transcribed. Analysis of transcribed interviews used an iterative, inductive method of constant comparative analysis associated with grounded theory approach. Interviews were analyzed using open, axial and theoretical coding by three investigators. Rigor and trustworthiness of our analysis was established by sampling until theoretical saturation was achieved, member checking and maintaining an audit trail of the research process.

**Results:** Overarching themes of QI and CPD in Psychiatry emerging from the transcripts focused on: 1) definitions of CPD and QI, and 2) the relationship between QI into CPD in Psychiatry. Both QI and CPD were defined in terms of micro- (individual), meso- (hospital or program) and macro-level (system) components. Most participants commented on the lack of QI expertise in Psychiatry as a barrier to integrating QI into Psychiatry CPD. They noted that for QI and CPD to have a clear relationship, QI will need to fit within the existing educational culture of the institution. Participants also noted that QI and CPD were mutually reinforcing to one another and that emphasizing this reinforcing relationship was important to integrating QI into CPD. Most participants felt that implementation of QI into CPD had several challenges and uncertainties including the need for faculty with expertise in QI, information technology (IT), more human resources and time. The lack of QI integration at hospital and individual levels were noted as barriers to sustained CPD-related practice improvement in Psychiatry. Using an implementation science approach, the Texas Christian University Program Change model is a promising framework for addressing the challenges in adopting and implementing QI and CPD in Psychiatry.

**Discussion and Conclusions:** The study results confirm the lag in Psychiatry’s engagement with QI in CPD and provide insights into contextual factors influencing the relationship between these two concepts in Psychiatry. Future research on this subject is needed to explore the perceptions from other mental health stakeholders.

**References:**

3D6 (18604)
Understanding success and failure in multimorbidity: A realist literature synthesis of workplace based learning in primary care
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Elizabeth Cottrell, Keele University, Primary Care and Health Sciences, Keele, United Kingdom
Joanne Protheroe, Keele University, Primary Care and Health Sciences, Keele, United Kingdom

**Introduction:** The impact of multimorbidity on the educational needs of professionals is little understood. Primary care training sites must reconcile two different goals: provision of appropriate individualised healthcare and constructive workplace-based learning for future professionals. This realist literature synthesis addressed the question: What is known about how and why concurrent health service delivery and professional medical education interact to generate outcomes, valued by patients, professionals and learners, for patients with multimorbidity in primary care?

**Methods:** Realist synthesis starts with identification of potential outcomes, and aims to make sense of these by focusing on interaction between mechanisms and contexts. For this review, relationship-based
Negotiation of needs-based learning together with needs-based care was the primary outcome of interest. Published standards informed the study design (Wong et al 2013) (PROSPERO registration: CRD42013003862) (Yardley et al 2013).

A literature search, using terms pertaining to i) multimorbidity, ii) primary care, iii) education and iv) workplace experiences was undertaken in 16 databases. Articles covering at least one item of health service delivery, education or social processes were accessed for quality screening and data extraction. Data extraction focused on ‘CMO’ (context, mechanisms and outcomes) configurations within studies and on data which might assist understanding and explain: i) the CMO configurations themselves; ii) the relationships between them and; iii) their role and place in evolving programme theories. Each article was reviewed by at least two team members who subsequently discussed the content to reach consensus on data extractions. Mind-mapping software was used to synthesise data into an interpretative analysis. Team meetings hosted discussions of emerging findings.

**Results:**
The final synthesis included: 8 empirical training interventions (ETI), 67 empirical non-interventional studies (ENI), 5 policy initiatives (PI), 12 literature reviews (LR) (one published twice, total = 13 papers), and 48 theoretical/opinion papers (TO) totaling 141 papers of which 34 papers contained models (2ETI, 13ENI, 3PI, 4LR and 13TO) for workplace-based education and/or patient care. Models of experiential learning for professionals and for patient engagement were congruent. Both frequently included reference to theories of transformation and socio-cultural processes as mechanisms for improving clinical care. Key issues included the incommensurate nature of personalised concepts of success with measurability of clinical markers or adherence to guidelines, and the need for greater recognition and evaluation of experiential learning and social dynamics between patients, learners and practitioners including complexities of shared responsibilities.

**Discussion and Conclusions:** From the data synthesis we have built a conceptual map of how learners, patients and practitioners think about success and failure in learning and healthcare delivery in the context of multimorbidity in primary care. There is, however a significant gap in the literature as none of these models currently draw on empirical evidence from patients, learners and professionals engaged in concurrent learning and health service delivery. Although large and complex, this synthesis was important to understand the complex ‘real life’ interactions between patients, learners and practitioners. This work can inform the direction and design of research-based interventions to produce a sustainable medical workforce equipped to provide multimorbidity care and ensure continuity of professional and patient education about the same.

**References:**
2. Yardley, S., Cottrell, C., Protheroe, J. Understanding success and failure in multimorbidity: protocol for using realist synthesis to identify how social learning and workplace practices can be optimised. Systematic Reviews 2013, 2:87
3E SHORT COMMUNICATIONS: The Teacher
Location: Brown 1, Level +2, MiCo

3E1 (23187)
Developing as a Medical Educator from the Outside In

Anna T Cianciolo*, Southern Illinois University, School of Medicine, United States

Background: It is not uncommon for medical educators to be expatriates from other domains of higher education, such as psychology, engineering, and leadership. These people bring diverse perspectives on teaching and learning from their native professions, which stimulate innovative approaches to curriculum design, performance assessment, and educational research, among many other endeavors. Enculturating into medical education is no small task, requiring the acquisition of a foreign language, adoption of new social norms, and integration into established interpersonal networks. There is no one “right” way to develop as an immigrant to medical education; the openness of our field provides numerous opportunities to develop professionally and make a difference if one keeps busy doing what they love. This brief presentation will tell the story of how I created a home at Southern Illinois University School of Medicine by quickly becoming involved in curriculum evaluation, an activity that allowed me to apply my background to solving problems valuable to the school and personally meaningful to me. This initial engagement opened doors to research collaborations with clinical and basic science faculty and publishing in medical education journals, to participation with faculty and medical students on their own professional development journeys, and to the editorship of Teaching & Learning in Medicine, where I have the honor of working to advance our field with staff and contributors from all over the world. I hope my story will help other medical educators (and those who develop them) to seize the wealth of developmental opportunities in their everyday work.

3E2 (22764)
Evaluating clinical teachers in postgraduate medical education: Does it improve the quality of teaching? Results of a longitudinal study

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L Sander, Radboud University Medical Center Nijmegen, Evaluation, Quality and Innovation, Nijmegen, Netherlands

Background: There is mixed evidence whether evaluations lead to more effective teaching and higher ratings. We assessed changes in resident ratings of their teachers, using a validated questionnaire (EFFECT). We interviewed supervisors to understand what changes they plan to make, and how to realise them.

Summary of Work: Supervisors of nine medical specialities were evaluated, using EFFECT. Mean overall scores (MOS) and mean scale scores were calculated and compared using paired T-tests. Semi-structured interviews were conducted based on predefined topic lists. Interviews were transcribed and analyzed in ATLAS-Ti.

Summary of Results: 89 Supervisors were evaluated at two subsequent years. 12 Out of 18 supervisors (67%) with a MOS 0.2 in their MOS. We interviewed 12 supervisors. A first analysis shows that supervisors experience a high job autonomy concerning teaching, improve their teaching but are not aware of their strategies, and don’t expect support from the head of the department. Supervisors rarely learn from their colleagues. Feedback from residents is useful.

Discussion and Conclusions: Evaluating teachers with EFFECT is associated with a positive change in residents’ ratings, predominantly in supervisors with low initial scores. Supervisors formulate intentions but do always not have clear strategies on how to realise them.

Take-home messages: Evaluating supervisors helps to further improve teaching. Supervisors could be supported in realising their intentions after an evaluation.
Faculty Assessment in Healthcare

Randy D. Danielsen*, A. T. Still University, Mesa, United States
David A. Wayne, University of New England, Biddeford, United States

Background: Many administrators are reluctant to have their college tackle comprehensive faculty assessment. While universities typically have an annual review together with student assessment of their classes or instructors, this may not provide faculty the input they need to enhance their skills.

Summary of Work: A healthcare college with 11 different graduate programs developed an assessment process based on solid research data that is both ongoing and dynamic. First created in 2006, with help from R. A. Arreola and his book, “Developing a Comprehensive Faculty Evaluation System”, it has undergone refinements so that it is “owned” and appreciated by faculty and is comprehensive in approaches to teaching, service and scholarship.

Summary of Results: The results have led to a better alignment of shared, measurable goals, ability to plan for and support professional growth and development without being seen as threatening or non-collegial. At the same time, the process clearly needs to be dynamic and reflect the changing healthcare environment. As a result, the process is reviewed and refined annually.

Discussion and Conclusions: Faculty can be given a foundational understanding of the research behind faculty assessment and, when given the authority, can develop a shared system of self and peer evaluation as a way of improving instruction and leading to overall growth.

Take-home messages: Faculty must “own” a faculty evaluation system that they are involved in creating and that takes into account both solid research and the changing external and internal environments of today’s healthcare.

3E4 (21266)
The influence of the work environment on teaching performance: Work engagement as a perspective

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Kiki Lombarts, Academic Medical Center University of Amsterdam, Center for Evidence Based Education, Amsterdam, Netherlands

Albert Scherpbier, Maastricht University, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands
Debbie Jaarsma, Academic Medical Center University of Amsterdam, Center for Evidence Based Education, Amsterdam, Netherlands

Background: Work engagement offers insight in the influence of the work environment on teaching performance and well-being. Different levels of work engagement have been quantified for the roles of teacher, clinician and researcher for medical faculty. Our aim is to explore which aspects of the work environment affect work engagement for teaching specifically.

Summary of Work: We interviewed 16 medical faculty at two Dutch university teaching hospitals, who were purposively sampled to ensure a wide range in professional roles and backgrounds. We asked them to elaborate on the influences on their work engagement based on the work engagement model. The interviews were iteratively coded and analyzed using the template analysis method and regularly discussed in the research team.

Summary of Results: Besides aspects of the work environment inherent to teaching, participants identify several positive influences from combining clinical work or research with teaching, despite the effect of increased work pressure. Furthermore, several aspects of the work environment were perceived oppositely between participants and could not be unequivocally labeled.

Discussion and Conclusions: While previous research has found different levels of work engagement for different roles, our research suggests there is an interaction which is also beneficial. In addition, distinct differences exist between medical faculty in the emergence of work engagement. Our finding that certain aspects of the work environment are perceived oppositely, may have consequences for how educational innovations are designed, implemented or provided.

Take-home messages: Influences on work engagement for teaching extend beyond education into the realms of clinical work and research.
3E5 (22028)
New Medical Teachers Climbing the Hill Of Academia

Suhaila Sanip*, Leeds Institute of Medical Education, University of Leeds, Leeds, United Kingdom

Background: New medical teachers (NMT) face many challenges at the beginning of their career. This paper will explore the challenges experienced by NMTs in two countries and suggest ways how these teachers can optimize their academic career progression.

Summary of Work: In this comparative longitudinal qualitative research, NMTs were interviewed three times over one year about factors affecting their learning processes at the early stage of their career. These interviews were conducted in Malaysia and the United Kingdom. 8 NMTs completed the three interviews in Malaysia and 4 NMTs completed the interviews in the United Kingdom.

Summary of Results: There are similarities and differences in the challenges faced by NMTs in the two countries. Both male and female NMTs expressed collegial support as the best form of support during their transition into academia. In terms of hindering factors, female NMTs expressed a strong need for female academic role models especially when it involved making decision about family planning and career progression.

Discussion and Conclusions: The finding of collegial support as the best form of support for NMTs is consistent with other studies on novice teachers for example by Burke et al. (2013) and Pogodzinski (2013). The need for female academic role models is a long standing issue and have been highlighted in other studies for example by Suzanne H. Lease in 1999 and Valantine & Sandborg in 2013. Additional supporting and hindering factors, such as familial support and heavy workload will also be discussed. This paper will suggest ways how hindering factors can be overcome so that NMTs can optimize their academic career progression.

Take-home messages: In order for a smoother transition into academia, it is important that universities look into the factors affecting the learning processes of NMTs and provide the support needed by these NMTs.

3E6 (21022)
Factors which facilitate or impede clinicians from teaching undergraduate medical students

David C M Taylor*, University of Liverpool, School of Medicine, Liverpool, United Kingdom

Background: Changes in public (and political) expectations mean that senior clinicians have an increasingly hard task to balance the competing demands of clinical service, education of the professionals of the future and their own research programmes. To establish the beliefs that underlie the decisions they make, two theoretical frameworks have been applied: Fishbein and Ajzen’s (2010) reasoned action approach and Archer’s (2012) reflexive imperative model.

Summary of Work: A series of 20 semi-structured interviews were undertaken, recorded, transcribed, anonymised, and inductively coded, including items previously identified in the literature (time, primacy of research, appropriate level of training, lack of recognition for teaching, lack of understanding or “their place” in the programme.

Summary of Results: To the elements mentioned above, one must add the respect of colleagues, pleasure at being a role model, and a desire to make things better for the current generation. The primacy of research was mentioned by most participants but no participant mentioned “time” as a significant factor.

Discussion and Conclusions: It is possible to identify participants underlying beliefs about their behaviour (education of undergraduate medical students), the effect of those beliefs upon their attitudes, and the influence of controlling factors (peer/senior pressure, enjoyment) and a desire to be seen as a good role model. There is evidence in favour of the application of both frameworks to trying to understand colleagues’ motivations to teach.

Take-home messages: By understanding better the motivating and demotivating factors that impact upon our colleagues, we can devise the structural changes that will ensure an increased engagement between senior clinicians and undergraduate medical students.
Teacher Effectiveness in Clinical Teaching: Structural Equation Model

Alia Zawawi*, King Saud Bin Abdulaziz University for Health Sciences, Medical Education, Riyadh, Saudi Arabia
Lubna Baig, King Saud Bin Abdulaziz University for Health Sciences, Medical Education, Riyadh, Saudi Arabia

Background: Clinical teaching is a complex activity that includes all domains of learning (Knowledge, Psychomotor and Attitude). Teaching medical students during their clinical rotation is critical to their education, as it prepares them for patient management in their future practice. It is therefore important for teachers to understand the factors that influence learning (i.e. principles) and the processes that underlie it (i.e. theories) to both promote students’ learning and facilitate students’ success in exams and future work and study.

Summary of Work: Based on adult and social learning theory, a model was developed to test the factorial relationship between teacher characteristics (input), student’s perception (process), and students’ assessments (outcome) in clinical teaching, along with the effect of additional input and outcome factors.

Summary of Results: A three step analytic procedure with three separate sub-samples from medical students was used to explore the correlation between clinical teaching and student outcome. The results from latent variable path analysis showed a good fit to the data (comparative fit index = .93) which converged in 6 iteration, with a standardized residual mean error of 0.05 and RMSEA of 0.092, SRMR =0.043.

Discussion and Conclusions: Students’ success was closely related to teacher’s characteristics and their clinical coaching and teaching skills in the process of clinical teaching.

Take-home messages: The Structural Equation Model is a great opportunity for medical education research; it helps to link learning theory with medical practice. Importantly, SEM is a powerful technique that can combine complex path models with latent variables to produce a comparative result with clear correlations.
3F1 (20314)
Immersed in patients’ tales: Teaching professionalism to first-year medical students

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Background: Patient contact is crucial for professional development in experienced clinicians. We hypothesized that medical students’ grasp of professionalism could also be enhanced through relationships with real patients, and created the 40-hour obligatory course “Patient Contact” for two classes of 80 preclinical students.

Summary of Work: Groups of 4 visited a patient at home, talking freely about the patient’s life, sickness and health care experience. Students and patients subsequently presented stories and reflections during 20 plenaries. Each student wrote two reflective essays focusing on patient and student perspectives, respectively. Senior medical students served as supervisors. Classes were run by two clinical teachers who actively encouraged dialogue and reflection on emerging issues concerning professionalism.

Summary of Results: Students found the course relevant and motivating. Patient encounters made them aware of their own stereotyping and prejudice, revealed variation and individuality in patient attitudes and sickness behaviour as well as shared needs of being “seen” by their doctors, highlighted the importance of social networks, the centrality of trust and the high prevalence of frustrating experiences with healthcare. Students reported increased tolerance of ambiguity, ignorance and uncertainty, better understanding of communication skills and enhanced expectations of mastering their future role.

Discussion and Conclusions: First-year medical students are, by being allowed to talk with patients, able to discover, understand and reflect upon core issues of medical professionalism, including the challenges of perspective-taking and stereotyping, power asymmetry, medical uncertainty and communication issues. Faculty should be organizers and dialogue partners, rather than oracles.

Take-home messages: Patients can be wonderful teachers of professionalism for first-year medical students.
Role models of professionalism: Who they are, what they think and how they influence medical students

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Background: Role modeling is a key modality through which medical students learn professionalism. As the voice of role models themselves has been underrepresented in the medical literature, this study aimed to explore the views of student-identified role models about professionalism and how it is learned.

Summary of Work: In 2012, all third and final year medical students at the University of Hong Kong were invited to complete an anonymous written questionnaire in which they were asked to name a teacher whom they perceived as a role model of professionalism. They were also required to explain the reason for their choice. The most frequently nominated teachers, as well as those for whom students gave unique or compelling reasons, were invited to participate in individual, semi-structured interviews.

Summary of Results: 39% (118/304) of medical students completed the questionnaire and identified 50 different teachers as role models. 14 teachers (12 male, all clinically trained) participated in interviews between February, June 2013. They conceptualized professionalism within teacher-related (e.g. preparation, effort to explain), doctor-related (e.g. clinical skills, interaction with patients) and individual-related (e.g. personal attributes) domains. This was generally consistent with students’ perceptions. Professionalism was not intentionally role-modeled or taught, but simply constituted teachers’ usual teaching/clinical practice.

Discussion and Conclusions: Students noticed and recognized attitudes and behaviors reflective of professionalism. Role models can unveil the learning of professionalism by explicitly articulating their usual practices as professionalism.

Take-home messages: Increasing teachers’ own awareness of their influence on students’ perceptions and beliefs can help enhance and reinforce positive role-modeling behavior.

Can professional behavior curriculum and assessment build professionalism? A review of professional behavior education at Faculty of Medicine Universitas Gadjah Mada (FM UGM) Yogyakarta Indonesia

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Background: Professionalism has become one of the Indonesian medical doctor competencies for a decade and assessment of professionalism is important to guarantee that students have performed as required. The aims of this paper are 1) to describe the development of professionalism education via professional behavior curriculum and assessment; 2) to review the assessment of professional behavior; and 3) to portray particular booster program of professional behavior in accelerating professionalism.

Summary of Work: FM UGM formed a professional behavior team (PBT) to develop professional behavior education. Within a serial workshops, the PBT developed professional behavior curriculum and assessment in the undergraduate level of medical school. The curriculum consisted of a few expert lectures, integrating professional behavior into module scenarios and skills laboratory sessions. Students are assessed by simple professional behavior assessment by tutor in each small group discussion across block.

Summary of Results: After four years professional behavior assessment has been applied, the highest unprofessional behavior is punctuality, followed by inactive during tutorial session and did not prepare well for the tutorial session. We determined unprofessional behavior based on the particular criteria (excellent, good, sufficient, need a particular treatment). Students who did not fulfill the requirement have to participate in the particular booster program that was carried out every semester during their clinical rotation scheme. The result of booster programs showed that students were more sensitive toward professionalism in medical field.

Discussion and Conclusions: Particular booster program accelerated the acquisition of professionalism among students. Professional behavior assessment during tutorial session was the initial step to assess professionalism.

Take-home messages: Both professional behavior and professionalism should be integrated into medical curriculum.
Medical students’ understandings of academic and medical professionalism: Visual analysis of mind maps

No author information provided.

Background: Few studies have explored medical students’ understandings of professionalism. To our knowledge, none have explored the understandings of medical students in Poland about academic and medical professionalism and the relationships between these two concepts.

Summary of Work: The authors analysed 98 mind maps presenting students’ understandings of academic and medical professionalism and their interrelations. A multi-layered analysis of mind maps, including thematic analysis, analysis of networks of relations between main concepts, attributes and descriptors of professionalism and holistic, in depth analysis of individual mind-maps using Atlas-ti was performed. This was supplemented with quantitative analysis of attributes and individual words. Visual data were analysed both from semiotic and iconological perspectives.

Summary of Results: The most common attributes of academic professionalism were learning, lifestyle, personality and motivation, while attributes of medical professionalism were knowledge, ethics and patient-doctor relations. Pictures of square academic caps, books and diplomas were used most often to present visually the main concept of academic professionalism, while stethoscopes, caducei, hearts and red crosses were used to depict medical professionalism. The analysis of textual and visual relations between academic and medical professionalism revealed that students perceived them as two quite different concepts.

Discussion and Conclusions: Preclinical students’ understandings of academic and medical professionalism and especially of their interrelations is not well formed and requires explicit and implicit educational interventions.

Take-home messages: Mind maps can constitute a valuable source of data for the visual analysis of reflection on complex concepts and problems.

Institutional professionalism culture of patient-centredness in Sri Lankan Medical Schools

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Background: Enhancing patient-centredness is the primary goal of professionalism. The aim of this study is to explore the institutional environment of patient-centredness in medical schools in Sri Lanka.

Summary of Work: The Communication, Curriculum and Culture (C3) questionnaire was validated and used as the survey instrument. It measures the institutional culture against role models, student experience and support for students in relation to patient-centred practice giving a score out of 100. It was administered face-to-face to final year medical students of two faculties of medicine in Sri Lanka (Peradeniya and Kelaniya).

Summary of Results: 340 final-year medical students (RR > 90%) responded. The internal consistencies of the questionnaire (0.84) and the domain of ‘role model’ (0.92) were high. The respective values for the domains, ‘student experience’ (0.53) and ‘support’ (0.61) were relatively low. The average domain scores of both schools varied from 60-72; the highest being the support for patient-centred behaviour and the lowest being the students’ experience in patient-centredness. The differences in students experience in (Peradeniya 60.3, Kelaniya 61.1) and the support for patient-centredness (Peradeniya 71.8, Kelaniya 72.4) were not significant. Compared to the role models of Kelaniya graduates (63.8) the patient-centredness among among role models of Peradeniya graduates (68) was significantly higher. There were several significant differences in item-scores between the two faculties.

Discussion and Conclusions: Although the institutional culture is conducive for patient centred practice there is room for improvement in both national and institutional levels.

Take-home messages: The influential institutional culture needs improvements to enhance patient-centredness among medical students in Sri Lanka.
On why ‘professionalism’ is NOT a competency

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Background: IMHO, one of the biggest mistakes in the recent history of medical education is the idea that ‘professionalism’ is a competency. This idea is the source for huge theoretical and practical problems (‘what is professionalism?’, ‘how can we assess, educate, measure it?’). These issues will and cannot be solved however, because they rest on the wrong assumption that there is something as a competency called ‘professionalism’.

Summary of work: In this philosophical paper, I will argue that (a) because of our use of words like ‘professional’ and ‘professionalism’, we are inclined to think that there is something like a competency called ‘professionalism’ but (b) that, if we analyse our use of language more closely (in the tradition of analytical philosophy), we will see that ‘professional’ is just a very general substitute for words like ‘good’ or ‘quality’ (in a way that resembles the way in which Aristotle used the word ‘good’). It does not, however, point to something like a competency.

Conclusions: Some consequences of adopting this view are: 1. we will get rid of a lot of unsolvable pseudo problems, without losing anything that is of value. 2. There are no reasons to offer courses or lectures on ‘medical professionalism’. (This is not the same as saying that courses currently held under this name are worthless; my position is that one is just not educating ‘professionalism’ here) 3. All medical competency-models like CanMEDS need major revisions.

Take-home message: Stop calling ‘professionalism’ a competency 2. Stop educating ‘professionalism’
3G SHORT COMMUNICATIONS:
Assessment 1

3G1 (21784)
Perceived strengths, impacts and needs for the further development of the revised Swiss Federal Licensing Examination after its implementation: A focus group study among experts and stakeholders

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Background: The revised Swiss Federal Licensing Examination in Medicine (FLE) has been conducted three times successfully. To gain insights about what the perceived strengths, impacts and needs for further development of the FLE are, we explored the perceptions of involved experts and stakeholders.

Summary of Work: Four focus group discussions with overall 25 participants were performed and analyzed according to international standards.

Summary of Results: Perceived main strengths were the combination of the two exam parts, the format specific strengths of the multiple-choice and the clinical skills exam (CSE) and the multicultural collaborative approach. Perceived main impacts were on students learning behavior, raters of the CSE, teaching staff, curriculum reform, collaboration between faculties and the perceived importance of the Swiss Catalogue of Learning Objectives (SCLO). Perceived main needs for further developments were seen in the following: that modifications are only advised if well-reasoned and evidence-based, in an augmented authenticity of the clinical skills exam, in complementary exam formats, in an improved communication policy, in the further revision of the SCLO, in the acknowledgement of the limitations of a single shot exam and in building up incentives for clinicians actively participating in the FLE.

Discussion and Conclusions: Overall the FLE is perceived as appropriate for its tasks. It has notable impacts on medical education in Switzerland. There are some needs for further development however changes should be well-reasoned.

Take-home messages: This national licensing examination has salient secondary positive effects beyond the immediate assessment purposes.

3G2 (21818)
Facing the challenges of assessment through cooperation: The Umbrella Consortium for Assessment Networks (UCAN)

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Background: Good exams are an essential part of the learning process. Top-quality items, state-of-the-art quality management and judicial security are therefore pivotal for modern assessment. At the same time, most educational institutions have to cope with scarce resources for exams. Instead of facing these challenges alone, UCAN empowers actors in the field of educational assessment to cooperate in networks, complement their resources, share the knowledge and to develop new methods and standards to establish excellent exams.

Summary of Work: UCAN serves as a non-profit umbrella organization for different assessment networks. 49 schools, boards and councils from six countries use a common platform for the exam preparation, exchange, delivery and evaluation. In close cooperation with all partners, UCAN develops formats, content, procedures and tools to support the workflow in medical assessment.

Summary of Results: In the last two years, UCAN integrated new formats such as OSCEs and Structured Oral Examinations. Several apps for tablet-based exams were developed and established in several partner faculties. The first competency-based ProgressTest with 600 participants was conducted in eight schools. Currently a feedback system is in development, giving students a longitudinal feedback on strengths and weaknesses in different competencies, examiners information about the exam-quality and faculties important insights on the effects of curricula changes.

Discussion and Conclusions: To address current challenges and requirements in assessment, a cooperative approach is essential.

Take-home messages: UCAN offers a comprehensive platform for such cooperation. Partners can use a lot of helpful tools and innovations in the field of assessments.
3G3 (20235)
Learning Assessment in Healthcare Professionals: MeSiDe Model

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Background: The complexity of the teaching, learning and assessment strategies still represents a problem in the training of Nurses and Healthcare Professionals. Meaningful learning is the process that stems from the interaction between new and previous knowledge. It promotes greater understanding of concepts and produces long-term changes. The purpose of this paper is to identify and test a measurement system to assess the development of meaningful learning in Nurses Student and Health Care Professionals.

Summary of Work: The project consists of two phases:
1-Systematic review to identify measurement and assessment systems for meaningful learning.
2-A measurement system for meaningful learning was set up to be tested and validated using a sample of Italian Nurses Student and Healthcare Professionals.

Summary of Results: The concepts of 'Meaningful Learning’, 'Significant Learning' and 'Deep Learning' are very widespread, they look similar but they are used in different contexts and with different meanings. For this reason, the measurement system 'MeSiDe Model' was established, in order to assess meaningful learning in the three known dimensions.

Discussion and Conclusions: The development of meaningful learning is closely linked to the ability of trainers to implement specific interventions and strategies to foster the development in students. The outcome of Healthcare Professionals training is still little understood, but this model can help measure and monitor over time meaningful learning in students, transforming and integrating the current assessment systems.

Take-home messages: The creation of a measurement model could support the evaluation and monitoring of meaningful learning over time, in all the dimensions taken into account.

3G4 (19949)
Epistemologies Underlying Human Anatomy Teachers’ Experiences of the Evaluation Process

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Background: The evaluation phenomenon takes relevance as a process of communication and negotiation through which teachers and students approach their representations of knowledge and knowing. This study addresses what dimensions of variation are elicited in the evaluation phenomena and what epistemologies underlie those dimensions.

Summary of Work: In-depth interviews verbatim of nineteen anatomy teachers in eight countries provide the spectrum of variation. Variables such as profession, gender and professional developmental stage, were taken into consideration for the analysis. Concordance analysis between three experts was used to validate referential and structural aspects of the phenomena.

Summary of Results: Three distinctions of awareness were elicited: 1. Focus on the content or the method (linked to an objectivism epistemology), 25%. 2. Focus on developing comprehension, skills of explanation and 3D relational skills, 41% (linked to relativism and theoretical evaluativism). 3. Focus on the integration with learning and teaching, where personal development and self-regulation is the aim of the process, 34% (linked to practical evaluativism).

Discussion and Conclusions: The deep comprehension of the evaluation process allows analyzing many aspects of teaching: what is evaluated (the nature of knowledge), how is it done (knowledge acquisition) and why (value of knowledge).

Take-home messages: The full comprehension of each category, as well as the verbatim examples, will allow the expansion of awareness on the phenomena. These promote critical reflection and new ways to address models of evaluation.
3G5 (22065)
Is self-assessment associated with changes in learner activity?

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Background: Previous research has cast doubt over individuals’ ability to accurately self-assess, but little work has been done to demonstrate if self-assessment influences consequent activity. Foundation doctors are required to complete a self-assessment (TAB, a multi-source feedback tool) training to compare with link items within the ePortfolio and the associations between individuals’ TAB self-assessments and Summary will be compared.

Summary of Work: This paper will firstly test the relationship between self-assessment TABs and other ePortfolio components, notably the Personal Development Plan (PDP), curriculum and reflections and secondly, the TAB summary, a synopsis of all TAB scores (self and other) available at year’s end, will be compared to other ePortfolio components.

Summary of Results: A full year of data will be examined in situ. This allows the comparison of data between components and processes (eg completed self-TAB to PDP). The links made to other ePortfolio components will be described for Scottish FY1 (n=833) doctors for both their self and other TAB assessments within a single academic year. Depending on the emerging data, appropriate statistical testing of the linkages will be undertaken including correlation and regression to reveal the relationships and the extent of the influence of self-assessment and other factors on linking.

Discussion and Conclusions: For both trainees and supervisors a significant amount of time and resource is invested in the Foundation assessment processes and it is critical to see if the educational aspirations of the regulators are achieved in practice.

Take-home messages: Many aspects of self-assessment have yet to be evaluated.

3G6 (18431)
Self-evaluation and peer-feedback of medical students’ communication skills using a web-based video annotation system. Exploring content and specificity

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Background: Self-evaluation and peer-feedback are important CanMeds based strategies in the development and maintenance of professional competencies like medical communication. Self-evaluation and peer-feedback are key activities in developing and maintaining effective medical communication skills. VideoFragmentRating.com (VFR) is a web-based system developed to facilitate systematic self- and peer-review and assessment of video recordings of clinical performance.

Summary of Work: Participants were 26 pre-clinical clerks (11 male and 15 female), grouped in pairs. All participants recorded a history taking consultation, uploaded it in VFR. They were invited to mark and annotate two positive and two negative critical events with green and red colored time-stamps on a timeline. Next, peers were invited to provide written feedback in VFR. In this study content and specificity of the self-evaluation and peer-feedback annotations of medical students’ video recorded communication skills in VFR were coded and analyzed.

Summary of Results: Students annotated on average 2.4 positive and 3.3 negative self-evaluations. Additional peer-feedback was more frequently positive than negative. Negative annotations have 60% more characters than positive annotations. Topics most often related to structuring the consultation. Students were most critical about their biomedical topics.

Discussion and Conclusions: Specific annotations have four components: 1. behaviour; 2. motive or effect; 3. suggestion; 4. goal. Self-evaluations were more specific than peer-feedback. The specificity of peer-feedback is positively related to the specificity of self-evaluations.

Take-home messages: Students were serious reviewers of their own performance. Introducing self-evaluation and peer-feedback in communication skills teaching contributes to the development of reflective practitioners. Peers-feedback in response to self-evaluations may reduce response bias and puts the student in control of their own learning.
Within one, large Internal Medicine Department, attending physicians (N=7), and nursing staff (N=6) felt responsible for teaching junior residents to collaborate as a strongly self-directed process driven by ‘getting to know the rules’ through observation of others and reflecting on their own praxis. ‘Convincing’ the (senior) nursing staff of their competence as collaborators.

**Summary of Results:**

Learning to become a collaborator is a complex process involving strong agency by the resident and is influenced by multiple actors.

**Take-home messages:** - Various professionals are involved in teaching residents to become collaborators.
- These professionals have different perspectives regarding their role and the role of others with respect to the development of residents’ collaborator role.

### 3H2 (20987)

**Introducing "optimal challenges" in resident training**

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**Background:** Residents are often caught between two interests: the resident’s desire to participate in challenging learning situations and the department’s work planning. However, these interests may clash if they are not coordinated by the senior doctors, and challenging learning situations risk being subject to work planning.

**Summary of Work:** Inspired by Csikszentmihalyi’s concept of optimal challenges, an intervention study aimed at introducing a more suitable planning of resident’s learning in terms of optimal allocation of educational patient contacts. The objective was to coordinating residents’ individual competences and learning needs with patient characteristics in order to match each resident with a case (an outpatient or a patient) that meets the learning needs of the resident and thus pose an optimal challenge to the resident.

**Summary of Results:** The preliminary results show that the residents benefit from the intervention because they experienced more optimal challenges than before the intervention. However, the matching of resident and case seems to work against the established culture in the department: the daily work has for many years been organized so that senior doctors have their “own” patients and they do not “share” patients with residents. Thus the patients were accustomed to have their “own” specialist doctor.

**Discussion and Conclusions:** The intervention generated optimal challenges, but revealed the need for more team-based organization of senior doctors and residents’ working relationships in order to meet the health system’s and the patients’ call for continuity in the treatment.

**Take-home messages:** The matching of resident and case stimulates optimal learning situations, but cultural and organizational values concerning the doctor-patient continuity are challenged.
Supervisory Styles

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Background: The attending physician role on medical teaching teams in Canada includes safeguarding patient care and trainee learning. There is wide variability in attendings’ enactment of this role through the activities of direct patient care, trainee oversight, and teaching. This study aimed to better understand this variability by considering how different attendings configured these activities and their rationales for doing so.

Summary of Work: A qualitative research study was conducted with constructivism approach. Four focus groups were conducted with 22 internal medicine residents from different specialties. Interviews were transcribed and interpretative data analysis was performed.

Summary of Results: We identified four supervisory styles: Direct Care, Empowerment, Mixed Practice, and Minimalist. Driven by concerns for patient safety, Direct Care attendings delegated little responsibility for patient care to trainees. Focused on supporting trainees’ progressive independence, Empowerment attendings used teaching and oversight strategies to ensure quality of care. Mixed Practice attendings privileged patient care over teaching and adjusted their approach based on trainee competence and other contextual features such as patient volume. Minimalist attendings described a high degree of trust in senior medical residents, delegating most patient care and teaching to them.

Discussion and Conclusions: Participants rarely discussed their style differences with trainees or colleagues, signaling that supervisory styles are largely hidden from view. Making supervisory styles explicit may support efforts to improve team competence. Our model adds to the literature on variability in supervisory practice by showing that supervisory practices reflect responses to the tensions inherent in the role of the attending.

Take-home messages: More attention is needed to the role that supervisory styles play in shaping team competency.

Empowering people with diabetes: Residents’ opinion of their role

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Background: Diabetes is a worldwide health problem. Diabetes management follows a complex regimen, usually highlighting lifestyle modification together with medications. Empowering people with diabetes means; working in partnership in decision making throughout all steps of diabetes management. The aim of this research is to explore the internal medicine residents’ opinion about their role in empowering people with type 2 diabetes. Their previous and current training, their future training needs regarding this area were also explored in Zagazig University-Egypt.

Summary of Work: A qualitative research study was conducted with constructivism approach. Four focus groups were conducted with 22 internal medicine residents from different specialties. Interviews were transcribed and interpretative data analysis was performed.

Summary of Results: Empowering people with diabetes (residents’ practice, opinion and barriers to applying), empowering people with diabetes in medical curricula and residents’ training concerning empowerment were the emerged themes. Residents believe that their undergraduate curriculum did not prepare them to practice empowerment, and wished that their postgraduate curriculum was restructured to fit their needs.

Discussion and Conclusions: Residents reported their need to acquire a variety of skills in order to practice empowerment. They perceived empowerment to be important for diabetes care. However, they described their workload and patients’ experience and level of self-care to be implementation challenges.

Take-home messages: Teaching multidisciplinary approach, addressing psychosocial issues and enhancing learning in workplace are among strategies acknowledged by residents as well as literature to cope with the era of patient-centred approach in diabetes management.
**3H5 (19423)**

**Potential value of community hospitals in anatomic pathology resident training**

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**Jerry Maniate**, St. Joseph Health Centre, Department of Medical Education and Scholarship, Toronto, Canada

**Background**: The Royal College of Physicians and Surgeons of Canada does not require anatomic pathology (AP) residents to spend a specific amount of time in community hospitals during their residency training.

**Summary of Work**: Based on data collected through semi-structured telephone interviews of a focus group of AP program directors, pathology chiefs of community hospitals, community pathologists and senior residents in Ontario, an electronic survey was sent to a larger group of participants across Canada.

**Summary of Results**: The majority of senior residents and community pathologists preferred that community hospital experience which is essential for teaching surgical pathology diagnostic skills with limited resources, should be offered either as a mandatory community hospital experience during residency or as a one-year fellowship. The program directors thought that there is no need of a change in current curriculum to prepare anatomic pathologists for community practice.

**Discussion and Conclusions**: Community hospital educational experience is essential to achieve the level of performance required in a more generalized setting. AP program directors have divergent views from community pathologists and senior residents regarding the value of community hospital experience.

**Take-home messages**: A mandatory community hospital rotation or one-year community pathology fellowship would involve a major shift in curriculum of training programs, but perhaps this is the time to begin considering such options so that training programs are prepared for continuing explosion in knowledge sets and prepare physicians to work in community settings.

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**3H6 (19574)**

**Evaluation of trainees' performance in surgical training workshops (Competence and confidence in different operative steps)**

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**Background**: Surgical training workshops are held everyday all over the world but how much they are effective for the trainees to be competent and confident and how much they may guide the trainers for future training and coaching is the matter of research.

**Summary of Work**: In five urogynecology surgical training workshops conducted in Cairo University Gynecology Hospital from 2009 to 2013 forty-three trainees were trained on transobturator sling procedures using the outside-in approach. The operative technique was divided into 6 main operative steps and the performance of the trainees in each step was described as either: 1-Competent and Confident, 2-Competent but Hesitant, 3-Incompetent but Confident, 4-Incompetent and Hesitant, 5-No confidence to do the step. According to the trainee’s performance the response and the surgical guidance of the trainer was one of the following: 1-Observation only, 2-Oral guidance, 3-Demonstration of the step outside the patient, 4-Hand to hand guidance, 5-Stop him.

**Summary of Results**: Step 3 and step 4 showed the lowest trainees performance (P = 0.02) and required more trainer surgical guidance (P < 0.001). The performance of the trainees in step 4 was lower on the left side than on the right side (P < 0.001).

**Discussion and Conclusions**: Dividing any operative technique into its main surgical steps and evaluating the competence and confidence of trainee’s performance in each step gives surgical trainers the bases for surgical guidance and future training and coaching.

**Take-home messages**: Trainees’ competence and confidence should be evaluated in every main operative step in surgical training workshops to assess further future training needs.
**Clinical Reasoning**

**Location:** Amber 2, Level 2, MiCo

**311 (22575)**

**Combining worked-example and completion strategies in a digital learning environment to foster intervention knowledge**

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**Background:** Worked-examples have been used to foster medical and physiotherapy students’ clinical reasoning skills. This study investigated whether combining worked-examples with completion examples could foster clinical reasoning in intervention selection.

**Summary of Work:** Sixty-two second-year physiotherapy students were randomized in two groups. They solved a pre-test consisting of two authentic clinical cases, each with three questions pertaining to physiotherapeutic intervention selection. Then, they studied two pairs of worked-examples/completion examples in a digital learning environment. Worked-examples presented the written-out clinical reasoning and selection of the optimal physiotherapeutic intervention for a patient with physical impairment. Completion examples were worked-examples in which, at the end, students had to either write out the optimal intervention themselves (experimental group) or select it mentally (control group). All students solved a post-test in the same format as the pre-test.

**Summary of Results:** Performance on the pre-test was not significantly different between the experimental (mean±SD: 10.8±3.6) and the control (10.3±3.2) groups. Performance on the post-test was higher (P = .045) in the experimental group (14.0 ±4.2) than in the control group (11.5±5.3). The mental effort invested while solving the post-test in the experimental group (5.7±1.5) was lower (P = .037) than in the control group (6.5±1.2).

**Discussion and Conclusions:** Students who completed the examples in writing invested less mental effort on the post-test and outperformed those who answered mentally. Worked example/completion example pairs can foster intervention selection skills in physiotherapy students.

**Take-home messages:** Combining worked example and completion strategies can foster intervention selection skills.

**312 (22835)**

**Does medical education improve the reasoning and decision-making skills of students?**

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**Background:** Errors in medical decision-making are extremely costly for society. Kohn et al. (2000) reported that medical errors were the eighth leading cause of death. Typical biases can be reduced by offering medical students training in reasoning and decision making skills (Hershberger et al., 1994). What is less clear is whether traditional undergraduate medical education in itself might lead to a reduction in these biases.

**Summary of Work:** A battery of psychometric assessments was used to investigate the following determinants of reasoning and decision-making skills, numeracy, mathematical anxiety, probabilistic reasoning ability, cognitive reflection, and abstract conditional reasoning. Participants were first (n=166) and third year (n=234) medical students. A comparison group of first year psychology students (n=160) participated in the study.

**Summary of Results:** Medical students had higher numeracy levels, displayed lower levels of mathematical anxiety and showed better probabilistic reasoning performance than psychology students. This suggests that medical students are generally highly confident and competent in dealing with numbers. Third year medical students outperformed the other groups in cognitive reflection and conditional reasoning. Cognitive reflection tasks assess the ability to avoid typical fallacies in reasoning, conditional reasoning problems are additionally related to the ability to reason about unfamiliar and abstract materials. Medical students’ course performance was moderately related to their probabilistic and conditional reasoning skills.

**Discussion and Conclusions:** Medical education may contribute to the development of abstract reasoning skills and the ability to avoid decision-making biases. These attributes are central to the enhancement of patient safety. The findings indicate that cognitive reflection and conditional reasoning skills improve as medical students progress. Further work is required to determine if this is a direct result of undergraduate medical training.

**Take-home messages:** Cognitive reflection and conditional reasoning improves as medical students progress through the undergraduate programme.
313 (21743)  
**Teaching Clinical Reasoning by Making Expert Thinking Visible and Accessible for Students: An Action Research Project with Clinical Educators**

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*Jayne Lysk*, The University of Melbourne, Medicine, Melbourne, Australia

**Background:** Clinical reasoning is fundamental to all forms of professional health practice, but it is also difficult to teach and learn because it is complex, tacit, and effectively invisible for students. One pedagogical approach to assist educators to teaching clinical reasoning is to make expert clinical thinking visible and then accessible to students. The process of making educators’ expert thinking steps visible and accessible has been researched and previously applied in school settings. It encourages teachers to reflect on the most salient features of the reasoning process and it assists students to access this complex thinking.

**Summary of Work:** Using action research methodology, 21 allied health and 5 medical educators trialed this teaching approach with their students in clinical teaching settings. This involved identifying their own expert thinking steps in discussion groups; using these steps to develop thinking routines for their students, then evaluating and reporting the impact of this approach on their students’ learning.

**Summary of Results:** Participating educators found they began to focus more on their students’ understanding and level of reasoning, and they also became more aware of their own teaching styles.

**Discussion and Conclusions:** Our findings suggest that the making thinking visible approach has potential to act as a scaffold to assist health educators to articulate their own expert reasoning and for students to then access and use to guide their own clinical reasoning.

**Take-home messages:** Educators can learn to improve their clinical reasoning teaching by making their own thinking visible and then accessible to students.

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314 (20633)  
**Why we do not need a dual systems assumption to explain and teach clinical reasoning**

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**Background:** Recently, “dual process” theories of reasoning and decision making have made their way into the field of medical education, in particular clinical reasoning. These theories assume the operation of two systems in the mind, one rapid, unconscious, and intuitive (System 1), and the other one slow, conscious, effortful, and rule-based (System 2).

**Summary of Work:** This study critically reviews the implications of the distinction between System 1 and System 2, both from a more fundamental (philosophical) and a practical (research and education) angle.

**Summary of Results:** It will be demonstrated that from a philosophical point of view, dividing the human mind into two systems that each can make decisions leads to a fallacy. There are also practical problems: the distinction obfuscates, rather than clarifies, the way novice and expert clinicians solve diagnostic problems. In this respect, it does not make a difference whether the two systems are perceived to work in parallel or whether it is assumed that they can interact, if the details of this interaction are not specified. In addition, the dual process view is counterproductive in that it does not generate research that yields useful information about how clinical reasoning can best be taught.

**Discussion and Conclusions:** Mapping features of clinical reasoning on an underlying cognitive continuum will be more helpful in providing guidelines for research and teaching than a dual process perspective.

**Take-home messages:** To understand clinical reasoning, more thought should be given to how novices and experts approach diagnostic tasks and by what criteria the accuracy of a diagnosis should be judged.
A Multi-step Examination of Analytic Ability in an Internal Medicine Clerkship

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Steven Durning, Uniformed Services University of the Health Sciences, Medicine, Bethesda, United States
Paul Hemmer, Uniformed Services University of the Health Sciences, Medicine, Bethesda, United States

Background: The general problem of clinical reasoning was dissected for students as a step-wise, task-specified examination of analytic steps in a free response, written format, in order to measure the progress of clerkship year students in their diagnostic reasoning skills.

Summary of Work: In this open-book examination students wrote responses for three cases presented in video format, each with a common internal medicine problem. In Step One students listed their responses to “What else would you ask this patient?” In Step Two students wrote a “complete problem list”, listing “major” and “minor” problems (five minutes). In Step Three students were each given the correct, full problem list, and wrote an analysis and plan for “problem number one”. Sub-scores for Step One were classified as “Descriptive” and “Differentiating”; for Step Two subscores included “Concrete” and “Semantic” expression of problems. Step Three subscores included correct “Diagnoses” listed, “Support of Conclusions”, “Conclusion”, labeling a diagnosis as ”definite”, ”probable”, etc “ and an explicit “Dominant reason” justifying conclusions.

Summary of Results: 960 students in their 12-week internal medicine clerkship from six consecutive classes of medical students were included. Intracase reliability for steps was 0.6 to 0.8, and reliability across cases was 0.7 to 0.8. Scores increased within each academic year. There were modest significant correlations between students’ scores with workplace assessments in patient care responsibility.

Discussion and Conclusions: A free-response, written examination can be targeted to specific analytic steps in the process of diagnostic reasoning.

Take-home messages: Progress in students’ cognitive processes may be better understood as specific analytic tasks than as conclusive reasoning.

Combining bimodal presentation schemes and buzz groups improves clinical reasoning and learning at morning report. A randomized, controlled study

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Background: The morning report offers opportunities for intensive work-based learning. In this controlled study, we measured learning processes and outcomes associated with report of paediatric emergency room patients.

Summary of Work: Twelve experts and 12 non-experts were randomized to four groups and discussed the same two paediatric emergency room patients. The cases were always verbally presented and according to a factorial design groups differed in their use of written cases (verbal only vs. multimodal) and the use of buzz groups (with vs. without buzz groups). The verbal interactions were analysed for clinical reasoning processes. Perceptions of learning and judgment of learning were reported in a questionnaire. Diagnostic accuracy was assessed by a 20-item multiple choice test.

Summary of Results: An interaction effect of bimodal presentation and buzz groups increased the odds ratio that clinical reasoning would occur in the discussion of cases by a factor of 1.90 (p = 0.013), indicating superior reasoning for buzz groups working with bimodal materials. For specialists, a positive effect of bimodal presentation was found on perceptions of learning (p < 0.05), and for residents, a positive effect of buzz groups was found on judgment of learning (p < 0.005). A positive effect of bimodal presentation on diagnostic accuracy was noted in the specialists (p < 0.05).

Discussion and Conclusions: This study shows that combined bimodal presentation and buzz group discussion of emergency cases at morning report may improve participants’ clinical reasoning and learning.

Take-home messages: Combined bimodal presentation and discussion in buzz groups of cases improves clinicians’ learning.
**3J SHORT COMMUNICATIONS: Tools for Selection for Medical Studies**

**Location:** Amber 3, Level +2, MiCo

**3J1 (20384)**

**Entry into medical school in Singapore: Evidence from a Situational Judgement Test to assess non-academic attributes**

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Marion Aw, National University of Singapore, Singapore
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Dujeepa Samarasekera, National University of Singapore, Singapore

**Background:** In 2013, the National University of Singapore (NUS)'s Yong Loo Lin School of Medicine required a reliable and valid test to assess for non-academic attributes in the selection of their medical students. As a result, a locally relevant Situational Judgement Test (SJT) was developed and implemented.

**Summary of Work:** The NUS SJT targets three domains: integrity and ethical responsibility, empathy and interpersonal skills. As part of the test development in 2013, contextualization interviews, local expert reviews, and concordance panels were held with members of the NUS admissions task-force to produce items and response keys suitable for the local context. The SJT was used live in April 2013 (N=837).

**Summary of Results:** Results from the 2013 operational SJT reported good levels of reliability (α=.77-.83). Many participants reported that the SJT was a good and relevant method for selection, and provided insight into a medical career. Evidence of criterion-related validity was established as applicant scores on the SJT correlated significantly with their results on a Multiple Mini Interview assessment (r = .142). Similar analyses on the 2014 SJT candidate data will be conducted and reported.

**Discussion and Conclusions:** A contextualised SJT is a reliable and valid selection methodology for testing important non-academic attributes for entry to medical school in Singapore.

**Take-home messages:** An SJT can be contextualised such that the scenarios and response keys are relevant to the local context. A contextualised SJT is a reliable and valid selection methodology for testing important non-academic attributes for entry to medical school in Singapore.

**3J2 (22124)**

**Which is the best? Situational Judgment Tests: One method, three approaches**

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J.C. Hissbach, University Medical Center Hamburg-Eppendorf, Department of Biochemistry and Molecular Cell Biology, Hamburg, Germany
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W. Hampe, University Medical Center Hamburg-Eppendorf, Department of Biochemistry and Molecular Cell Biology, Hamburg, Germany

**Background:** Applicants for Hamburg University medical school are selected using two instruments: a natural science test and a multiple mini-interview, called HAM-Int. During the last three years we developed and tested several formats of situational judgment tests (SJT), differing in context presentation, question format and scoring system.

**Summary of Work:** Since 2011 all applicants of the HAM-Int had to finish one SJT format in the context of the annual selection procedure. A classical paper-pencil SJT with a single-choice answer format was followed by a video-based SJT with a free answer format. In 2013 one video-based situation had to be assessed with an elaborated multiple-choice questionnaire inspired by the TACT-concept, meaning target, action, context and time information (Ajzen & Fishbein, 1980). Our analysis is based on three cohorts with a total of 584 persons.

**Summary of Results:** The video-based SJT with the detailed questionnaire exhibited superior feasibility, item difficulties, distribution of answers and reliability of the scoring system. Due to the complex structure of the questionnaire the applicants could not easily find an obviously best or socially desired answer leading to a bigger heterogeneity of the results than the other two formats. Correlation with the MMI-results as well as construct and predictive validity will be further analyzed.

**Discussion and Conclusions:** In the framework of our attempts to develop a SJT as extension of our selection procedure we identified the answer format and the way of scoring as more important factors than the number and way of presentation of the situations.

**Take-home messages:** SJTs differ strongly in their suitability to capture inter-individual differences.
3J3 (19382)
Looking beyond the core subject knowledge in medical school admission process

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Background: Shifa College of Medicine admits one hundred students every year in its 5 year undergraduate medical program. The selection criterion includes their high school exit exam performance and a comprehensive Medical College Admission Test that is based on core subject knowledge.

Summary of Work: To investigate how well the admission test can predict the essential competencies of creativity, problem solving, organizational skills and critical thinking an additional aptitude test was taken of the candidates who were successful in the admission test. The test comprised of 30 single best type multiple choice questions (situational judgment test) assessing these essential competencies.

Summary of Results: 251 candidates appeared in the aptitude test. The mean score, in the entrance test and aptitude test were 62.71 (±3.01) and 62.13 (±9.48) respectively which is not statistically significant (p=0.3). There was a weak, but significant correlation between the scores of entrance test and the aptitude test (Pearson’s correlation =0.2, p=0.0). However the entrance test was a poor predictor of performance in essential competencies desirable in an aspiring medical student (R² = 0.01).

Discussion and Conclusions: The admission test is a weak predictor of essential competencies desirable in an aspiring medical student.

Take-home messages: The Medical College Admission Test should either be complemented by, or itself strengthened to assess competencies desirable in a medical student.

3J4 (21228)
Effects of the introduction of a cognitive admission test on learning style diversity

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Background: During a ‘learning how to learn’ module the medical students in Innsbruck, Austria are invited to identify their personal learning style according to Kolb. Here we compare how the introduction of the Swiss medical school aptitude test (EMS-Austria) as only admission instrument influenced the frequency distribution of learning types.

Summary of Work: In the unselected group before 2005 the relative frequencies of students with the diverging, assimilating, converging and accommodating learning style were 21.2%, 48.3%, 20.7% and 9.8%, respectively. After the implementation of the cognitive admission test the frequencies of students with diverging and accommodating learning style were reduced to 11.2 % and 4.2 %, respectively. The frequencies of students with assimilating and converging learning styles on the other hand increased to 60.1 % and 24.4 %, respectively. These changes were highly significant (p < 0.001).

Summary of Results: Even more pronounced changes were detected when the applicants were sorted according to quartiles of their EMS test values. In the highest quartile which corresponds with those of applicants from the EU the frequencies of the diverging and accommodating learning styles were both 3.9 %.

Discussion and Conclusions: The introduction of the EMS which was a consequence of pressure imposed by the European court of justice lead to an increase in the passing ratio of the students. This positive effect was however accompanied by a significant reduction in the diversity of the students regarding learning styles.

Take-home messages: The admission system should not rely only on a cognitive test alone.
What does the UKCAT-12 study tell us about contextual adjustment in admissions?

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**Background:** This study assessed the predictive validity of the United Kingdom Clinical Aptitude Test (UKCAT) along with measures of educational attainment and background socio-economic and educational factors. Amongst other things it assessed the impact of students' schools' performance and, therefore, the rationale for 'contextual adjustment'.

**Summary of Work:** A prospective study of 4,811 students entering 12 UK medical schools from 2007 to 2009 for whom admissions service (UCAS) and UKCAT data could be matched with first year examination results.

**Summary of Results:** Educational attainment was the best predictor of first year outcome with significant but small incremental validity added by UKCAT. Performance was also affected by quality of secondary schooling; with students from schools with greater attainment at A-level performing less well to the extent of approximately one grade difference in one subject out of three A levels. Multilevel modeling showed no differences between medical schools in predictive ability of the various measures.

**Discussion and Conclusions:** This collaborative work with 12 medical schools shows the power of large-scale studies of medical education and supports the use of aptitude testing in addition to educational attainment measures. It also provides the first robust data to quantify the scale and nature of appropriate contextual adjustment required to select the UK school pupils with most potential to succeed academically at medical school.

**Take-home messages:** In the UK setting secondary school performance metrics can justifiably be used to contextually adjust applications and arguably, should be.

Development of the International Medical Admissions Test (IMAT) for admission to Italian Undergraduate Medicine and Surgery courses taught in English

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**Background:** To support internationalisation, a growing number of Italian universities offer undergraduate Medicine courses taught in English. To ensure that the selection process is fair, transparent and appropriate for both home and international students, the Ministro dell'Istruzione dell'Università e della Ricerca (MIUR) commissioned the International Medical Admissions Test (IMAT).

**Summary of Work:** The IMAT test development process draws on our experience of producing tests for medical schools in English-speaking countries. It uses material from existing banks of pre-tested items and material commissioned to meet the requirements of an existing specification used for admission to Italian medical schools. Our experience as an international assessment organisation with a particular strength in English Language assessment means that items are appropriate in terms of both content and the level of English used (CEFR B2).

**Summary of Results:** IMAT has been used since 2011, and is currently used by six Italian medical schools. Item and test level statistics indicate that the test is fit for purpose. Feedback from Italian universities confirms that IMAT has supported internationalisation by encouraging applications from more overseas applicants.

**Discussion and Conclusions:** An understanding of both the local and international contexts was important when developing IMAT to ensure that the test is pitched at an appropriate level of difficulty, subject content and language level. Issues specific to the Italian context, such as strict test security and student anonymity, also have implications for test production processes and validation activity.

**Take-home messages:** Internationalisation presents challenges for the admissions process and a test designed for international use and administered in English can support the process.
How to select our doctors to be: Is a selection tool for candidate pilots feasible for medical students?

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Lara M.A Vankan, The Rotterdam Eye Hospital, ICT, Rotterdam, Netherlands
Dirk F de Korne, Singapore National Eye Centre and Duke-National University Singapore, Innovation, Singapore
Jasper Kesteloo, Pilot Talent, Huizen, Netherlands
Dick Verburg, EPST, Utrecht, Netherlands
Frans U.F. Hiddema, The Rotterdam Eye Hospital, Rotterdam, Netherlands

Background: Healthcare and aviation are in many ways comparable. Yet it is rare to use a pre-assessment for medical students before they enter medical training, while candidate pilots undergo an intensive selection process before they are approved by the flight academy.

Summary of Work: We compared pilot selection assessment tools with the CanMEDS framework. Interns have been assessed using instruments that are validated for the aviation industry, respectively Computerized Pilot Aptitude and Screening System (COMPASS; sensomotorical assessment) and Checklist Professional Profile (CPP; psychological assessment). The scores of the interns are compared with candidate pilots’ assessments data from a Dutch flight academy.

Summary of Results: This study (N=160 interns, N=715 candidate pilots) compares the scores on the sensomotorical and psychological competences from candidate pilots and interns. Interns scored higher on the competencies eye-hand coordination and service orientation than candidate pilots. On the other hand, interns scored lower on competencies eye-hand-foot coordination, personal stability, leadership and team orientation.

Discussion and Conclusions: Pilot selection instruments seem to be an appropriate tool to identify sensomotorical and psychological safety competencies for doctors to be.

Take-home messages: The selection tool for candidate pilots seems a promising instrument to select our doctors to be.
Take-home messages: Careful and meaningful use of analytics can improve learning.

3K2 (19478)
The development and initial implementation of an Educational Quality Dashboard in a large NHS teaching hospital

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Sue Carr, University Hospitals of Leicester, Clinical Education, Leicester, United Kingdom

Background: Increasingly NHS organisations are required to demonstrate compliance with quality standards for education and training and to demonstrate accountability for educational funding. Quality dashboards and score cards are established tools for monitoring clinical service quality but to date the extrapolation of such tools to the education and training domain has been limited. We describe the development and initial implementation of an Educational Quality dashboard (EQD) in a large NHS teaching hospital.

Summary of Work: The aim of the EQD was to raise awareness of the educational quality agenda, identify areas of strength/weakness and to provide a reporting tool. The dashboard has several components, including: a summary of key education performance indicators and service level data. This data is triangulated with trainee feedback and centrally collated data. Each clinical service will complete the dashboard on a 6 monthly basis and the Trust have appointed Medical Education Quality Leads (MEQL) who are responsible for this.

Summary of Results: The MEQLs will return the completed EQDs to the Director of Medical Education and the data will be presented to the Trust Board in June 2014. A summary of the first stage of implementation will be presented at AMEE 2014.

Discussion and Conclusions: The EQD and the appointment of MEQL will provide a new mechanism to monitor and drive the improvement in education quality and education funding accountability within a large NHS trust.

Take-home messages: The EQD is a mechanism to raise awareness, drive compliance and improvement in educational governance across the organisation. Identifying a responsible individual in each service area will be crucial to success.
Abstract book: Session 3

Monday 1 September: 1045-1230

3K3 (20063)
UK Medical Education Database, an evolving ‘run through’ national educational database

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Background: Stakeholders in the UK have recognised a need for a repository of accurate, high quality data on UK medical students and doctors from application, through medical school and into training and employment. The inception of the UK Clinical Aptitude Test database from 2006, along with General Medical Council’s collation of postgraduate data from 2013, provides opportunity to create such a powerful, novel resource.

Summary of Work: UKMED will collate and warehouse existing data such as prior academic achievement, UKCAT scores, graduate post application and performance markers along with, eventually, postgraduate exam data and employment outcomes.

Summary of Results: This will make many things possible:
• Progression through selection and training can be tracked on an individual basis.
• Postgraduate performance can be considered in light of prior attainment to allow for fairer comparisons at all levels.
• Postgraduate careers can be tracked and analysed in the light of demographic, performance and bespoke (e.g. non-academic) measures from selection or medical school.
• Novelties (e.g. course type) and studies (e.g. selection tools) can be proposed.
UKMED has a representative governance board with an independent academic chair, with data initially housed in a protected environment within the GMC. Requests to interrogate the data for research purposes will be welcomed.

Discussion and Conclusions: Phase 1 of the project has linked records for 82% of 2013 graduates and should improve on this for 2014. Workplace performance will be followed until August 2015 whilst funding is sought for on-going work.

Take-home messages: UKMED offers a unique resource to underpin medical education and assist in workforce planning in UK and beyond.

3K4 (21795)
Scripted Collaborative Expertise in the medical professions

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Frank Fischer, Ludwig-Maximilian-Universität München, Lehrstuhl für empirische Pädagogik und pädagogische Psychologie, Munich, Germany, Martin R. Fischer, Klinikum der LMU München, Institut für Didaktik und Ausbildungsforschung in der Medizin, Munich, Germany

Background: People who collaborate more should become collaborative experts over time and develop a higher structured knowledge (i.e. collaboration scripts). The retrieval of this script should be distinguishable from the retrieval of knowledge of novices. We investigated whether it is possible to capture collaboration expertise and how domain specific it is.

Summary of Work: Twenty novices and twenty collaboration experts volunteered for the study. Randomly eight stimuli containing collaborative medical situations were shown to each of the participants for five seconds. After each stimulus the participants were asked to write down what they saw. After the eighth stimuli the participants were shown two collaborative academic situations to verify content domain specificity of their collaboration script.

A coding scheme with the two categories superficial information (SuI) and script information (ScrI) was developed to be able to analyse the data.

Summary of Results: Between-subject-effects revealed that collaborative experts did not outperform the novices in the recall of superficial information (SuI experts = 23.65 ± 20.78; SuInovices = 26.10 ± 10.62), but as expected in the recall of script information (ScrI experts = 71.65 ± 33.23; ScrInovices = 54.25 ± 15.01) with a medium sized effect (F(1;38) = 4.55; p<.05; η²=.11). However, outside the medical domain the no difference for the stimuli could be found (F(1;38) = 1.45; n.s.).

Discussion and Conclusions: Collaborative experts differ largely regarding the recalled collaboration script information from novices. The content domain dependency has to be further investigated and with a larger number of non-content domain specific stimuli.

Take-home messages: It is possible to capture domain-specific collaborative expertise and to improve collaborative practice it should be trained domain-specific.
3K5 (22312)  
A comprehensive approach to quality assurance and improvement of postgraduate medical education  

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Claudia Schröder, UMC Utrecht, Utrecht, Netherlands  
Hanneke Mulder  
Edith ter Braak  

Background: Since quality of patient care is substantially influenced by quality of residency training, the importance of quality assurance (QA) and quality improvement (QI) in clinical education is widely recognized (e.g. WFME standards). Among the criteria for external accreditation by the Dutch accreditation council for Post Graduate Medical Education (PGME), adequate quality management is of increasing importance.  

Summary of Work: We developed an integrated quality system to foster quality improvement of PGME and prepare programs for external accreditation. This comprises a 5 years cycle for each program, including quality measurements using a variety of (validated) questionnaires (years 1 and 3). Reports serve as input for facilitated group discussions among supervisors and residents. Programs formulate improvement plans, educational advice is available for implementation. Educational audits by peers monitor progression (years 2 and 4). Each 5 years’ cycle usually ends with an external audit for accreditation by the accreditation council.  

Summary of Results: Since January 2013, all 37 PGME programs participate. To date, 61 quality measurements followed by group discussions and 14 educational audits have taken place. Aggregated quality data are discussed yearly with the board of directors in the context of governance of PGME on the institutional level.  

Discussion and Conclusions: It appeared feasible to involve all residency programs in this intensive quality improvement program. A continuous spiral of improvement is aimed for.  

Take-home messages: A comprehensive system for quality assurance and improvement in PGME supports adequate preparation of programs for external accreditation.

3K6 (22592)  
Where do our foundation programme trainees go?  

Kim Walker*, NHS Education for Scotland, Scotland Foundation School, Aberdeen, United Kingdom  

Background: Scotland is keen to recruit and retain trainees to specialty training programmes to provide the future workforce. Therefore, it is important to have information not only on the destination of FY2 doctors but the reason for their decision.  

Summary of Work: Every trainee satisfactorily completing a foundation programme (FP) in Scotland has been required to complete a destination survey consisting of a mixture of quantitative and qualitative questions. There are specific questions relating to applications for future training in Scotland but also if they applied to Scotland and if not, the reasons why?  

Summary of Results: These results cover the period 2011 – 2013. The majority of trainees (average 60%) who applied for specialty training were successful in getting their preferred choice. The distribution has remained similar – GP, CMT, CST and ACCS being the four most popular. Over a quarter of trainees (25%, 35%, 34%) did not apply to work or train in Scotland. The reasons for not applying have changed and diversified over the three years. The number of trainees who stated they were taking a career break but intended to return to medicine in the future has steadily increased (3.9%, 4.6%, 5.9%).  

Discussion and Conclusions: The reason for this change is multifactorial. It may be that Generation ‘Y’ and their ideals are of a greater influence than following the traditional medical career pathway.  

Take-home messages: Further work to understand this and what may influence trainees back into training will inform future recruitment and retention strategies.
The Physician Assistant movement – A comparison of the Netherlands experience with that of the United States

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Anita Duhl Glicken, University of Colorado School of Medicine, Colorado, United States
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Background: In the 1960s a predicted shortage of US primary care providers led to the development of the “Physician Assistant” (PA) profession. In 2001, the Netherlands became the first European nation to adapt this concept to meet the country’s specific workforce needs. PAs perform a large percentage of medical procedures traditionally reserved for doctors, including prescribing medication.

Summary of Work: The Netherlands’ adaptation of the “PA” profession will be compared with that of the U.S.

Summary of Results: PAs are utilized in both countries to increase efficiency, while maintaining the quality of comprehensive care. There are 95,587 PAs in the U.S (875,000 physicians), and 900 in the Netherlands (65,000 physicians). In both countries, non-traditional students (e.g. experienced health personnel) are trained in 2-3 year Master’s degree programs, including clinical rotation. In contrast with US PAs, Dutch PAs are employed in a particular institution/medical specialism during and after their education. PAs in both countries are deployed within a multidisciplinary model with medical specialists, residents and nurses. The majority of U.S. PAs work in primary care, while most Dutch PAs work in hospital settings.

Discussion and Conclusions: Rising health care costs, with limited resources, require a different approach in organising health care. The Netherlands implemented unique PA education curricula to meet their own “country-specific” needs, just as the U.S. had done with their own educational model previously.

Take-home messages: Limited resources are prevalent globally. The “Physician Assistant” model can enable the efficacious delivery of excellent quality medical care when the curricula design is responsive to disparate country-specific needs and requirements.
SHORT COMMUNICATIONS:
Community-based Education
Location: Amber 5, Level +2, MiCo

3L1 (23049)
Learning in the community: Contact with users from institutions supporting vulnerable people is the key factor to sensitize students for the human aspects of medicine

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Background: The role of teaching in the community to sensitize students for the human aspects of medicine and to their role as enlightened agents of change in society is now world accepted.

Summary of Work: Since 1995 the Institute of Introduction to Medicine at FML is sending to the community nearly 350 first year students per year (organized in groups of 4-6), to visit two institutions dedicated to support vulnerable people. Students were sent to prisons, old age homes, institutions for handicapped people, centres for refugees, communities of immigrants etc. with the objective of sensitizing them for their social responsibility as future health professionals. Institutions were selected based on their quality.

Summary of Results: In 2013-2014, 318 students rated 4.6/5 the impact of the two visits in their training as future health professionals. ‘Contact with new realities’, ‘increase awareness for more integration’, ‘the importance of resilience’ were rated as the most positive gains while the ‘lack or poor contact with users’ was seen as the most negative aspect and the key factor to ‘drop out the institution’ from the visits to be offered next year’.

Discussion and Conclusions: Teaching in the community should imply the opportunity for ‘authentic learning’ with students having time to hear the stories of life from users, their expectations, etc. to talk with them and not only to institutional directors and staff.

Take-home messages: Quality can not be the unique criterion for selecting the institutions when teaching in the community. The opportunity for contact with users is the key criterion for students’ high impact.

3L2 (22778)
Evaluation of a student led clinic providing free health checks to an indigenous community as a method of learning indigenous cultural competency skills

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Background: Indigenous cultural competency aims to contribute to reduction of disparities in health care. How this is best taught and implemented in clinical settings remains uncertain.

Summary of Work: Indigenous health is integrated throughout the University of Otago undergraduate medical curriculum. The ‘Hui Process’ is taught as a framework for working effectively with the indigenous population of New Zealand (Maori). A student led clinic offering a range of free health checks is held annually at an indigenous community meeting place (marae). Participants, students and clinical supervisors in two consecutive years rated the effect of utilising the Hui Process.

Summary of Results: 185 indigenous participants, 170 medical students and 49 clinical supervisors completed the evaluation. Indigenous participants rated the Hui Process highly; 80% agreed-strongly agreed that the Hui process enhanced their relationship with students. The Hui process was frequently perceived as a different style of clinical engagement compared to routine care with only 55% of indigenous participants agree-strongly agreeing that their current health provider used the Hui Process. Students pre and post evaluation indicate the student led clinic enhanced their confidence in working with indigenous patients.

Discussion and Conclusions: The Hui Process is an effective framework for improving the cultural competency of medical students. Adoption of the Hui Process could improve indigenous experiences within the health system, potentially decreasing indigenous health disparities.

Take-home messages: The Hui Process is a simple and effective framework for enhancing the therapeutic relationship between students and indigenous patients. The student led clinic is highly valued by student, supervisors and the indigenous community.
School based service learning for medical students: Design, implementation and reflections

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Karen Loto, The Smith Family, Communities for Children – Townsville West, Townsville, Australia

Christie Schmid, Vincent State School, General Practice, Townsville, Australia

Nicole Mohajer, Townsville Health Professionals, School of Medicine and Dentistry, Townsville, Australia

**Background:** Service learning is increasingly being recognized as an important part of medical curricula and contributes to the community engagement of medical schools.

**Summary of Work:** As part of their general practice rotation, medical students from James Cook University, Australia provide health assessments for children and families within a primary school which services disadvantaged families, and assist with referrals to community and health services. Key factors in the planning, design and implementation of this program have been documented along with outcome evaluations from students and staff.

**Summary of Results:** This grass roots program was developed in response to an identified need. A strong and dynamic partnership has been developed between a university, primary school, non-government organization and local general practitioner. Families are now engaging with the health service and children with previously unaddressed medical problems are being attended to. All members of the partnership contribute time, equipment and other resources without external funding. Medical students improve their understanding of program design that facilitates community engagement.

**Discussion and Conclusions:** The key elements of success are the strong commitment from the services and people involved and the ongoing engagement by families. The program contributes to the health promoting environment in the school. The model could be used in other primary schools. A service learning model can be used in a primary school setting to benefit communities and provide valuable learning opportunities for medical students.

**Take-home messages:** Service learning is an important aspect of community engagement for medical students and schools.
Reaching to the margins: The role of non-clinical community placements in shaping medical students’ perceptions of ‘hard-to-reach’ groups

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Background: In the second year of the Keele MBChB programme, students complete “non-clinical” placements with organisations that provide health and social support to the local community. These placements provide the opportunity for students to engage with individuals within “hard-to-reach” groups including the homeless; the disabled; those with substance abuse problems, and those living in deprivation. Whilst a number of schools within the UK include such placements within their curricula, there is a paucity of research examining the impact of such placements on medical students learning.

Summary of Work: Aims: (1) to examine how these placements shape medical students’ views towards ‘hard-to-reach’ groups; (2) to evaluate if resultant learning aligns with the medical school’s reported desire to produce socially responsible graduates. 23 examples of students’ reflective writing were purposively selected for thematic analysis following informed consent. Reflections had been submitted prior to the study, and so students had not been primed by knowledge of the research questions and aims when constructing their perspectives.

Summary of Results: Four overarching themes emerged from our analysis: (1) Understanding the health and social needs of hard to reach groups; (2) Challenging students’ attitudes towards hard to reach groups, (3) Communication Skills and (4) Understanding the contribution of community organisations in relation to hard to reach groups.

Discussion and Conclusions: Non-clinical placements provide rich learning opportunities for undergraduate medical students learning across knowledge, skills, and behavioural domains.

Take-home messages: Placements within non-clinical organisations represent a valuable learning resource for undergraduate students. Immediately identifiable learning is well aligned with curriculum goals of producing socially responsible graduates and needs further exploration.

Student Paramedics Building Rapport through Community Engagement

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Background: Establishing rapport is central to any health professional-patient encounter. Rapport enables the health professional to not only elicit the required information which informs clinical decisions, but impacts on patient adherence to treatment, satisfaction, and outcomes. Experiential communication skills’ training involving ‘real patients’ heightens student awareness of their own abilities, allows for self-reflection, increases confidence and motivation. The aim of this study was to determine the effect engagement with elderly community members would have on student paramedics’ rapport building ability.

Summary of Work: This pilot study utilised mixed methodology incorporating an interventional study design with focus groups. Second year paramedic students participated in an engagement activity where they communicated one-on-one with elderly members of the community.

Summary of Results: Of 11 participants the mean age was 20 and 65% female. The Rapport Questionnaire showed statistically significant improvement in confidence (p<0.01), empathy (p=0.03) and overall rapport building ability (p<0.01). Qualitative analysis revealed increased confidence, gained understanding and the value of relationship development.

Discussion and Conclusions: Results from this pilot study indicate that student paramedics benefit from practicing rapport building with the elderly. The engagement activity led to improvements in attitudes towards elderly, interpersonal communication competence and rapport building skills. The success of this pilot study provides preliminary support for the development of a larger project which could see paramedic students benefiting from practicing rapport building with a wider demographic of individuals representative of the broader community.

Take-home messages: Rapport building skills are best learnt through authentic meaningful learning encounters with real patients.
3M SHORT COMMUNICATIONS:
Clinical 2
Location: Amber 6, Level +2, MiCo

3M1 (18476)
Teaching fundamental clinical skills in paediatrics: Engaging the community to better prepare students for hospital attachments
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Bronwyn Chan*, University of New South Wales, School of Women's and Children's Health, Sydney, Australia

Background: Medical student numbers have doubled in New South Wales, Australia since 2007, placing pressure on hospital inpatients for clinical teaching. Early clinical exposure is increasingly popular in medical schools, however students must have sufficient preparation to maximise their learning. We introduced an additional introductory session to our existing successful program involving healthy kindergarten children to teach students fundamental examination skills.

Summary of Work: Healthy preschool children and their parents from the local community were invited to “Come and Play” with groups of 6-8 students and a tutor. The 2-hour session included an introduction with the students, a 45-minute semi-structured play session and interview with the child and parent, and a debrief session. Aims were to improve rapport-building skills, clinical observation, appreciation of normal childhood development and use of screening questionnaires.

Summary of Results: Over 2012-13 there were 80 sessions attended by more than 497 students, 25 tutors and 76 parent/child volunteer groups. Likert scale questionnaires and free text comments were analysed for themes. The majority of students self-rated improvement in rapport building and clinical observation. Qualitative analysis of student comments found the most valued elements were the interaction with a child and tutor facilitation. Parents were enthusiastic about “giving back” to the local hospital and University. Students, tutors and parents all requested smaller groups and more sessions.

Discussion and Conclusions: Teaching fundamental clinical skills using healthy children assists in preparing students for hospital clinical attachments. A program using volunteers is feasible and was embraced by students, tutors and the local community.

Take-home messages: Community engagement in teaching is feasible and effective.

3M2 (20946)
Emotionally challenging learning situations – students’ perceptions
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Annika Wernerson, Karolinska Institutet, Department of Clinical Science, Intervention and Technology (CLINTEC), Division of Renal Medicine, Stockholm, Sweden

Background: Medical and nursing students find themselves in situations during their studies that cause emotional reactions. However, this is still a relatively unexplored area of medical and health care education. We know little of which types of situations students find emotionally challenging, what kind of support they experience and if and how it affects their learning.

Summary of Work: We surveyed medical and nursing students in their final year of undergraduate studies in order to explore their perceptions of emotionally challenging situations. The students answered two open-ended questions. The data was analysed with a thematic content analysis approach.

Summary of Results: Situations that were emotionally unpleasant concerned 1) the students themselves, their role in the clinical setting and their feelings of uncertainty, 2) other students’ behaviour, 3) unprofessional behaviour of healthcare providers or 4) relatives reactions and behaviour. Students mostly dealt with these emotional situations themselves by talking to peers and relatives. A third of the students stated that their supervisors gave good support. Around 20% of the students did not ask for support or got the support they felt they needed from supervisors/teachers.

Discussion and Conclusions: Students experience various situations that give rise to unpleasant emotions and they need support to deal with this.
3M3 (21679)
Bedside clinical teaching: Teachers' perceptions on barriers and opportunities

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Background: Bedside teaching is a fundamental part of medical training but is becoming challenging in the current clinical setting. This study explores the faculty's perceptions of their teaching experience and the barriers and opportunities they perceive.

Summary of Work: Focus groups in three different departments including clinical teachers of a university affiliated public hospital were held in 2010. Additionally in depth interviews were done with the program directors of each department. Each session lasted 90 minutes and was audiotaped, transcribed and analyzed using qualitative methods.

Summary of Results: Teachers recognize themselves as more intuitive and less formally trained in bedside tutoring. Nevertheless clinical teaching is regarded as one of the main motivation in their clinical practice in the public hospital setting. The most relevant barriers detected were workload, unmotivated colleagues and lack of formal training in clinical tutoring. The most relevant finding was the relevance and significance that clinical teaching meant for the studied tutors in spite of their perception of lack of formal training in bedside teaching and medical education.

Discussion and Conclusions: Bedside teaching is significant and very valued by clinical teachers in the public hospital setting in spite some recognized barriers. We are currently addressing the perceived limitations in formal training by strengthening our faculty development program.

Take-home messages: Clinical teaching can be very motivating in spite of many barriers.

3M4 (21739)
Lack of team work and patient reassessment in fifth year medical students

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Background: The ADNoTE for crisis management is an important part of undergraduate medical education. It consists of anticipation (problem listing), diagnosis, notification (call for help), therapy and evaluation (response to treatment given or not).

Summary of Work: The essay response for management of a cardiovascular/respiratory crisis episode during anaesthesia rotation of 5th year medical students was analysed, the ADNoTE scorecard was applied, then the details of 246 students' responses were evaluated for the curriculum improvement.

Summary of Results: The medical students report the clinical signs they learned from the scene, from 60% in tachycardia to 74.5% in hypoxaemia. They give diagnosis about 43.2% in respiratory problems and 46.8% in cardiovascular crisis, however, they fail to ask for help, only 22.3% notify others, cardiovascular problems significantly notify more than respiratory crisis. The treatment given range from 55.6% in oxygen therapy to 88% in fluid resuscitation and endotracheal tube placement. Only 27.2% re-evaluate the patient response after interventions given.

Discussion and Conclusions: The patient problems, differential diagnosis and treatment options for the crisis are in acceptable range. We should give more emphasis on medical students about team-working and re-evaluation of the patients after the treatment is given. Notification and Evaluation from the ADNoTE method should be more focus for medical education in acute care medicine.

Take-home messages: 1. The fifth year medical students have enough skills in problem listings, giving diagnosis and interventions needed. 2. They should be advocated in working as a team member and timely fashion. 3. They need more feedback on patient re-evaluation after a treatment is given.
**3M5 (22240)**

**Barriers to and facilitators of learning in clinical placements**

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**Background:** A questionnaire study by the authors in 2013 found that the introduction of ‘student assistantship’ placements for final year medical students still leaves many medical students without much experience of managing acutely ill patients – something they will be called upon to do in their first year of practice (Foundation Year 1 or FY1). This study aimed to identify the barriers to such learning opportunities faced in undergraduate placements, and conversely what may facilitate them.

**Summary of Work:** Focus groups were conducted with final year medical students who had experienced at least one period of ‘student assistantship’ and with FY1 doctors who had experienced an assistantship the year before, and have facilitated an assistantship in the current year. Telephone interviews were also conducted with senior clinicians with supervisory roles.

**Summary of Results:** Analysis is ongoing, but will consider a number of factors in students’ and doctors’ accounts of learning opportunities. These will include: students’ active pursuit of those opportunities, FY1s’ educational role in facilitating those opportunities and organisation/structural factors that allow students access to different types of experience.

**Discussion and Conclusions:** Medical students identification of and access to learning opportunities in clinical placements can vary with individual engagement with a placement, but can be enhanced through the development of FY1’s educational skills, and the design and delivery of placements. Not all learning opportunities are available in all placements, so curricula should ensure that opportunities will be available through a sequence of placements.

**Take-home messages:** Providing placements is not enough to provide learning opportunities. Attention must be paid to how undergraduate learning may be facilitated in clinical workplaces.

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**3M6 (18765)**

**Transforming health professionals’ attitudes toward patients and clients by Café-style health communication**

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**Background:** Café-style health communication using a dialogue-based approach such as World-Café can help health professionals and patients or clients understand each other in a relaxed setting. It is an interactive activity where health professionals and patients/clients have a dialogue on a relatively equal footing, and learn from each others’ perspectives. But little is known about the effects on participants. Previous research suggests that positive consciousness transformation occurs because encountering other people’s opinions leads to self-reflection on their own perspectives. The aim of this study is to evaluate whether the transformative learning process occurs and whether it results in the change of professionals’ consciousness about patients and clients by Café-style health communication.

**Summary of Work:** We conducted a psychometric analysis of a web-based questionnaire consisting of 72 items for participants of Café-style health communication sessions held in Tokyo during the past 3 years, and studied the relationships between various concepts by structural equation modeling (SEM). To evaluate the validity and reliability of concept measurement, we conducted exploratory factor analysis and confirmatory factor analysis.

**Summary of Results:** The questionnaire response rate was 39.5% (141/357) of which 80 (56.7%) were health professionals and 61 (43.3%) were patients or citizens. SEM analysis revealed that transformative learning occurred in both groups (Fit index of the model: GFI = .796, AGFI = .754, CFI = .926, RMSEA = .058). The process of transformative learning consisted of two types: one process leading directly to “perspective transformation”, and the other leading to “perspective transformation” via “self-reflection” and “disorienting dilemmas”. “Perspective transformation” was related to “understanding of others”. Health professionals, it was related to “consciousness transformation about patients and clients”.

**Discussion and Conclusions:** Café-style health communication leads to transformative learning, and health professionals’ consciousness change about patients and clients.

**Take-home messages:** For transforming the consciousness of health professionals towards patients, consider a dialogue-based approach such as Café-style health communication.
Formative Feedback on Post Take Ward Rounds

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Background: In 2004 I developed a unique Formative Feedback process for use on "Post Take Ward Rounds" with the aim of improving team performance.

Summary of Work: I have lead 476 rounds reviewing 5383 cases and providing formative feedback on 1579 cases to 483 Juniors. I evaluated the process by online surveys and in depth interviews.

Summary of Results: All but one Junior preferred the routine provision of feedback to having to ask for a Case based Discussion or miniCEX. 56% described the process as very helpful to their development as Doctors, and 71% described it as better than a CbD or miniCEX. They valued the real time whole case approach.

Discussion and Conclusions: Effective Formative Feedback can be provided even in the context of a busy post take ward round.

Take-home messages: A small amount of time spent on Formative Feedback can be effective in accelerating clinical training.
3N SHORT COMMUNICATIONS: The Student
Location: Amber 7, Level +2, MiCo

3N1 (22251)
Does gender violence against women medical students come from men only?

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Laura Veronica Nájera Nava, Mexico D.F, Mexico

Background: Literature mostly refers violence from men against women, and infrequently refers to violence from women against women medical students (WMS). It was one of our findings in our research at Faculty of Medicine UNAM, Mexico.

Summary of Work: Our objective was to confirm the existence of gender violence and sexism against medical students (MS), to find out the kind of violence performed and identify the aggressor. This study was authorized by Faculty’s Research and Ethical Board.

Methodology: We carried out exploratory qualitative research based on symbolic interactionism and gender perspective. We did four focus group interviews and two in depth interviews among male and women MS after written informed consent. Each interview lasted around 90 minutes; all of them were videotaped, recorded and transcribed, codified by grounded theory and analyzed through a feminist education perspective.

Summary of Results: We confirm the presence of gender violence, mostly against WMS along the five years of medical school, more severe during medical internship. Although male professors and residents were the major aggressors, we identified women professors, residents and nurses as aggressors against WMS too. The kind of violence found were, sexism, gender discrimination, intimidation, threats and verbal violence, authoritarian behavior and hierarchy, bulling. Besides, some WMS blame other WMS to provoke been harassed.

Discussion and Conclusions: Violence from women professors and residents has androcentric features. We wondered if they adopt patriarchal principles or is it a strategy to be accepted in a man’s world?

Take-home messages: Women in a man’s world learn patriarchal principles, In medical education with a gender perspective it is necessary to deconstruct it.

3N2 (22751)
Student Safety: Exploring the medical student secret

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Background: “Patient Safety” is a popular issue and plays an important role in health liability. “Student Safety” is not an issue of interest, although students are at risk. Non-experienced students can easily get injured during medical practice and performing field activities. Student safety covers physical injury, mental effect and social impact. Most injured students usually keep it confidential caused by embarrassment and to avoid being blamed.

Summary of Work: Retrospective study was performed by using an anonymous online questionnaire survey among year 1 to year 6 Med-students in CMU (n = 500).

Summary of Results: Questionnaires have been completed by 344 students (68.8% of total amount). Fifty-two percent of students experienced an accident involving needle stick, blood contact and exposure to patient’s specimen while experimenting. Approximately 44% of accidents were mild injury. Majority of students overcome obstacles by themselves or consulted their acquainted senior. However, only 4% notified the infectious control unit. Risk from field activities is possible such as an automobile accident during community survey. Several students were stressed from impolite communications or inappropriate manner of the medical staff. The high-expectation of patients or relatives is another possibility of nervousness.

Discussion and Conclusions: When students have disclosed their injuries, it was obviously shown that injury rates were higher than reported. These data are valuable for the faculty to establish a risk management and a strategic plan to prevent injury and improve quality of students’ life.

Take-home messages: The faculty must be more concerned about “Student safety” as benefit, health, safety and security.
Reflections of Medical Students Taking a Break From University – Good or Bad Step?  

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Background: The number of students taking a break during their university courses is increasing. Reasons such as travelling and extra-curricular activities are on the rise in all domains: medical training not being an exception. However, academic environment, including medical students themselves, consider it often a controversial step.

Summary of Work: 11 medical students from 10 countries were interviewed in 2014 about the impact of taking a break of at least 5 months on their further education. Main obstacles, advantages and how this decision was reflected upon later were taken into account. Students were asked would they recommend such a step and why.

Summary of Results: 36% of the respondents identified the main motive for taking a break as related to "academic issues/university" and 27% indicated travelling. 8 of 11 students claimed it was an unforced decision. Peers were usually more enthusiastic towards such a diversion from an educational path (72% overall approval) than the university (68%) or the family (61%).

Discussion and Conclusions: While medical students call it usually a "voluntary leave", approach of their environment is strongly taken into account. Main concerns exist regarding losing the contact with medicine but according to the majority: good planning and arranging a health-care activity during the gap period are of great significance in a smooth transition back.

Take-home messages: Though with exceptions, the absolute majority of respondents have very positive opinions on taking a time out during university. The additional experience (e.g. of living in another country) and a refreshed mindset towards studying medicine are the biggest advantages.

The Experience of Hospital Life among First Year Medical Students

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Background: Despite increasing evidence of the impact of physician’s relational competences on patient empowerment, satisfaction and adherence, the development of these skills is still neglected within the medical curriculum. Moreover, several studies showed a decrease in empathy among medical students throughout the college years. In order to address this thorny issue, we opted to start from the evaluation of the experience reported by students in the hospital setting. This information may provide suggestions about educational strategies to enhance their relational skills.

Summary of Work: Ninety-three students attending the first year of the medical school at the University of Milano described the experience associated to an observational training, during which they followed health professionals in their hospital activities for five days. Each day, immediately after the training participants filled out a questionnaire, rating the hospital experience in terms of cognitive, emotional and motivational dimensions, perceived challenges and personal skills. Open-ended questions explored the occurrence of emotionally relevant events, and the short-and long-term relevance of that day’s hospital experience.

Summary of Results: Students reported being significantly more self-conscious and anxious during the first three days, and significantly more involved, active, and sociable in the last two days. They expressed interest in both technical procedures and relationships between the medical staff and patients.

Discussion and Conclusions: Findings highlight that medical students’ learning expectations include the relational dimension of their profession, paving the way to further longitudinal assessments of the students’ hospital experience.

Take-home messages: Educational programs promoting relational competences should be tailored on students' subjective hospital experience.
Diversity of the sub-continent and its influence on medical education: Students' perspective

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Background: India has 1.2 billion people in 28 states, speaking over 30 different languages and having different cultural and social practices. Due to scarcity of openings in medical schools, students are forced to move from their native place to a different place in pursuit of Medical education.

Summary of Work: The study was done at Sree Balaji Medical College (SBMC), a medical school, in the state of Tamil Nadu, India, to evaluate challenges in education faced by migrant students due to diversity. An objective type questionnaire validated by the Medical Education Unit of SBMC was administered to 100 students (51 females and 49 males) from states other than Tamil Nadu, after getting informed consent. Answer to each question on the questionnaire was designated a suitable mark with help from a statistician.

Summary of Results: The results showed most of the new students (nearly 80%) found it difficult to study in the new environment due to various aspects. Students found it difficult to adapt to the new climate, food, culture and had difficulty in communicating with local patients. They preferred to be in groups with people from their native, which affected interaction with other peers. They also had problems in classroom interactions. As time passed they took autonomous steps to overcome these problems and some succeeded.

Discussion and Conclusions: As medical education is now learner centeric, it is important to address problems affecting psychology of the students and their concentration on education for emergence of better medical professionals.

Take-home messages: Sometimes, cause of Academic sustainability gap MAY be outside books. Academic sustainability gap(n) –Gap between students’ real capability and actual progress achieved.

Do Kolb learning style predictions correlate with the performance of medical students in the preclinical years?

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Vladimir Bondarenko, Touro University Nevada, Basic Sciences, Henderson, United States

Background: Kolb learning style Inventory (LSI) test was used to group students into small working teams. We have demonstrated that there was no difference in performance between learning teams regardless of learning style composition. Kolb predicts that students of assimilating or converging learning style perform better than those with accommodating or diverging learning style. We analyzed students’ scores of 15 disciplines in the preclinical years in order to verify the veracity of these predictions.

Summary of Work: Kolb learning style inventory test was administered to students within the first week of class. Then the learning styles were determined as indicated by the manual. The final scores of received from registrar’s office after obtaining the exempt IRB approval of the project. The anonymity was kept by replacing the name of each student with the code of his or her learning style. The statistical analysis of variance using ANOVA and Kruskal-Wallis rank sum test were used.

Summary of Results: There is no significant difference between grade averages of the learning styles. However, the assimilating and accommodating learning styles had the most elevated percentage of high performing students.

Discussion and Conclusions: It appears that students with assimilating, accommodating and to a lesser extent converging learning styles are more apt to succeed in the first two years of medical school.

Take-home messages: Kolb learning style inventory test can be a possible predictive tool of successful students in medical school during the preclinical years.
30 SHORT COMMUNICATIONS: Mobile Learning and Social Networking

Location: Amber 8, Level +2, MiCo

301 (20076)
Using Facebook by medical students at Kerbala University: Phenomenological perspective

Ali Tareq AbdulHasan*, Kerbala University, College of Medicine, Kerbala, Iraq

Background: We are living in the era of Facebook, and our students are the Net generation. This is a reality, which should be taken into consideration when we develop our curriculum, unless we will give the opportunity for the hidden, informal curriculum to shape and determine our students learning outcomes. In our college about more than 90 % of our student, are using this social network and spending a lot of time posting, commenting and sharing.

Summary of Work: The research questions explored through semi-structured interview using focus groups of 10 students from each stage & asking the question of how the student lives this online social networking and what meaning derive from it. These focus group continued meeting online through the Facebook. The aim of question is to disclose the lived experience of being online with their peers. After collecting the data, we submitted it to Interpretative Phenomenological Analysis (IPA).

Summary of Results: Students lived experiences were categorized in five themes: • Awareness/ enhanced social identity and critical thinking, • Being connected/ being approachable / decreasing burnout, • Shared world of interest/being empathic, • Transformative-learning experience, moving them from darkness to enlightened state of mind, and • Being updated with what is going on in the college.

Discussion and Conclusions: As such, Facebook offers perhaps the most appropriate contemporary online setting within which to explore how social network can be blended with traditional teaching environments to give an opportunity to create independent learner and lifelong learning skill.

Take-home messages: Facebook is widely used social network which can be used by educators to make learning blended with traditional one.

302 (21256)
The Study of Online Clinical Case Discussions with the Means of Social Network Analysis and Data Mining Techniques

Hani Al-Shobelly, Qassim University, College of Medicine, Melida, Saudi Arabia
Abdullah AlGhasham, Qassim University, College of Medicine, Melida, Saudi Arabia
Habiba Kamal, Qassim University, College of Medicine, Saudi Arabia

Presenter: Mohammed Saqr*, Qassim University, College of Medicine, Saudi Arabia

Background: Social Network Analysis (SNA) is an innovative method for the study of social interactions of online groups and connected entities at an individual level as well as group level. The actors (connected entities) are represented as nodes and links (relationships between the actors) or ties are represented as edges. Qassim College of Medicine uses collaborative online case based discussions to complement conventional education; to help overcome class shortcomings and improve learning experience. The study of students’ contributions have always been a challenge, due to the large volume of data and the absence of computerized standard tools that better analyzes these discussions.

Summary of Work: To evaluate the participation of students and their relations to each other and to their teachers, we need to go through tons of online non-structured information. Automated discovery and analysis of contributions and relationships by means of SNA could help in mapping the patterns of interactions between students, Flow of information exchanged among participants/groups, Active students, Students with influence. Using data mining can help map important topics, students’ responses and possible needed intervention or moderation of discussions/curriculum. Meerkat-ED analyzes both the structure and content of these interactions using social network analysis techniques and community mining of learning management system (LMS) logs. Meerkat-ED uses complete backups of Moodle (LMS) and extracts all data relevant to the case discussions.

Summary of Results: By analysing the data and visual mapping of interactions we were able to identify: Active and inactive case discussions. Separate and interconnected groups. Most influential members (most outgoing connections) Most prominent members (most incoming connections) Central members in the group, Outliers (least connected) Density of contributions. Evolution of networks and patterns of interactions between members and groups over time. using term analysis we were able to generate visual maps of connected interaction terms and their importance, find out important topics, and areas that need to be stressed in the discussions or the curriculum. Conclusions

Discussion and Conclusions: SNA can analyze huge amounts of information in a short time and provides a bird’s eye view of students’ contributions and
interactions in online Clinical Case Discussions and inter-group relationships. It could help understand student interactions and the patterns thereof. It helped identify socially active and inactive students. **Take-home messages:** Social Network Analysis can help map interactions between students and give an overview of students interconnections.

**303 (23023)**
**Auscultation Master: Lung Sounds Edition - A state of the art iPad app for teaching lung auscultation**

Miguel Silva*, Centro Hospitalar Alto Ave, Guimarães, Portugal
Carla Carneiro, Centro Hospitalar Alto Ave, Guimarães, Portugal
Olga Azevedo, Centro Hospitalar Alto Ave, Porto, Portugal
Damião Cunha, School of Health Sciences, University of Minho, Braga, Portugal

**Background:** Auscultation of lungs is still one of the pillars of the initial approach to the patient in several clinical settings. Along with a chest X-ray, the cost-benefit of lung auscultation is tremendous. Physical examination skills, however, have been in frank decline.

**Summary of Work:** We wish to present a live demo of an innovative educational lung auscultation app, specifically built for the iPad, called Auscultation Master: Lung Sounds Edition (http://auscultationmaster.com), targeted at medical students and young residents. This app is visually immersive and interactive. High-fidelity patient’s auscultation recordings obtained with a digital stethoscope are used and mapped to highlighted areas on a torso that can be rotated with a finger swipe. By touching and holding his finger over each area, the student activates each individual recording which can then be heard. Egophony, bronchophony and whispered pectoriloquy can also be evaluated through parallel recordings and chest percussion can be assessed by double tapping on the screen. Also, a chest X-ray of the patient can be dragged over from the side for comparison of auscultatory and radiological findings. This allows for an impressive and didactic visualization of the pathophysiological correlates involved in the production of abnormal respiratory sounds. At the end the student is asked to present a possible diagnosis which includes identifying the pathological process (e.g. pneumonia, atelectasis, pneumothorax) and its location (e.g. right lobe pneumonia).

**Take-home messages:** This app represents a fresh and sorely needed approach to lung auscultation education, a skill that still remains absolutely essential.

**304 (21936)**
**MBChB Mobile – A novel technology enhanced M-Learning programme**

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H Hassanzadeh, Maidstone and Tunbridge Wells NHS Trust, Kent, United Kingdom
J Darling, University of Leeds, Leeds, United Kingdom

**Background:** ‘MBChB Mobile’ is a pioneering project offering medical students at University of Leeds, United Kingdom, an opportunity to participate in an M (mobile)-learning programme. Providing students with iPhone handsets complete with academic applications, assessment software, and a virtual reflective environment, the programme offers a unique opportunity for learning.

**Summary of Work:** This study aimed to elucidate the potential of M-learning in medical education. Local ethical approval was granted to invite fourth and fifth year medical students to participate in a semi-quantitative questionnaire: data was collected anonymously with informed consent and analysed, where appropriate, using Chi-squared test of association. This was supplemented by qualitative data generated through focus groups.

**Summary of Results:** A total of 278 of 519 invited participants responded. 79% of students agreed that MBChB Mobile enhanced their learning experience: this was significantly related to overall (p<0.001), and self-reported mobile technology proficiency (p<0.001). Qualitative data revealed barriers to usage including technical issues, and perceived patient acceptability.

**Discussion and Conclusions:** As one of the largest evaluative studies of an M-learning scheme in undergraduate medicine, MBChB Mobile suggests that smartphone and application technology can enhance students’ learning experience. In order to address barriers, a preliminary evaluation of mobile technology proficiency would allow targeted support, thus increasing the efficacy of such a scheme.

**Take-home messages:** M-learning schemes have been shown to positively impact medical students’ learning experiences. Although barriers to implementation exist, M-learning schemes have potential beneficial applications in both undergraduate and postgraduate medical education.
The influence of the "hidden curriculum" on student use of mobile devices in the clinical setting

Amanda Harrison*, The University of Sydney, Westmead Clinical School, Westmead Hospital, Sydney, Australia
Arany Nerminathan, The University of Sydney, The Children’s Hospital at Westmead, Sydney, Australia
Meg Phelps, The University of Sydney, The Children’s Hospital at Westmead, Sydney, Australia
Shirley Alexander, The University of Sydney, The Children’s Hospital at Westmead, Sydney, Australia
Karen M Scott, The University of Sydney, The Children’s Hospital at Westmead, Sydney, Australia

Background: Mobile devices have become hand-held mini-computers that students use to access resources such as electronic texts and drug dosage information in the clinical setting. Students also expect regular mobile Web access for learning, work and social connections; however, privacy and professionalism can be compromised in clinical settings. This study was conducted in a tertiary paediatric and a tertiary adult hospital to determine use of mobile devices for learning, attitudes towards etiquette and awareness of ethical and security concerns.

Summary of Work: Within the social constructivist framework, this study took a qualitative and quantitative approach through the use of surveys and focus groups. Qualitative data was analysed using grounded theory, with statistical analysis of quantitative data. Ethics approval was obtained.

Summary of Results: Students are generally aware of the risks mobile devices pose to professionalism and practice. Some physicians’ attitudes about mobile devices limit students’ learning opportunities. Students are influenced by other physicians’ use of mobile devices and follow their directives, even if it breaches policies. For many students, the benefits of using mobile devices for learning in the clinical setting outweigh the risks.

Discussion and Conclusions: Just as ‘technology has been mainstreamed into daily life’, students have transferred their everyday use of mobile devices to the clinical setting. Students need guidance to mesh new learning technology with complex hospital systems.

Take-home messages: As society grapples with etiquette and norms governing appropriate use of mobile devices, many students are devising their own rules to aid learning, regardless of policies or conventions.

The impact of handheld electronic devices on the millennial medical student

Monica Hoy*, University of Calgary, Otolaryngology, Head and Neck Surgery, Calgary, Canada
Nathan Hoy, University of Alberta, Urology, Edmonton, Canada
Sarah Forgie, University of Alberta, Pediatrics, Edmonton, Canada

Background: The majority of medical students are born after 1980. These Millennial students are more technologically savvy than previous generations. Handheld electronic devices which was first popularized by the Personal digital assistants (PDA) has now grown to include smart phones; these technologies have revolutionized access to information. However, there is a paucity of information regarding the changing trends in their usage by medical students.

Summary of Work: This study aims to examine these trends and provide insight as to how medical students perceive the use of handheld electronics in their education. This is a prospective study. The study population included students at the University of Alberta from 2006-2013. A web based survey was administered to all medical students in 2006, 2010 and 2013.

Summary of Results: There were 628 responses. Responses were scored on a Likert scale. Prevalence of handheld devices rose from 66% to 83% from 2006 to 2013. The prevalence of the iPhone/iPod touch increased from 46% to 78% between 2010 and 2013. The timing of purchase is trending towards before entering medical school, and the reason for purchase is trending towards communication/entertainment vs for medical education software.

Discussion and Conclusions: Despite the increase in prevalence of handheld electronic device usage, lectures remain the primary learning source for medical students and online resources as the most prevalent secondary source.

Take-home messages: How handheld electronic devices are utilized, is key in determining its the influence on the delivery of medical education through technology.
3P SHORT COMMUNICATIONS:
Career Choice
Location: Theatre Room 13, Level 0, MiCo

3P1 (19743)
Psychiatry in the modern medical undergraduate curriculum: Still not real medicine?
Janine Henderson*, Hull York Medical School, York, United Kingdom

Background: The ongoing recruitment problem in psychiatry continues to generate concern. Psychiatry has undergone profound change in the last 30 years and modern medical education has brought much greater integration of psychiatry within the curriculum. However the percentage of graduates going into psychiatry remains inadequate to address the enduring shortage of consultants in this specialty.

Summary of Work: This qualitative interpretivist study used in-depth interviews to explore the perceptions of fourth year medical students of psychiatry as a speciality and a career prospect in a new undergraduate medical school in which psychiatry and community medicine are closely integrated into the course.

Summary of Results: Despite the greater integration of psychiatry into the core curriculum many negative perceptions of psychiatry and psychiatrists still prevail. Psychiatry is regarded as lacking “reality” as a scientific discipline and its practitioners as “not real doctors”; vulnerability to emotional distress and to physical harm were also off-putting. Psychiatrists were seen as possessing many key, desirable personality traits and attributes which align with modern medical practice, but students compared their own personalities more readily with the “surgical” stereotype they had constructed.

Discussion and Conclusions: Changes in medical education have made little impact upon the image of psychiatrists and the specialty. Students admired many of the personality traits and skills they had seen demonstrated by psychiatrists, but could not reconcile themselves with the perceived ambiguity and lack of objectivity in the specialty.

Take-home messages: Psychiatry’s “image problem” has not been addressed by greater integration and community focus in undergraduate medical education.

3P2 (22233)
Factors associated with preference for primary care specialties in undergraduate medical students in Portugal
Diana Guimarães*, University of Minho, School of Health Sciences, Braga, Portugal
Manuel João Costa, University of Minho, School of Health Sciences, Braga, Portugal
Patrício Costa, University of Minho, School of Health Sciences, Braga, Portugal

Background: This study aimed at identifying factors that influence the specialty preference of undergraduate medical students across all study years, with special emphasis on primary care.

Summary of Work: This was a prospective and cross-sectional national study on the specialty preference of undergraduate students in Portugal. The study was underpinned by Bland-Meurer model (1995). It was an online questionnaire study with 1479 participants (12.6% of the population). Independent variables included sociodemography, year of study in medical school, current specialty of preference, motivations and perceptions about specialties or the practice of medicine. Multiple logistic regression was used with specialty categories, medical, surgical, primary care and undecided as dependent variables.

Summary of Results: Few students preferred primary care specialties (n=106; 7.2%). Compared with surgical and medical specialties respectively, preference for primary care was associated with not being single (OR=5.54, OR=4.59), intention to practice medicine in non-urban areas (OR=2.31, OR=3.38), perception of debt (OR=2.04, OR=2.26), perception of higher importance of social responsibility (OR=2.02, OR=3.66) and lower of innovation and scientific investigation (OR=0.32, OR=0.27) and preference for primary care regardless place of practice (OR=3.88, OR=3.55). The model explained 26.4% of the variance in specialty preferences.

Discussion and Conclusions: There was low preference for primary care specialties and the factors relating to students, student values and to the characteristics of the specialties contributed significantly to the type of specialty preferred in all years of medical school. Further factors should be considered to understand specialty preference.

Take-home messages: Specialty preference may have common determinants across cultures.
Factors influencing medical graduates in their career preferences in Taiwan

Tsuen-Chiuan Tsai*, E-Da Hospital, I-Shou University, Department of Pediatrics, and Chinese Medicine, Kaohsiung City, Taiwan
Der-Fang Chen, E-Da Hospital, Department of Surgery, Kaohsiung City, Taiwan
Chi-Wei Lin, E-Da Hospital, Department of Family Medicine, Kaohsiung City, Taiwan
Jung-Sen Liu, Cathay General Hospital, Department of Surgery, Taipei City, Taiwan

Background: Career preference in medical graduates may affect how they learn in medicine and the distribution of physician manpower. In Taiwan, a highly efficient healthcare system, young doctors' attitude toward their career choice may rapidly change. The study aims to investigate the career preferences of medical graduates, and explored factors underlying their career decisions.

Summary of Work: A cross-sectional questionnaire-based survey was carried out among medical graduates who seated entrance examination for PGY training in two Taiwanese medical institutions in 2012. The questionnaire covered demographic characteristics, specialty/hospital preferences, and explored the factors underlying these decisions in PGY and residency training. Factors that may influence career choice were selected on the basis of a literature review and discussions with groups of medical students and physicians. Using a 5-point Likert scale, participants rated their preference degree on the choice among 17 specialties, and the agreement degree on the influencing factors. Factor analyses were used to explore the factor structure underlying the many items reflective of their preference.

Summary of Results: A total of 190 participants answered the questionnaire, with response rate of 60.3%. They are 134 males and 52 females, aged 26.48±2.26 years old. A significant portion (20-35%) of participants preferred radiology, ophthalmology, anesthesiology, ENT and dermatology. Factor analysis identified five factors for specialty preference (66.97% of the variance): personal character, work load, anticipated income, risk in medical practice, and specialty character.

Discussion and Conclusions: Young Taiwanese doctors nowadays preferred the specialties of "less workload". The major factors that influenced their career decisions are about themselves.

Take-home messages: More efforts on improving healthcare environment and medical education should be provided to eliminate the unwanted phenomenon on students' career preference.

Factors influencing medical students' pursuit of a surgical career

Jameel Mushtaq*, St George's University of London, Medical School, London, United Kingdom
Muaaz Tahir, Kings College London, Medical School, London, United Kingdom

Background: Trends in specialty selection have shown a decline in the number of trainee doctors and medical students desiring a career in surgery. This study aims to explore the factors influencing career choice among medical students.

Summary of Work: An electronic survey was distributed to students from 5 medical schools. Students were asked to score 17 items (5-point Likert scales) in terms of their importance in the students' decision-making process. Specialties were grouped into General Practice (GP), Medical Specialties (MS) and Surgery.

Summary of Results: 200 students responded, of which 31% chose Surgery as their career of choice (modal year of study: 3rd; mean age: 23 years; 44% female). Students who preferred Surgery rated 'Prestige' more important than students preferring GP or MS (p=0.007, p=0.002). 'Earnings' and 'Private Practice' were more important to students who preferred Surgery compared to MS (p=0.025, p=0.029). 'Work Life Balance' (p<0.001, p<0.001), 'Length of Training' (p=0.020, p=0.004) and 'Difficulty of Training' (p=0.044, p=0.02) were less important to students who preferred Surgery compared to GP and MS. In surgically inclined students, 'Gender Balance' was more important to females (p=0.031) than males.

Discussion and Conclusions: Prestige and anticipated income are important determinants for students aspiring to a career in surgery. Students placing greater importance on lifestyle factors prefer alternative specialties, indicating recent reforms to training have not changed perceptions of a career in surgery. Female students pursuing surgery are concerned about gender ratios, reflecting concerns regarding female recruitment into surgery.

Take-home messages: Prestige and earnings motivate surgically inclined students, however lifestyle factors remain a deterrent to a surgical career.
**3P5 (21707)**

**Specialization training in Malawi: A qualitative study on the perspectives of medical students graduating from the University of Malawi College of Medicine**

Adam Sawatsky*, Mayo Clinic, General Internal Medicine, Rochester, MN, United States
Natasha Parekh, University of Pittsburgh, Community Health, Pittsburgh, PA, United States
Adamson Muula, University of Malawi College of Medicine, General Internal Medicine, Blantyre, Malawi
Thuy Bui, University of Pittsburgh, General Internal Medicine, Pittsburgh, PA, United States

**Background:** In 2004, the University of Malawi College of Medicine (CoM) started 4-year postgraduate programs to reduce the number of graduates leaving to pursue postgraduate training outside Malawi. Students still report a desire to leave the country for specialization training. To understand this desire, we studied medical students’ perspectives on specialization training in Malawi.

**Summary of Work:** We conducted semi-structured interviews of medical students at the CoM. All interviews were recorded and transcribed, and were coded by two independent reviewers. We used thematic analysis to identify major themes and categorized them to answer the research question.

**Summary of Results:** All 21 students we interviewed reported a desire for specialization training. The positive aspects of pursuing postgraduate training in Malawi included exposure, experience and preparation for working in Malawi. The main negative aspect was the frustration of training with limited resources. Reasons to stay in Malawi for training included personal and altruistic reasons. Reasons to leave Malawi included a desire to acquire new experiences, to bring experiences back to improve medical care in Malawi, to train in specialties not offered in Malawi, to earn more money, and to obtain a better education. Areas of improvement included career counseling and mentorship.

**Discussion and Conclusions:** Students graduating from the CoM desire postgraduate specialization training but have mixed views of postgraduate training in Malawi. There are complex reasons for leaving, some which can be addressed by improving the postgraduate training programs.

**Take-home messages:** The CoM needs to understand the needs of the country’s future healthcare workforce to develop training opportunities and stem “excessive losses” of students.

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**3P6 (20353)**

**The Manchester Medical Careers Fair - a student-led event allowing medical students to explore their career options**

Zainab Jawad, The University of Manchester, School of Medicine, Manchester, United Kingdom
Clarissa Gurbani, The University of Manchester, School of Medicine, Manchester, United Kingdom
Amile Inusa*, The University of Manchester, School of Medicine, Manchester, United Kingdom
Haider Ali, The University of Manchester, School of Medicine, Manchester, United Kingdom

**Background:** Medical graduates are faced with a practically endless list of possible areas that they can specialise in. Sound and unbiased careers advice is often hard to come by, and most graduates will decide upon their eventual speciality because of a good placement while as an undergraduate, or an inspiring tutor that they are lucky enough to meet – rather than being able to fairly judge all their possible options.

**Summary of work:** Held annually, the careers fair brings clinicians from all over Greater Manchester to speak to medical students from all year groups. Each speciality is allocated a ‘drop-in’ room in the Stopford building, and is filled with doctors from all grades of training who are ready to answer any questions that students may have. Workshops run concurrently, and focus on topics such as training abroad and CVs. The Fair is the largest of its kind in the North West and is the most successful student-led medical careers fair in the country.

**Summary of results:** Student satisfaction of the event was overwhelmingly positive. In particular, the opportunity to discuss career options with clinicians in an informal setting was highlighted as being very important to students.

**Conclusions:** There is a clear need for more careers guidance for undergraduate medical students. Accurate, clear advice about training pathways and career opportunities is important to ensure the production of well-informed graduates.

**Take-home message:** Large-scale, peer-organised career fairs are an effective method of conveying careers guidance to students.
3Q  CONFERENCE WORKSHOP:
Designing a future-focused medical school: What is most needed and possible? (19957)
Location: Workshop Room 1, Level 0, MiCo

Hilliard Jason*, University of Colorado Denver School of Medicine AND InSoMed, Family Medicine and Medical Education, Boulder, Colorado AND London, England, United States
Andrew Douglas*, InSoMed (International New School of Medicine), Administration and Finance, London, United Kingdom
Jane Westberg*, University of Colorado Denver School of Medicine AND InSoMed, Family Medicine and Medical Education, Boulder, CO, United States

Background: There is a growing world shortage of doctors, in numbers and in capabilities. The shortages are most severe in primary care and in the emerging economies. We’re designing a medical school to respond to the best evidence about human learning and the needs of the healthcare process. We can’t predict the characteristics of optimal, future healthcare, but we expect that we’ll need graduates who are: highly effective learners, comfortable adapting to changing circumstances, and effective members of multidisciplinary teams. Our core mission is discovering how best to accomplish these goals. We invite you to share what you and others are doing to prepare doctors for an unknowable future. We’ll explain some of our plans for InSoMed, including ways we intend to take advantage of leading-edge educational ideas and emerging technologies to render learning maximally effective and affordable. We hope we will all leave with an enhanced sense of what medical education should be striving to accomplish in the coming years and changes we may each want to make in our own programs.

Intended Outcomes: 1) Developing ideas for influencing your educational programs, focusing on student and faculty selection, preparing faculty for their educational responsibilities, developing a consistent institutional culture, and using adaptive-learning strategies and learning-support technologies.
2) Facilitating the application writing process.
3) Identifying appropriate supporting evidence.

Structure: Following an introduction, we will have a short presentation of the ASPIRE incentive with the focus on facilitating the application writing process. Small working group (SWG) discussions will form the backbone of the workshop with two cycles of SWG brainstorming sessions covering selected criteria of the application, followed by group presentations and discussion. Supporting claims of excellence with convincing evidence will be emphasised and evidence taken from the ASPIRE award documents will be discussed. We will conclude with a student presentation and discussion of Section E (medical student comment section in the application).

Who should attend: Anyone interested in improving student engagement in their medical schools and preparing submissions for the ASPIRE award in student engagement. Students are also welcome to contribute and share their perspectives. Interested participants can become familiar with the ASPIRE via www.aspire-to-excellence.org.

Level: Intermediate

3R  CONFERENCE WORKSHOP: Tips on preparing ASPIRE award applications in student engagement (20765)
Location: Workshop Room 2, Level 0, MiCo

Marko Zdravkovic*, University Medical Centre Maribor, Department of Anaesthesiology, Maribor, Slovenia
Eva Nike Cvikl*, Faculty of Medicine, University of Maribor, Department of Anaesthesiology, Maribor, Slovenia
Debra Klamen*, Southern Illinois University School of Medicine, Springfield, United States
Kew Siang Tong, International Medical University, Malaysia
Rukhsana Zuberi*, Aga Khan University, Pakistan
Antonio Celenza, Faculty of Medicine, Dentistry and Health Sciences, University of Western Australia, Australia
Kulsoom Ghias, Aga Khan University, Pakistan

Background: In 2013, AMEE launched an incentive to recognise and award educational excellence of medical schools in three different areas. Based on our experiences as first round ASPIRE award winners, we will provide a hands-on workshop to help prepare a submission for the student engagement area. This workshop provides a unique opportunity to reflect on gathering quality evidence of excellence in different settings with insights and guidance provided by an international group of facilitators.

Intended Outcomes: At the end of the workshop participants will be able to: 1) better prepare for the ASPIRE application writing process, 2) understand the requirements of selected criteria, and 3) identify appropriate supporting evidence.

Structure: Following an introduction, we will have a short presentation of the ASPIRE incentive with the focus on facilitating the application writing process. Small working group (SWG) discussions will form the backbone of the workshop with two cycles of SWG brainstorming sessions covering selected criteria of the application, followed by group presentations and discussion. Supporting claims of excellence with convincing evidence will be emphasised and evidence taken from the ASPIRE award documents will be discussed. We will conclude with a student presentation and discussion of Section E (medical student comment section in the application).

Who should attend: The workshop is targeted to those interested in improving student engagement in their medical schools and preparing submissions for the ASPIRE award in student engagement. Students are also welcome to contribute and share their perspectives. Interested participants can become familiar with the ASPIRE via www.aspire-to-excellence.org.

Level: Intermediate
**3S CONFERENCE WORKSHOP:**
Patient and community involvement in health professional education (20741)

**Location:** Workshop Room 3, Level 0, MiCo

*Angela Towle*, University of British Columbia, Division of Health Care Communication, College of Health Disciplines, Vancouver, Canada

*William Godolphin*, University of British Columbia, Division of Health Care Communication, College of Health Disciplines, Vancouver, Canada

Cheryl Hewitt, PeerNetBC, Community Mental Health & Addiction Services, Vancouver, Canada

R Paul Kerston, Positive Living BC, Division of Health Care Communication, College of Health Disciplines, Vancouver, Canada

Sue Macdonald, Vancouver Coastal Health Authority, Division of Health Care Communication, College of Health Disciplines, Vancouver, Canada

**Background:** The Division of Health Care Communication (UBC) brings the voices of patients and community members into the education of health professional students. Our experience arises from several educational initiatives over 6+ years and a current community-based participatory action project to inform development of an educational model leading to sustained and systemic participation by the community in health professional education. The workshop purpose is to learn from each other to expand understanding of patient /community involvement in health professional education.

**Intended Outcomes:** The workshop will result in a set of key factors and practical tips for effective patient/community involvement from the perspectives of both university and community.

**Structure:** We will begin by engaging participants to identify, from their experiences, one or two things that work well to develop and sustain effective patient/community involvement in health professional education. We will use the list of factors generated by participants as the starting point to share our own experiences, including preliminary findings from current research, either elaborating on issues raised or adding new ones to the list. Although we are from academia, we will include video clips of partners in different community organizations to illustrate their perspectives. The workshop will close with a question and answer period and summary of key points.

**Who should attend:** Anyone interested in patient/community involvement in health professional education. The workshop will be of interest to those attending Symposium 2C: ‘From patient to instructor. Honoring patient engagement in medical education’.

**Level:** Intermediate

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**3T CONFERENCE WORKSHOP:**
Career paths in Medical Education – A Workshop for Junior Doctors (19133)

**Location:** Suite 9, Level Mezzanine, MiCo

*Linda Snell*, McGill University & RCPSC, Centre for Medical Education, Montreal, Canada

*Jason Frank*, University of Ottawa & RCPSC, Ottawa, Canada

*Paul de Roos*, Akademiska, Uppsala, Sweden

**Background:** Many young doctors would like to incorporate medical education into their future career plans; however they are not aware of the many potential roles beyond clinician-teacher (e.g. roles such as clinician educator, training director, education activist etc.), and the multiple options for training (e.g. faculty development programs, advanced degrees, diploma programs, etc.) In this highly interactive session learners will explore the multiple roles and many options for preparing for a career in medical education.

**Intended Outcomes:** By the end of this workshop participants will be able to: (a) describe the various education roles for clinicians; (b) outline how to prepare for these roles; (c) describe the rewards and challenges of combining a career in medicine and in education.

**Structure:** Most of the workshop involves interactive activities including brainstorming, table discussions, individual activities using a handout, development of an action plan, large group discussions. Mini lectures provide content.

**Who should attend:** junior doctors, residents, medical students.

**Level:** Introductory
3U CONFERENCE WORKSHOP:
Getting stuck in: what are the practical implications of social engagement for medical education? (22084)

Location: Suite 8, Level Mezzanine, MiCo

Richard Ayres*, Plymouth Peninsula Schools of Medicine and Dentistry, Population Health, Plymouth, United Kingdom

Sam Regan de Bere*, Plymouth Peninsula Schools of Medicine and Dentistry, Medical Humanities, Plymouth, United Kingdom

Background: A WHO Commission in 2008 and the Marmot review in England in 2010 made the case that doctors must engage with the underlying social determinants of health. The UK Institute of health equity (2013), Royal College of General Practitioners (2008) and the Royal College of Physicians (2010) have all published reports on the role of doctors in tackling health inequalities. But what does this mean in practice? This workshop will explore implications for medical schools—and medical education. The presenters will draw on current work in a new UK medical school and involvement in a UK national project to define learning outcomes for health inequalities to help participants explore answers.

In January 2013, the Plymouth University Peninsula Schools of Medicine and Dentistry opened an academic practice in Devonport – the most deprived neighbourhood in the City and one of the most in England. Clinical academic staff both provide care and teach in the new centre. Medical students, together with dental, nursing and other healthcare students now divide their time between the safety of medical school buildings and the more edgy environment of Devonport.

Intended Outcomes:
1. To share experience of social engagement, define what skills are needed by doctors and discuss implications for medical education
2. To understand the academic considerations in writing OSCE questions
3. To write OSCE questions
4. To peer review OSCE questions

Structure: The workshop will be run as a "world café", a simple, effective, and flexible format for hosting group dialogue. There will be 2 rounds, each following a short presentation. Experience and learning will be collated and fed back by experienced facilitators.

Who should attend: Anyone with an interest in health inequalities.

Level: Intermediate

3V CONFERENCE WORKSHOP: OSCE question writing (21408)

Location: Suite 7, Level Mezzanine, MiCo

Kamran Khan*, Mafraq Hospital, Anaesthesia, Abu Dhabi, United Arab Emirates

Alison Quinn*, Northwest Deanery, Anaesthesia, London, United Kingdom

Sankaranarayan Ramachandran*, United Kingdom

Background: This workshop will be based on the principles described in The Objective Structured Clinical Examination (OSCE): AMEE Guide No. 81. Part II: Organisation & Administration. Assessment of performance and competencies in simulated environments is very important in health professional education, for this purpose OSCE techniques are widely used in both undergraduate and post graduate programmes. The reliability and validity of any assessment depends on the quality of the tool developed. Quality assured OSCE questions are key elements in a reliable and a valid OSCE.

Intended Outcomes:
1. Understanding the academic considerations in writing OSCE questions
2. Ability to write OSCE questions
3. Ability to peer review OSCE questions

Structure: The delegates will write questions using the template described in the AMEE guide no 81 They will critique and peer review these questions in small groups.

Who should attend: OSCE content developers and examiners.

Level: Intermediate
ABSTRACT BOOK: SESSION 3
MONDAY 1 SEPTEMBER: 1045-1230

3W  CONFERENCE WORKSHOP:
Create OSCEs to engage your learners, regardless of topic (22965)
Location: Suite 6, Level Mezzanine, MiCo

Elizabeth Kachur*, Medical Education Development, National and International Consulting, New York, NY, United States
Chaoyan Dong*, National University of Singapore, Medical Education, Singapore, Singapore
Angelika Hofhansl*, University of Vienna Medical School, Medical Education, Vienna, Austria
Alice Fornari*, Hofstra Northshore LIJ School of Medicine, Faculty Development, Great Neck, NY, United States

Background: OSCEs have been used for decades to teach and assess clinical and teaching skills. As summative assessment they must be stringent, but as formative assessment they are a unique opportunity to engage a diverse set of learners in just about any topic that has a skills component (e.g., mentoring, curriculum development). The main challenges are to make it fit the overall instructional scheme, define reasonable objectives, find room for it in the program, strategize resources and make it happen with sometimes limited orientation opportunities and a potentially large group of learners. This workshop is designed to help participants think through and design OSCEs to fit their own instructional needs. Instructor and peer feedback will help refine their plans.

Intended Outcomes: By the end of the participants will be able to:
1. Provide an overview of an OSCE they are planning for their own program
2. Identify challenges and opportunities for integrating OSCEs specific to their topic area
3. Explain strategies to engage all program participants in a productive manner

Structure: 10 min Welcome & Introduction showcasing OSCE examples, participants complete initial project description
20 min Introduce partner & his/her project to large group (think-pair-share)
20 min After brief presentation participants create a blueprint draft to identify possible stations (worksheets are then circulated for peer feedback using post-its, large group discussion)
10 min Brainstorm implementation challenges (using flip charts)
20 min Develop strategies to master challenges (participants use post-its to suggest strategies for previously identified challenges and then group them in small groups, large group presentation
10 min Summary take home points

Who should attend: Curriculum Developers, Faculty, Educators.
Level: Intermediate

3X  CONFERENCE WORKSHOP:
Careers advice and guidance, a 4 step model (21531)
Location: Suite 4, Level +2, MiCo

Helen M Goodyear*, Health Education West Midlands, Paediatrics, Birmingham, United Kingdom
Taruna Bindal*, Alexandra Hospital, Paediatrics, Redditch, United Kingdom

Background: In the UK, an increased number of medical students has led to greater competition for 2 year foundation (intern) training programmes. In addition, trainees need to apply for specialty training (residency) 16 months after qualification. Guiding students and trainee doctors to make career choices requires skill and training. This workshop is designed to provide a structured approach to careers guidance for students, trainees and trainers.

Intended Outcomes: By the end of the workshop participants will 1) understand the four step process students/trainees need to work through in order to manage their careers 2) be able to use a structured approach to a careers interview; 3) reflect on improvements for giving of career support in their own work place.

Structure: A highly interactive workshop which will comprise of an introductory presentation and small group exercises where participants will have an opportunity to use the 4 step model and structured approach to careers interviews by working through case scenarios. This will be followed by a plenary discussion and conclude with a reflective exercise

Who should attend: Healthcare professionals who are involved in undergraduate or postgraduate training.
Level: Intermediate
**3Y CONFERENCE WORKSHOP:**
Examining the use of role play within an undergraduate medical curriculum (22793)
Location: Suite 3, Level +2, MiCo

*Adam Williamson*, University of Dundee, Clinical Skills Centre, Dundee, United Kingdom
*Kevin Stirling*, University of Dundee, Clinical Skills Centre, Dundee, United Kingdom
*Neil Harrison*, University of Dundee, Clinical Skills Centre, Dundee, United Kingdom
*Stewart McKie*, University of Dundee, Clinical Skills Centre, Dundee, United Kingdom
*Peter Dieckmann*, Danish Institute for Medical Simulation (DIMS), Clinical Skills Centre, Copenhagen, Denmark

**Background:** This highly interactive and participative workshop will examine the use of Role Play (RP) within simulation. RP has been shown to promote active learning and enhance trainees’ learning experience (Joyner 2006, Nestel 2007). A recent survey of medical students carried out by the authors at Dundee University highlighted that student engagement can be reduced if RP is not properly defined and structured to support learning.

The authors have developed a structured model to facilitate the effective implementation of RP within simulation. This model has three stages: Establish, Define, Relate.

**Intended Outcomes:**
- Delegates will critically examine how they currently utilise RP.
- Delegates will interact and critique the Establish, Define, Relate model.
- Delegates will be invited to join a multi-centre study to examine perceptions of RP and how the authors’ model might be utilised to enhance the learning experience of trainees.

**Structure:**
- (0 – 10 min) Introduction to workshop & facility.
  - Overview of workshop and key concepts.
  - (10 – 30 min) Discussion
  - What are delegates concepts of RP?
  - What are delegates experiences of utilising RP as part of simulation?
  - How do delegates prepare trainees for RP?
  - (30 – 60 min) Scenario development
  - Using the authors ‘Establish, Define, Relate’ model delegates will develop a short scenario to examine the functionality of this model.
  - (60 – 80 min) Presentation
  - Each group will have 5 minutes to deliver their scenario.
  - (80 – 90 min) Conclusion
    - Delegates will consider the application of the model in a wider context.

**Who should attend:** Educationalists who want to explore the effect that inhabiting different roles has on trainees engagement and learning.
**Level:** Intermediate

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**3Z CONFERENCE WORKSHOP:**
Authoring Virtual Patients for online PBL, with examples from ePBLnet (22282)
Location: Suite 2, Level +2, MiCo

*Sheetal Kavia*, St George’s, University of London, Institute of Biomedical and Medical Education, London, United Kingdom
*Terry Poulton*, St George’s, University of London, Institute of Biomedical and Medical Education, London, United Kingdom
*Trupti Jivram*, St George’s, University of London, Institute of Biomedical and Medical Education, London, United Kingdom
*Sholpan Kaliyeva*, Karaganda State Medical University, Kazakhstan
*Ella Iskrenko*, St George’s, University of London, United Kingdom

**Background:** St George’s University first introduced interactive, decision-making Virtual Patients Cases within their Problem-Based Learning (PBL) sessions in 2009. Following the successful JISC funded Generation 4 project, the interactive PBL has become a permanent implementation in the medical curriculum, in a wide variety of learning styles. This concept has been adopted by the ePBLnet project to introduce interactive PBL in a number of institutions across Central Asia, the Caucasus and Eastern Europe.

**Intended Outcomes:**
1. Receive an introduction to several VP authoring systems.
2. Learn what to do, and what not to do, when creating VP cases: the ‘10 tips’.
3. Learn how to create realistic ‘options and consequences’ in patient cases.
4. Be directed to where they can obtain an open source VP authoring system.

**Structure:**
- The workshop will begin with an introduction of embedded examples of VPs in the curriculum, including the JISC-funded ‘Generation 4 project, and Tempus funded ePBLnet Project. A short interactive session will then explore an interactive PBL case, and finally, participants will work in small groups of (2-3) to create virtual patient option points.

Participants are encouraged to bring their own laptop/Mac book and they can begin their own VP case during the session, which they will have access to after the session.

**Who should attend:** The workshop is intended for academics or clinicians who are involved in writing interactive virtual patients, whether it is for lectures, seminars, mobile learning, or particularly online PBL.
**Level:** Introductory
3AA CONFERENCE WORKSHOP: MEDEDWORLD 1: MedEdPublish: An innovative approach to open-access publishing

Location: Suite 1, Level +2, MiCo

Ronald M Harden*, AMEE, Dundee, United Kingdom
Ricky Shek*, AMEE, Dundee, United Kingdom
Catherine Kennedy*, AMEE, Dundee, United Kingdom
Ken Masters*, Medical Education & Informatics Unit, College of Medicine & Health Sciences, Sultan Qaboos University, Sultanate of Oman

Are you interested in publishing your short communication, poster presentation, or workshop delivered at AMEE 2014 in Milan? If so, you might be interested in MedEdPublish. MedEdPublish has been launched by AMEE as an easy-to-search, open-access database of previously unpublished papers relevant to the field of healthcare professions education. Readers rate and comment on papers following their publication in MedEdPublish. This offers the potential to develop conversations and interest around articles published. The workshop will provide an introduction to MedEdWorld, a network for all with an interest in medical education, and look in more depth at how to access papers and contribute to MedEdPublish.

3BB MEET THE EXPERT: Richard Horton, The Lancet

Location: Suite 5, Level Mezzanine, MiCo

Following his plenary "Meanings of medicine: the convergence and crises of civilisations", Richard Horton will be available to meet participants to discuss aspects of his presentation.
3CC1 (22703) Identifying the intergenerational ethical gap between medical teachers and pre-clinical students

Surachai Leksuwankun, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
Prachaya Thanapornsangsut*, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
On-anya Phianphittayakul, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
Natnaree Juengrassameepanich, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
Danai Wangsaturaka, Faculty of Medicine, Chulalongkorn University, Pharmacology and Medical Education Unit, Bangkok, Thailand

Background: Ethical behaviour is considered an essential attribute of good doctors. However, there has been growing concern regarding lower ethical standard of the younger generation – medical students included. We, thus, conducted this research to investigate if such the intergenerational ethical gap did exist.

Summary of Work: Two groups of samples were included: 636 pre-clinical students and 86 medical teachers teaching pre-clinical students. Questionnaires comprising a list of 45 ethical/unethical issues in daily life of pre-clinical students were distributed. They were asked to rate the significance of each issue from 1 (not important at all) to 5 (absolutely important). Scores obtained were averaged and converted into Z-scores. The Z-scores of the same item from the two groups were compared to identify the generation gap.

Summary of Results: Our response rates were 98% (students) and 43% (teachers). The Z-score gap ranged from -1.19 to 2.02. The item ‘copying classmate’s assignment’ had the highest teacher-minus-student gap (2.02) while the item ‘snatching teachers from other classmates in the anatomy laboratory’ was at the other end (-1.19). Only 24% of the items have the gap ranging between -0.20 and 0.20 with 51% having the gap more than 0.50.

Discussion and Conclusions: The intergenerational ethical gap does exist. We should not focus only on the issues troubling teachers but not students as there are also issues upsetting students but not teachers. This discrepancy might be due to how differently each generation was brought up.

Take-home messages: Our medical students are taught to be empathic. Medical teachers should also do the same towards the students.

3CC2 (20804) A study of the challenges of teaching Medical Ethics to the undergraduate medical students - A literature review

A Mahmud*, University Hospital Coventry & Warwickshire, Coventry, United Kingdom
V Foley, University of Warwick, Coventry, United Kingdom

Background: This project was carried out to identify challenges of teaching medical ethics to undergraduate medical students as part of final assignment for masters degree in Medical Education.

Summary of Work: Research project involved development of the research question, search strategy and selection criteria. Literature search led to selection of 15 articles published in peer reviewed journals across the world from 1990 onwards. All articles dealt with ‘intervention’ in form of ethics teaching and ‘outcome’ in form of student performance and feedback. This helped in identifying challenges facing medical educationists in teaching this subject.

Summary of Results: Synthesis of findings identified four themes:
1. Satisfactory development of ethics knowledge base among undergraduate students
2. Effective ethics teaching methods using a combination of lectures, role play and discussions
3. Role of hidden curriculum in undermining the practical application of ethics knowledge
4. Need for the development of ethics curriculum for clinical years to combat the erosion of ethical knowledge and practice.

Discussion and Conclusions: Challenges identified in teaching medical ethics to undergraduate medical students are:

i. Lack of assessment and evaluation tools to test ethics knowledge in clinical practice.
ii. Unethical practices in the clinical environment clashing with knowledge base developed in the pre-clinical years.
iii. Uneven teaching across the years with more emphasis on the theoretical knowledge in early years not being followed through in clinical years like other topics.

Take-home messages: Good teaching of ethical knowledge is not being translated into action during clinical years highlighting the need for further work into development of Ethics curriculum.
**3CC3 (21831)**
The Implementation of an Inspirational Project to Build up First Year Medical Students’ Consciousness of Being a Giver in Fundamental Ethics Course at Thammasat University

Aphicha Nomsiri*, Faculty of Medicine, Thammasat University, Department of Community Medicine and Family Medicine, Pathum Thani, Thailand

**Background**: Virtue and ethics is one of the preferable qualifications of MD Graduates, Thammasat University. Learning process management to build up medical students’ consciousness of being a giver is an essential fundamental to achieve this qualification and being a humanistic doctor in the future.

**Summary of Work**: This study aimed to compare the efficacy of various activities in an inspiration project used as a tool in the learning process to enhance students’ consciousness of giving. One hundred and seventy-three 1st year medical students were assigned to write their reflection on each activity including their personal opinion.

**Summary of Results**: All documents were analyzed. The result showed 37.52% of students noticed “experience of being a giver and a receiver” group discussion was helpful to raise their consciousness of giving while ‘GIVE’ journal and watching a movie ‘Pay It Forward’ were 26.01% and 24.85%, respectively. Moreover, bringing back their experience of being a giver/a receiver delighted them. None mentioned a motivational vignette showed in the introduction session.

**Discussion and Conclusions**: Students’ participation is the strongest part of the learning process to help them internally learn by themselves; therefore their consciousness will be realized.

**Take-home messages**: Learning process using students’ experience will increase their self esteem and motivation.

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**3CC4 (21842)**
Bioethics education as a strategy to improve patient privacy and satisfaction in the crowded emergency department

Yen-Ko Lin*, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Department of Medical Humanity and Education, College of Medicine, Kaohsiung, Taiwan

Jer Chia Tsai, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Department of Internal Medicine, College of Medicine, Kaohsiung, Taiwan

Keh-Min Liu, Kaohsiung Medical University, College of Medicine, Kaohsiung, Taiwan

Jeng-Hsien Yen, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Department of Internal Medicine, College of Medicine, Kaohsiung, Taiwan

**Background**: To evaluate the effectiveness of a multifaceted intervention in improving emergency department (ED) patient privacy and satisfaction in the crowded ED setting.

**Summary of Work**: A pre- and post-intervention study was conducted. The intervention developed strategies to improve ED patient privacy and satisfaction, including staff bioethics education and training. Many educational activities for continuing further staff education and training were introduced, including one-day workshops, special speech training, and case conference meetings at the ED, etc. The effectiveness of the intervention was evaluated using patient surveys. Differences in patient satisfaction and patient perception of privacy were adjusted for predefined covariates using multivariable ordinal logistic regression.

**Summary of Results**: Feedback from healthcare providers was collected after each educational activity, and most staff responded with satisfaction and acknowledged that the education and training would be helpful for their practice and patient care. Structured questionnaires were collected before and after the intervention. There was significant improvement in patient overall perception of privacy and satisfaction. There were statistically significant correlations between the intervention and patient overall perception of privacy and satisfaction on multivariable analysis.

**Discussion and Conclusions**: Patients perceived significantly more privacy and satisfaction in ED care after the intervention. We believe that bioethics education was a good strategy to achieve these improvements at respecting both patient privacy and satisfaction.

**Take-home messages**: Bioethics education is a good strategy to improve patient privacy and satisfaction in the crowded emergency department.
Evidence-based peer-teaching: An effective intervention to prepare students for complex ethical issues?

Felicity Knights*, King’s College London Medical School, London, United Kingdom
Thomas Hindmarch, King’s College London Medical School, London, United Kingdom
Vita Sinclair, King’s College London Medical School, London, United Kingdom
Anika Rahim, King’s College London Medical School, London, United Kingdom
Molly Fyfe, The King’s Centre for Global Health, United Kingdom
Paula Baraitser, The King’s Centre for Global Health, United Kingdom

Background: Peer-teaching has been shown to enable students to construct their own meaning and understanding, and enable intellectual, emotional and social engagement (Boud, 2001). These attributes are relevant for students navigating complex ethical and professionalism issues, such as those which arise working overseas. We designed, implemented and evaluated peer-led workshops for 57 students preparing to practice overseas.

Summary of Work: A student-faculty group systematically reviewed the literature regarding ethical challenges arising for students practicing overseas, and peer-led ethics and professionalism teaching. We collected personal accounts from students at King’s College London and internationally. The workshop comprised a near-peer introducing our practical, evidence-based approach to ethical challenges, and peer-facilitated discussion of real-life scenarios. We collected students’ written responses to a scenario before and after the workshop. These were deductively coded to examine changes in ethical reasoning.

Summary of Results: Student feedback was positive. Students reported feeling significantly better prepared following the workshop and liked the structure and methodology. In scenario responses, students considered a wider range of ethical issues and demonstrated increased evidence of weighing post-workshop.

Discussion and Conclusions: Our near-peer workshop demonstrated an effective, replicable method of enabling students to grapple with real-life ethical challenges. Our literature-derived, structured process enabled students to gain confidence and better identify and weigh ethical issues. The evidence-based coding framework provides a robust method of assessing improvements in ethical reasoning.

Take-home messages: Well-planned, evidence-based teaching by near-peers can be a low-cost and effective approach. Use of real-life case studies and peer facilitation enables role-modelling by older students who have undergone similar experiences, and may encourage student engagement.

Can competency of empathy be taught in undergraduate medical education?

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Hsuan Hung, Institute of Education, College of Social Sciences, National Cheng Kung University, Tainan, Taiwan
Thy-Sheng Lin, Institute of Education, College of Social Sciences, National Cheng Kung University, Tainan, Taiwan

Background: Empathy is one of the major components of professionalism. The timing and strategy of nurturing the competency of empathy in the undergraduate medical education is disputable. We explored and evaluated the competency of empathy in an innovative course for our second-year medical students of a seven-year tract medical education.

Summary of Work: The teaching strategy of a course based on biopsychosocial model was composed of didactic lectures, students talking with patients in the classroom, students interviewing patients outside the classroom and reflective writing. We qualitatively and semi-quantitatively explored and analyzed the origin of empathy, the sensitivity and the dimension of empathy, i.e., cognition, affect, skill, behavior, and the reflection on the interview in reflective writings during and at the end of the course.

Summary of Results: 45% of 34 students expressed empathy in the pre-course writing. Our students considered empathy was nurtured through experiences (59%). The others expressed empathy was an innate character (24%) and through education in family and school (21%). At the end of the course, our students reflected on each dimension of empathy and listed items for further improvement.

Discussion and Conclusions: Less than a half of our students explicitly expressed their empathy in reflective writings. They considered they learned empathy mainly from life experiences. A course based on biopsychosocial model in the clinical context with multiple teaching strategies may be suitable for nurturing empathy through explicit introduction to empathy, listening to patient’s illness narration, interviewing patient and reflective writing. Reflective writing was helpful for the consolidation of empathy.

Take-home messages: The competency of empathy can be taught through early clinical exposure in undergraduate medical education.
3CC7 (20093)
Empathy scores of doctor of physical therapy students in the United States

Donald Gabard*, Chapman University, Physical Therapy, Orange, United States
Susan Deusinger, Washington University, Physical Therapy, St. Louis, United States
Deborah Lowe, Mount St. Mary's, Physical Therapy, Los Angeles, United States
Denise Stelzner, University of Colorado, Physical Therapy, Denver, United States
Jean Chen, Wake Forest University, Family and Community Medicine, Winston-Salem, United States
Sonia Crandall, Chapman University, Physical Therapy, Orange, United States

Background: Empathy is an essential component in patient centered care that enables individual patient needs to be matched with patient-specific plans of care. The Jefferson Scale of Physician Empathy, Student Version was used to measure the influence of professional education on the development of empathy in the doctor of physical therapy degree in the United States. Medical student scores typically decline.

Summary of Work: We conducted a longitudinal, two-cohort, multi-site, matched pair study. Levels of empathy at enrollment, mid-curriculum, and end of didactic training were measured. Two cohorts graduating in 2009 and 2010 from each of five institutions participated in this study.

Summary of Results: There were 123 students in cohort one that completed all three administration for a 55% return rate and 113 for cohort two with a 51% return rate. With the exception of one institution (2010 cohort), none of the variations in the JSPE within each institution reached statistical significance.

Discussion and Conclusions: Although physical therapy students enter their professional training with empathy scores similar to students entering medical school, they generally do not follow the trajectory of decline seen with medical students. The one institution that showed a decline had by far the largest class size.

Take-home messages: While physicians and physical therapists experience different emotional burdens in care, both professional curriculums are similar in duration, intensity, clinical experience and both fail to significantly enhance empathy. It is now our responsibility to determine how to create a curricular structure and environment that enhances empathy in healthcare providers throughout training and across a lifetime of practice.

3CC8 (19935)
Empathy changes in medical students, more complex than previously reported? A uniquely Singaporean perspective

Joshua Tung*, National University of Singapore, Yong Loo Lin School of Medicine, Medical Education Unit, Singapore
Gerald Sng, National University of Singapore, Yong Loo Lin School of Medicine, Dean's Office, Singapore
Su Ping Yeo, National University of Singapore, Yong Loo Lin School of Medicine, Medical Education Unit, Singapore
Dujeepa D. Samarasekera, National University of Singapore, Yong Loo Lin School of Medicine, Dean's Office, Singapore
Joshua Tung*, National University of Singapore, Yong Loo Lin School of Medicine, Singapore

Background: Singaporean medical training is influenced by traditions from the US, UK, and Asia, where contrasting changes in empathy levels have been reported. These changes, as measured by the Jefferson Scale of Physician Empathy, Student Version (JSPE-SV), have yet to be analyzed based on individual factors comprising the JSPE-SV.

Summary of Work: The JSPE-SV and a second, self-developed questionnaire were completed by 882 students. Detailed JSPE-SV scores, including changes in the three factors comprising the JSPE-SV, were analysed. Data collected through the questionnaire comprised information on number of community service projects undertaken and number of hours spent on a variety of activities (e.g. with family, in the Arts).

Summary of Results: JSPE-SV: Cronbach’s alpha (>0.8) and exploratory factor analysis showed good reliability and validity. Significant differences were noted between gender, specialty preference, and clinical/non-clinical year students. Analysis of individual factors showed no change in “Standing in Patients’ Shoes” ability across years, but showed significant differences in the other two factors.

Questionnaire: More time spent with family, in the Arts, and greater amount of community service done correlated with a higher JSPE-SV empathy score. More time spent in individual leisure hours and with significant others correlated with a lower JSPE-SV empathy score.

Discussion and Conclusions: Our results show that empathy changes are more subtle and complex than previously reported, the three factors constituting ‘Empathy’ all showed different trends. Significant correlations between empathy scores and other novel determinants were discovered.

Take-home messages: Empathy changes may be limited to certain factors only. Time spent in various extracurricular domains may affect empathy scores.
Variation of empathy in a medical student cohort: Two years of follow up

Peter Mc Coll*, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile
Hernan Borja, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile
Alberto Caro, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile
Gabriel Perat, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile
Camila Pérez de Arce, Escuela de Medicina Universidad Andrés Bello, Viña del Mar, Chile

Background: Empathy is one of the main characteristics that medical doctors should develop.

Summary of Work: Objectives: to compare the level of empathy in medical students at the beginning of the third degree with that at the end of the fourth degree. A cohort study with 32 medical students (18 men and 14 women) was performed. Baseline measurements were done at the beginning of the third degree using the Jefferson empathy scale. Measurements with the same scale were repeated at the end of the fourth degree. Comparisons were made applying statistical analysis with t test Student of mean differences for paired samples and independent samples.

Summary of Results: A significant statistical decrease was shown in global empathy from 5.88 to 5.69 and in two of its components: perspective taking, from 5.72 to 5.41, and compassionate care, from 6.46 to 6.20. Instead, the standing in the patient's shoes component increased, from 5.04 to 5.26, but not significantly. No statistically significant difference by gender was observed in any of the components.

Discussion and Conclusions: After a two-year follow up of the study group, a significant decrease was revealed in global empathy, as well as in the perspective taking and compassionate care components. An insignificant increase in standing in the patient's shoes was observed. No significant differences by gender were shown in any of the components.

Take-home messages: This cohort study should continue to keep watching the trends of empathetic behavior. A qualitative study should complement the data to provide better understanding of the observed changes.

Barriers and facilitators in empathic development: The medical student’s perception

Renata Giixa*, Autonomous University of Lisbon / University of Fortaleza, Department of Psychology / Faculty of Medicine, Fortaleza, Brazil
Helena Paro, Federal University of Uberlandia, Health Sciences / Obstetrics and Gynecology, Uberlândia, Brazil
Francisco S C Junior, Federal University of Ceará, Physical Education Institute, Fortaleza, Brazil

Background: Empathy is a multidimensional construct relevant in the context of doctor-patient relationship. Seeking to insert empathy in medical education, recent research has explored the relation between empathy and other constructs, such as psychological defense mechanisms, learning environment and burnout. This paper tries to understand the barriers and facilitators in empathy development, according medical students’ perception.

Summary of Work: 80 students of all years of medical school in a Brazilian university, selected by distinct psychological types, typological assessment questionnaire – and high scores in empathy – Davis' multidimensional scale of interpersonal reactivity –, were divided in 10 focus groups. In these groups, the way the students believed they have developed empathy and which difficulties were detected in that process were investigated.

Summary of Results: The most relevant categories in empathy development related to psychological types were: “supportive home environment” – for introverts, “predisposition to interpersonal relationship” – for extroverts, “practical training of communication skills” – for sense or intuition, “conference communication skills” for thinking and feeling, and, “coping with empathic teachers” / “living with very different people in medical school” common to all psychological types. Among the barriers detected, we have: “difficulties in communication”, “gaps in communication skills in the curriculum”, “difficulties in the relation professor-student”.

Discussion and Conclusions: The results suggest that it is important to consider different learning methods for different psychological types. However, developing empathy in professors, as well as in heterogeneous groups seems an interesting and widely effective way in the development of empathy in medical education.
Descriptive analysis of Empathy levels of students in the Medicine Program of the Universidad Nacional del Sur

Alejandro Cragno*, Universidad Nacional del Sur, Health Sciences, Bahia Blanca, Argentina
Manuela Falconi, Universidad Nacional del Sur, Health Sciences, Bahia Blanca, Argentina
Maximiliano Garces, Universidad Nacional del Sur, Health Sciences, Bahia Blanca, Argentina
Pablo Micucci, Universidad Nacional del Sur, Health Sciences, Bahia Blanca, Argentina
Mariela Taboada, Universidad Nacional del Sur, Health Sciences, Bahia Blanca, Argentina
Marcelo Gracia Dieguez, Universidad Nacional del Sur, Health Sciences, Bahia Blanca, Argentina

Background: Empathy is a quality indispensable for proper communication with the patient. The objectives were to compare the degree of empathy between the cohort and to correlate according to gender, grade point average and final grade Doctor Patient Relationship course (RMP).

Summary of Work: The validated Jefferson Empathy Scale in Medical Spanish (Score: Min.1 and max. 7) was applied to medical students of the cohorts 2005-2010 during June and July 2010. Continuous variables were described with median and interquartile range (IR), the Spearman correlation coefficient ($r_S$), the Kruskal-Wallis, median test, the Mann-Whitney Test and Cronbach’s alpha ($\alpha$).

Summary of Results: There were 88% of responses from the total eligible students ($n = 271$), 71.7% are women and the median age is 21.5 years. Medium (RI) of empathy scores by cohort: 2005: 6.17 (0.5), 2006: 6.05 (0.35), 2007: 6.07 (0.83), 2008: 6.0 (0.67) 2009: 6.15 (0.55), 2010: 6.3(0.5). The difference is statistically significant ($P = 0.019$). The median score of empathy in males was 6.02 (RI = 0.92) and in women was 6.20 (RI = 0.55), the difference being statistically significant ($P = 0.002$). No correlation was found between empathy and overall career average ($r_S = 0.079$, $P = 0.28$), nor the final grade RMP ($r_S = 0.159$, $P = 0.15$). Internal consistency ($\alpha=0.76$).

Discussion and Conclusions: The higher levels of empathy were seen in the first year students, and women were shown to be more empathetic. Both issues are consistent with reports in similar studies. The RMP course final marks do not correlate with the degree of empathy.

Take-home messages: Students developing empathy is central in medical education. To reflect about how our programme helps or not students to develop it is a necessary task.

Empathy assessment in pre-clinical students of a Brazilian University

Hennan Salzedas Teixeira*, Universidade Nove de Julho, São Paulo, Brazil
Carolina Barbosa de Carvalho, Universidade Nove de Julho, São Paulo, Brazil
Silvana Figueiredo Barreto, Universidade Nove de Julho, São Paulo, Brazil
Gustavo Simoneto Peres Moterani, Universidade Nove de Julho, São Paulo, Brazil
Thiago de Oliveira Monaco, Universidade Nove de Julho, São Paulo, Brazil
Renata Mahfuz Daud Gallotti, Universidade Nove de Julho, São Paulo, Brazil

Background: Physician-patient relationship (PPR) is of utmost importance in preventing adverse outcomes from medical interventions. A very important tool towards a good PPR is empathy, which medical education should help foster.

Summary of Work: To assess empathy, medical students from the first 8 semesters completed the Jefferson scale, Brazilian version, in its dimensions: (1) compassion (11 items), (2) perspective (7 items) and (3) ability to consider oneself on the patient’s place (2 items). Answers were graded in a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Statistical analysis described categorical variables with their frequencies and continuous averages as to their average, standard error, median, minimum and maximum values. Answers were compared between genders. Statistical significance of the average correlation was if $p<0.05$.

Summary of Results: In the dimension (1) results averaged 59.13 + 8.23 (men) and 60.53 + 7.78 (women) – $p>0.05$ (maximum points, 77). In (2) the average was 30.34 + 11.50 (men) and 16.12 + 9.00 (women) – p0.05, maximum, 14.

Discussion and Conclusions: Our marginally positive results may stem from the small clinical experience of students in the beginning of their curricula. If this was significant, our results may represent an immature perception. Undergraduate, pre-clinical rounds male medical students exhibited significantly bigger empathy (dimension 2) than their female counterparts. It is to be determined if the clinical exposure to which the students will be subjected may increase their empathy.

Take-home messages: Medical students’ empathy capacity should be assessed considering the impact of their clinical experiences.
3CC13 (22289)
What scale to use - JSPE or IRI? A case study with Portuguese medical students

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Background: There are two scales frequently used to measure empathy in medical students: Jefferson Scale of Physician Empathy-students version (JSPE) and the Interpersonal Reactivity Index (IRI). This study crosses measurements obtained with the two scales with observational scores on communication skills in a high-stakes Objective Structured Clinical Examinations (OSCE).

Summary of Work: Cross-sectional study with 80 third year Portuguese undergraduate medical students. Individual JSPE and IRI scores (Portuguese versions, validated) were crossed with scores in a locally developed communication scale (CAS) filled by 2 assessors in every station of an end of year OSCE. We studied the strength of the relation and the predictive power of the two empathy scales in students CAS scores (Pearson correlations and Multiple linear regression models (MLRM)).

Summary of Results: The highest correlations with CAS scores were with JSPE-spv global score (r=.316, n=80, p=.004) and compassionate care JSPE-spv sub-dimension (r=.325, n=80, p=.003) reveal to be higher correlated with communication skills global score. Correlations with IRI (global score and empathic concern) were non-significant. In the MLRM, JSPE-spv was a better predictor than IRI in for CAS scores.

Discussion and Conclusions: As empathy is a crucial component of communication, our study suggests that the JSPE may be more suitable than IRI to capture the empathy component of communication skills in medical students. In this case-study, the JSPE showed higher correlations with observational measures of communication skills.

Take-home messages: The JSPE is better choice than IRI to assess empathy within communication.

3CC14 (23001)
Assessing the empathy in ward rounds undergraduate medical students with the Jefferson scale in a Medical University

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Background: An empathic physician-patient relationship promotes patient confidence and willingness to better relate the physician on problems, symptoms and questions. Patient confidence and collaboration towards the physician has a great importance for the effectiveness of diagnostic and therapeutic procedures.

Summary of Work: To assess their level of empathy, 130 undergraduate medical students of 5th year completed the Jefferson scale, Brazilian version (JSE-Br) in its three dimensions: 1) compassion (11 items), 2) perspective (7 items) and 3) ability to consider oneself in the patient’s place (two items), which were graded in a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Analysis with SigmaStat (SPSS, Chicago, IL) described variables, such as average, standard error, median, minimum and maximum values. Statistical significance of the averages’ correlation was accepted if p<0.05.

Summary of Results: The average score was 114.95 (+1.42) out of 140 maximum possible (82.11%). Considering the dimensions individually, the averages (+ standard error) were: (1) 65.57 (+ 0.87) out of 77 maximum possible (85.16%), (2) 40.52 (+ 1.21) out of 49 maximum possible (82.69%), and (3) 8.96 (+ 0.94) out of 14 maximum possible (63.57%).

Discussion and Conclusions: Considering that empathy of the medical students is frequently not emphasized during the undergraduate program, the empathetic and humanist formation of the physician should be a core part of the undergraduate curriculum. The present results state that the participants demonstrated good level of empathy.

Take-home messages: To evaluate the degree of empathy in the medical students is fundamental in the medical school as a means to evaluate the humanistic outcomes of the undergraduate curriculum.
3CC15 (20577)
Teaching Empathy in Medical Students: Development of an Experiential, Person-Centered 60-hour Detailed Training Program

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Background: Empathy is crucial during health professional-patient encounters. MEDINE has recently incorporated “empathy” among the basic professionalism outcomes. In a literature search (Pubmed, Psychinfo, Scopus, Cochrane Database of Clinical Trials), we looked for RCTs where the research question was whether an empathy-based training altered the medical students’ empathic behavior. Of the 17 eligible (out of 722 screened) RCTs, five showed statistically significant change in empathic behavior, only one of them in undergraduates. We present the protocol of a such study.

Summary of Work: We designed a study in which medical students will be trained in empathy, in a structured way, through a 60-hour training distributed in three 3-day workshops, including role-playing, personal growth activities through art and play, encounter groups, and experiential workshops.

Summary of Results: Three training groups, including 18 undergraduates each, will be assessed at a three-point assessment (before, after, 6 months follow-up), through reliable and validated questionnaires, measuring changes in empathic behavior, ego defenses, optimism, physical health and lifestyle. Only 4th-5th and 6th year undergraduates participate. The first training group starts on March 2014 and finishes on May 2014. These results will be presented in AMEE 2014 conference.

Discussion and Conclusions: Most students described feeling empathy when BBN. Students also expressed that as professionals they should distance their feelings. It is important that students learn to reflect on their emotions related to BBN in order to better relate to the patients’ feeling and cope with their own feelings. Students’ ability to empathy should not decline during medical education.

Take-home messages: A better understanding about students’ emotions is valuable for developing communication skills studies. It is also essential to enhance and sustain empathy in medical students.

3CC16 (21792)
To be or not to be empathic? Students’ reflections on emotions concerning breaking bad news

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Background: Empathy is an important component of doctor-patient communication. Breaking bad news to simulated patients (BBN) forms an integral part of a communication skills studies in the 4th study year at the University of Helsinki. During the years 2010-2012 students reflected their emotions concerning a BBN case in a web-based learning assignment at the end of the course.

Summary of Work: Students were asked to reflect on and write a description of how they felt about a written patient scenario of BBN. Informed consent was asked from all the students. The data were analyzed using qualitative content analysis. The data consist of 351 answers of the students who agreed to participate (94%).

Summary of Results: The results were multifaceted. Most students expressed feeling empathy and grief (69%) when BBN to the patient. Many students described that as professionals they distanced themselves (25%) from the patient’s feelings and protected themselves from the distress. Students felt unsure (23%) of not knowing what to expect, how the patient would react or what they should say or do.

Discussion and Conclusions: Most students described feeling empathy when BBN. Students also expressed that as professionals they should distance their feelings. It is important that students learn to reflect on their emotions related to BBN in order to better relate to the patients’ feeling and cope with their own feelings. Students’ ability to empathy should not decline during medical education.

Take-home messages: A better understanding about students’ emotions is valuable for developing communication skills studies. It is also essential to enhance and sustain empathy in medical students.
How to Increase Cooperated Learning in Medical Students with Poker Card

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Background: Thai students usually only answer to directly asked questions in the classroom. That includes ward round teaching or any other activities of medical teaching. Most of the time medical teaching staff usually pick students to answer questions without concept and mostly find the same medical students to participate in the question answer circle while others just stand by without being involved. There is a need to increase cooperation in teaching with our medical students in an effective way.

Summary of Work: There are various methods to increase students’ cooperation in classrooms for picking students for answering the questions. We found that using poker cards is one effective randomized way to increase medical students’ response. The cards were used from the number 2, 3... to Ace in maximum 26 medical students per group. Each student had to pick one color number, the counterpart being in the hands of the teacher. The teacher randomly picked one of his cards and the student with the counterpart in same color number had to answer the question.

Summary of Results: Medical students accepted this method of teaching. It was fair, since every student had to participate in class and the students equally had to respond to the questions. Due to the randomized drawing of the card the alertness and attention to the questions asked by the teacher were increased. Also the fun factor of learning with a game playing character was highly appreciated by the students.

Discussion and Conclusions: Increased cooperation from the students in studying and answering questions was the result of using the poker card game in the classroom.

Take-home messages: One of the methods to increase cooperation and learning activity in the classroom is using the poker card game.

Video Games: Why Waste Good Technology on Science and Medicine, Gamers, Virtual Environments and Clinical Education

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Background: Game-based learning is gaining popularity as a tool for medical education. Despite the rush to embrace game-based learning, little evidence exists to demonstrate its merits. This study provides data to support the use of game-based learning for medical education.

Summary of Work: Purpose: To evaluate whether competition could be used as a proxy stressor in a virtual environment designed to teach basic surgical skills associated with robotic surgery.

Hypotheses: Experienced robotic surgeons will have higher performance scores and lower levels of stress than inexperienced participants and the stress perceived by all participants completing a competition exercise will be higher than the stress perceived during introductory and practice exercises.

Method: A convenience sample of physicians from multiple disciplines and medical students completed exercises and a competition in a virtual surgery environment. The NASA-Task Load Index Survey was used to evaluate participant task load, including stress throughout data collection.

Summary of Results: Experienced robotic surgeons were better than non-experienced participants in all but one task. No significant difference was found in the stress experienced by experienced and non-experienced participants. Increased stress was associated with task difficulty for all participants. Self-identified videogame players stated that they would do well in the virtual environment. In fact, there was no significant difference in the performance scores of these participants and surgeons with robotic surgery experience.

Discussion and Conclusions: Competition can be used as a proxy for stress when leveraging game-based learning environments. Experienced robotic surgeons outperformed inexperienced participants, but experienced gamers approach similar levels of competency in the game environment as robotic surgeons.

Take-home messages: The pilot data presented here is consistent with and extends the evidence for the integration of game-based learning in medical education.
3DD3 (22276)
Crossword puzzles as an educational tool in a large class medical teaching at Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Thailand

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Background: Clinical pathology is one of the subjects teaching in pre-clinical course being offered to the third-year medical students. Approximately 80 medical students were enrolled in the class. Normally, the class was taught in a passive or traditional PowerPoint lecture. The purpose of this study is to compare the impact of additional active learning exercise, crossword puzzles, and only one passive lecture on student cognitive outcomes.

Summary of Work: The study was conducted during academic year 2012 and 2013 comparing 2 groups of third-year medical students. In the first group, the students attended only the lecture for 2 hours. In the second group, after a 1.5 hour lecture, the class was divided into small groups of 4-5 persons then crossword puzzles were introduced to each group as their learning activities.

Summary of Results: To compare the effectiveness of teaching method, the summative assessment of both groups was analyzed by Independent sample T-test. The average score of the second group was statistically significantly higher than the first group (p-value < 0.001).

Discussion and Conclusions: Crossword puzzles have been shown to be a useful tool to enhance higher cognitive outcomes. It is possible that crossword puzzles improved understanding after the lecture by thinking and reviewing the knowledge content from the lecture because students work as self-directed. Additional benefits might include the opportunities for the students to improv their interpersonal skill and team work. Furthermore, this nontraditional teaching promotes interest, fun and engagement of students to the subject.

Take-home messages: Games such as crossword puzzle can be used as an educational tool for large class teaching.

3DD4 (20263)
Usefulness of ‘game-like’ qualities in an educational board game

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Background: Educational games may promote an active learning experience. We found that playing an educational board game in neonatology improved the learning of medical students. After student feedback, the game was revised to incorporate more ‘game-like’ attributes identified from the literature. We aimed to investigate how these ‘game-like’ attributes affected the learning experience.

Summary of Work: Students playing the game were asked to complete a questionnaire and some took part in semi-structured interviews to explore their attitudes towards the game’s ‘game-like’ characteristics.

Summary of Results: Students enjoyed the game, reporting that it helped them gain an understanding of the specialty and that playing it was an appropriate use of their time. Interview data suggested that playing the game encouraged teamwork and active learning and reflection. Students recognised the ‘game-like’ elements in the game but did not feel that they distracted them from learning. The competitive nature of the game appealed to them and, they felt, enhanced their learning. The ‘game-like’ attributes most readily recognised by the students were “fun”, “challenge” and “curiosity”. They did not feel there was a strong “fantasy” element, which some believed could be emphasised with the inclusion of more case-based questions. They also identified two further ‘game-like’ characteristics – those of competition and teamwork.

Discussion and Conclusions: Games can be an appropriate, useful and enjoyable addition to student clinical attachments and enable students to experience teamwork. The ‘game-like’ characteristics are not perceived to detract from learning; indeed some, in particular “competition”, appeal to students and may enhance it.
Beyond leisure: Can serious games be used in medical education?

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**Background:** Games for higher education are a growing trend, but the opinions of Brazilian medical educators on games for medical education are unknown.

**Summary of Work:** Educators from several medical schools in Brazil were invited to respond an online survey about the use of electronic games for medical education.

**Summary of Results:** We obtained 119 responses (55% male, 43% PhD, mean age 45±10, mean teaching experience 13±10 years), from 32 Brazilian medical schools. Most think that games can be useful for medical education (92%) and would like to play a game for medical education (82%). 25% know some of those games, 18% have already played one, and 8% have already use a game as part of their teaching activities. Possible uses for electronic games were indicated: leisure (92%), teaching/learning (79%), continuous education (41%), patients education (50%), assessment (34%), and research (35%). Main barriers for incorporating games into their teaching activities were: unawareness of available products, lack of technical or administrative support, and lack of time for developing new teaching activities. Fear of the risk of new methods, applicability to discipline, and students’ acceptance were not regarded as important barriers.

**Discussion and Conclusions:** Games for medical education allow experiential learning, in learner’s own time and rhythm, and reduce risks for real patients. Although evidence supporting the effectiveness of games for medical education is still very scarce, Brazilian medical educators have shown great interest in adopting games for medical education.

**Take-home messages:** Games have a great potential as a tool in medical education and their potential uses could be more fostered.

Medical teachers and students playing (serious) cardiology games

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**Background:** A serious game is a game that is designed for a primary use other than mere entertainment. The main purpose of a serious game is to educate or train users. A very fast development of serious games industry has been observed in the last years in medicine, too. However, to the best of our knowledge, scenario based serious games had not been previously implemented in cardiology.

**Summary of Work:** An atrial fibrillation educational scenario has been designed and developed as a 3-dimensional serious game for training in the diagnosis and treatment of paroxysmal atrial fibrillation. The tool used, named mEditor, was utilized for organizing the nodes of the educational scenario and creating the game.

**Summary of Results:** The atrial fibrillation scenario based serious game was used, repurposed and evaluated in the spring school that was held during the MEI (Medical Education Informatics) 2012 International Conference in Thessaloniki, with medical educators and students as participants. The evaluation was based on a questionnaire designed by the Serious Games experts.

**Discussion and Conclusions:** The scenario based serious game in cardiology was designed and implemented with mEditor and evaluated during the 1st International Conference in Medical Education Informatics. The results from the processing of the data were very positive and encouraging to see the continuation of the effort and the extension to other medical specialties.

**Take-home messages:** Medical students have found the whole atrial fibrillation gaming/simulation scenario very useful. They seemed to enjoy their learning experience, which links well with the recently coined in term of edutainment.
**3DD7 (21798)**

**Introduction of role-play to enhance the clinical performance**

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**Background:** This study examined the effect of role-play learning on the clinical performance.

**Summary of Work:** The subjects were 126 3rd year of medical students at Chonnam National University Medical School, South Korea, 2013. During clinical clerkship, they participated in role-play learning to enhance the clinical performance at each department under the supervision of medical faculty. They were divided into Group 1 who has been a patient at least once and Group 2 who has never been a patient. At the end of the semester, all subjects took the six cases of clinical performance examination. Standardized patients (SPs) evaluated the students’ clinical performance. After the CPXs, students assessed their own patient-physician interaction (PPI) on the same checklist. We compared the PPI, when it was assessed by SPs or themselves, and clinical skills including history taking, physical examination, and patient counseling between two groups.

**Summary of Results:** There was no difference in PPI when it was assessed by SPs between Group 1 (n=88) and Group 2 (n=38). Self-assessment scores of PPI were lower in Group 1, although it was not statistically significant. However, clinical skills were significantly higher in Group 1 than Group 2 (55.8±3.3 vs 54.2±4.1, p=0.03).

**Discussion and Conclusions:** The effect of role-play learning on communication and interpersonal skills was equal for all students who played a patient or doctor. The students who served as a patient comprehended more how to approach patients.

**Take-home messages:** Role-play learning would be beneficial to improve clinical performance. The students who have experienced a patient-role may have greater expectations to interact with patients.

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**3DD8 (19418)**

**Use of comics as an innovative reflection method**

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**Hanul Kim**, Kokooshop, Illustrations, Seoul, Republic of South Korea

**Background:** As the Good Medical Practice recommends, throughout our medical training, we have been encouraged to reflect on our experiences. There are various ways to achieve this, the most common method being through plain text, but text cannot always capture the complexities inherent within the reflective process. As Frank Barnard said in 1921 ‘A picture may paint a thousand words’ and so it may be with clinical reflection.

**Summary of Work:** ‘Graphic medicine’ is a new and exciting field that incorporates the use of comics in medical education and patient care. Nowadays almost everyone would have been exposed to comics especially during childhood. Thanks to this exposure, people would have developed the graphical competence to decipher the images juxtaposed with the texts and extract a meaningful narrative in an enjoyable way. We have developed examples showing how innovative graphical illustrations can be used to share reflections on the experiences of junior doctors in training. In a society which is becoming more visually alert through advancements in technology, comics are a powerful medium through which people can learn and engage in rapidly. This project represents a first collaboration between doctors in training and a professional illustrator from Korea depicting the life of a junior doctor in the UK.

**Discussion and Conclusions:** We hope to give you a taster of this and persuade how these reflections can aid the clinicians to relate and reflect back to their own experiences of the junior years as well as giving the people from non-medical background an idea of a life of a junior doctor.

**Take-home messages:** The following link gives an example of the work: www.facebook.com/quacdr
ABSTRACT BOOK: SESSION 3
MONDAY 1 SEPTEMBER: 1045-1230

3DD9 (19022)
The impact of comics on learning and motivation in vocational education (CoForVE, Comics for Vocational Education)

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Background: Comics are defined as sequential visualized narrations (Leitner, Brade & Groh, 2012; Weber, Burmester & Tille, 2013). Important potentials of such s.v. stories is that they allow to combine the strengths of texts and pictures; that they have the potential to represent information in a situated manner; and that they present content in a narrative format. All these aspects can be beneficial for learning and motivation. Research is rare about examining these aspects of domain-specific comics for medical vocational education.

Summary of Work: To investigate these assumptions we firstly, modelled nurses’ competencies in the field of “Diabetes”. Based on the competency model we selected textbook material, developed a case-based comic, and a case-based narration including the comic-story. The content-related equivalence of these materials was checked by 3 experts. Furthermore, we developed and empirically tested two sets of test items for assessing students’ knowledge, adopted and piloted the expectancy-value form of learner motivation (Puta, Narciss & Schnaubert, 2011) to the domain of Diabetes. Finally, we conducted an experimental study with 181 nurse students (m 48/ w 131/ ns 2) comparing the impact of the comic, the narration and the textbook material on knowledge acquisition and motivation.

Summary of Results: Results of the experimental study show that students who had learned with the textbook-material, learned significantly less (MD 6, IQR 5-8) and were significantly less motivated than students who had learned with the comic (MD 7, IQR 6-8) or the narration (MD 8, IQR 6.25-9). There was however no significant difference between the effects of the comic and the narration.

Discussion and Conclusions: These findings indicate that case-based comics and narrations are equivalently more beneficial for knowledge acquisition and motivation than textbook-material.

Take-home messages: to improve textbooks via narrations and/or case-based comics.

3DD10 (21667)
Evaluating ethical sensitivity: Using videos as an instrument

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Background: Cultivating ethical sensitivity is one of the important goals for medical education. The lack of proper measurement tools made it difficult to precisely evaluate students’ ethical sensitivity.

Summary of Work: In 2013-2014, ethics leaning modules were implemented in eight courses of College of Medicine, Fu-Jen Catholic University. These leaning modules were developed by the authors and experts who excel on teaching through theatre. The effectiveness of these modules was evaluated by the instrument—“Ethical Sensitivity Video-Based Situational Assessment Tool”. This instrument developed by the authors contained two parts: six videos (3.5–6.5 minutes each) and one questionnaire. Each video contained 2-3 ethical issues about relationship and the questionnaire measures three components of ethical sensitivity: identification of ethical issues, awareness of the others’ needs, and imagination of one’s behavior consequences.

Summary of Results: Data collection is in progress. Preliminary data suggest that students found ethics learning modules interesting and useful, and their ethical sensitivity improved. A more detailed analysis will be provided.

Discussion and Conclusions: Learning ethics can be interesting and meaningful. Students’ ethical sensitivity can be measured by the appropriate instrument which could prove useful in evaluating learning outcomes.

Take-home messages: The ethics learning modules has a positive effect on cultivating students’ ethical sensitivity, which is proved by the evidence collected from using the innovative instrument—“Ethical Sensitivity Video-Based Situational Assessment Tool”.

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**3DD11 (21734)**

**Studies of the effectiveness of video clips from real patients in the pediatric electrocardiography**

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**Background:** ECG is not an end in itself, but is an extension of the history and physical examination. Patients do not visit the doctor wanting an ECG, but come for a health check because they have symptoms. Students need to understand the relation of underlying pathology of heart disease and its clinical presentation. The more students are exposed to the cases, the more understanding. Therefore, the video clips from real patients have been developed and integrated for teaching and assessment. The aim of this study was to determine the effective learning from these tools.

**Summary of Work:** 15 fifth year medical students in 2011 who have learnt congenital heart disease in clinical year 2010 participated in this study. Using Cox’s experience, explication cycle and integrated cases (VC) to the step of clinical interaction. Questionnaires were distributed to assess students’ perception.

**Summary of Results:** 100% response, students reported positive satisfaction about understanding, thinking-decision, drawing the ECG, self confidence.

>80% of students can recognized abnormality expected from the posttest ECG (RVH, LVH).

**Discussion and Conclusions:** Deep understanding in ECG is obtained through learning process via the video clips. This experience could be a bridge for further learning with real patients in clinical practice.

**Take-home messages:** Video clips is an effective media in teaching pediatric ECG. Other clinical topics in the same context could be applied.

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**3DD12 (19771)**

**Comparing hands-on and video training for postpartum hemorrhage management**

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**Background:** Postpartum hemorrhage (PPH) is a dangerous obstetric complication and its management is one of the key components in emergency obstetric care (EmOC). Quality assurance of EmOC in Sub-Saharan Africa is challenged by an outreach gap; in developing countries most obstetric emergencies take place in remote health facilities that are difficult to reach with conventional training programs. The promotion of health services via mobile technology (mHealth), has been suggested as a mean to bridge the outreach gap. The aim of this study was to compare interactive hands-on training to non-interactive video training for management of PPH.

**Summary of Work:** The objective was to compare two teaching methods for PPH management: interactive hands-on training vs. non-interactive video training. In a controlled intervention study at a secondary health care centre in Kenya, the two training methods, based on the Advanced Life Support in Obstetrics curriculum, were evaluated utilizing structured observation of a standardized scenario before and after training.

**Summary of Results:** Both intervention groups significantly increased in performance scores after training; Hands-on: 40% (29.5-47.0%) and video: 34.5% (25.0-42.0%). No significant differences in performance score or pass rates were found between the two teaching-methods.

**Discussion and Conclusions:** The findings indicate that PPH management can be improved by video training and might be as effective as hands-on training.

**Take-home messages:** Video training can improve PPH management, and might be just as effective as hands-on training. The findings of this study encourages further investigations into mHealth as a feasible way to overcome the outreach gap in quality assurance of EmOC in peripheral health facilities in developing countries.
**3DD13 (22933)**

Medical training supported by Information and Communication Technologies (ICTs)

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**Background:** Today we live in the Information Society, defined by technological changes represented by the Information Communication Technologies (ICTs), which allow information to be available instantly. This also involves changes in the training of physicians using these new tools to develop and share knowledge.

**Summary of Work:** Objective was to know "how" students of the School of Medicine of Universidad de Chile used ICTs for training and if there were any gaps on which teachers could intervene to properly orient the training, assuming that information is not knowledge.

An e-survey was sent to 1,000 medical students, with 205 surveys answered.

**Summary of Results:** 95% of students have access to the web, and use ICTs mainly to improve learning. Over 90% use the web for: books or articles download about the matter in course, communication with peers (e-mail, chat, Facebook) sharing files, or scheduling meetings. Students spend the same amount of time as before in front of the computer, therefore increasing academic activities and decreasing social and recreational.

**Discussion and Conclusions:** The data collected allow us to say that our students do not differ from those found in the literature in Western medical training. The main use that our students make of ICTs is to find/gather information and communicating with their peers. Where do teachers fit in this information flow? Students crave teacher participation, assuming they are the authoritative voices to validate and give meaning to what they gather from the Web.

**Take-home messages:** There are big opportunities for the medical training through the use of ICTs by medical teachers; they need training on using ICTs.

**3DD14 (22101)**

The comparison of epistemological beliefs and self-regulated learning between nursing and humanities students

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**Background:** Recently, nursing education curriculums emphasize the competences which are health care knowledge and skills, critical thinking and ethical attitudes, communication and so on. To facilitate these competences, nursing colleges have revised their curriculums employing various teaching and learning approaches, problem-based learning, team-based learning and action-learning. The changes of nursing curriculum help students take responsibility for their own learning, change the thinking paradigm and improve self-regulated learning. The purpose of this study was to compare the difference of epistemological beliefs (EB) and self-regulated learning (SRL) between nursing and humanities students.

**Summary of Work:** A total of 120 college students (nurse and humanities) participated in this study. They filled out a questionnaire regarding epistemological beliefs and self-regulated learning. EBQ was used to assess students’ EB. The EBQ was composed of 61 items to reflect five belief systems. The self-regulated learning was assessed using the Korean version of Motivated Strategy Learning Questionnaires.

**Summary of Results:** Both groups have not shown statistically significant difference in naive-level EB. However, the humanities group had higher sophisticated-level EB than nursing group. Significant difference existed in the two groups, and the nursing students performed higher competence than the humanities in SRL.

**Discussion and Conclusions:** Nursing students showed lower sophisticated level EB than humanities. And they showed higher achievements than the humanities in SRL. To improve sophisticated level EB, we should consider various discussion issues and student-centered learning in the class.

**Take-home messages:** There should be more attention to evaluate the nursing curriculums applied in nursing education methods and humanities subjects.
Where medical education and learning design intersect: Technology as opportunity

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Background: Time constrained medical educators often struggle with demands to develop online teaching resources. The limited number of supporting learning designers find it equally challenging to ensure expedition of learning design and course development of high quality. Initially, however, queries about learning technologies often create a space for discussions around pedagogy and curriculum.

Summary of Work: A web-authoring tool designed for elearning (CourseBuilder) has been used to facilitate rapid visualisation of ideas. Clinicians and medical educators discuss teaching and learning needs with a learning designer and after one or two sessions have a tangible visual representation of their teaching needs. Educators then continue to develop materials autonomously with minimal support.

Summary of Results: The Faculty of Medical and Health Sciences’ Learning Technology Unit’s team of five learning designers support more than 350 course sites via CourseBuilder. Sites are embedded within undergraduate and postgraduate programmes in medicine, nursing, pharmacy and population health.

Discussion and Conclusions: Prior to the use of CourseBuilder teaching staff relied upon learning designers to liaise with web developers to create online resources. When materials needed updating, this time consuming process was repeated causing ‘bottlenecks’ of work and dependence on technologists. The current approach has expanded production capacity through greater autonomy and self-efficacy for teaching staff.

Take-home messages: Used skilfully, web-authoring tools can provide a powerful nexus between medical educators and learning designers, enabling quick realisation of a tangible structure for high quality teaching resources and allowing greater focus on pedagogical and curriculum issues rather than technical ones.

Does multimedia learning theory apply to medical students?

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Background: Multimedia learning is a research-based theory focusing on how to improve learners’ information processing. Medical students, nonetheless, are teenagers with distinctively high intellectual attribute. It would be challenging to study if the multimedia learning theory applies to this population.

Summary of Work: Fifty-one 1st year medical students with problem-based learning experience participated in this study. On Day 1, we conducted a paper-based test using CRQs to assess the participants’ knowledge regarding steps in problem-based learning (Pre-test). They were, then, systematically allocated into 2 groups: (A) a group to study text (traditional); and (B) a group to learn from the student-created animation (multimedia). The content in both media was identical. After the studying period was over, they were at once reassessed using the same CRQs (Post-test 1). On Day 7, all respondents took the CRQs again (Post-test 2). After the Post-test 2, Group A participants watched the animation. Feedback on animation was collected from both groups.

Summary of Results: 78% of the respondents liked this media while 93% felt that they gained more knowledge from watching the animation. They preferred using animation as an additive to traditional lecture (59%) or self-revision (25%). However, we found no statistically significant differences between Groups A & B in terms of the changed scores (p = .714, .587, and .453 for Post-test 2 minus Post-test 1; Post-test 2 minus Pre-test; and Post-test 1 minus Pre-test, respectively).

Discussion and Conclusions: (1) Animation was not better than traditional media in our study. (2) Students like the animation created by their student fellows.

Take-home messages: (1) Research on medical students may find something different from general population. (2) We recommend student involvement in learning media production.
3DD17 (23174)
Visual Thinking Strategies in Medical Education – Benefits for Teachers

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Background: Visual Thinking Strategies (VTS) is a teaching method based on highly-structured discussions of visual art of increasing complexity. VTS is thought to enhance critical thinking and observation skills and to help students understand ambiguity and difference of opinion. University College Cork (UCC) is the first European University to introduce VTS into the healthcare curriculum (across all disciplines). There has been no research into the benefits of VTS facilitation for the VTS teachers themselves.

Summary of Work: The aim of this study was to identify potential benefits of VTS facilitation for teachers. Faculty from all healthcare disciplines facilitated a six-week VTS programme for medical students. Teachers’ opinions and attitudes were assessed using semi-structured interviews and written response analysis.

Summary of Results: VTS provided a unique opportunity to teach across all disciplines and to observe group dynamics. Key themes included potential benefits of VTS for facilitators’ listening, observation, and facilitation skills. Facilitators enjoyed teaching VTS and found that medical students engaged well with VTS. VTS fostered conversation among students from different cultural backgrounds.

Discussion and Conclusions: VTS has potential benefits for VTS teachers including development of skills in attentive listening, focused observation, expert facilitation and managing group dynamics.

Take-home messages: In addition to benefits for students, VTS may also have important benefits for teachers.

3DD18 (22486)
Exploring guideline compliance of BLS performance from situativity perspectives

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Background: Situativity theory informs us that authenticity of learning situation in training may affect the BLS performance in real situation. There are two perspectives of authenticity including authenticity of individual cognition and social interaction.

Summary of Work: This prospectuve observational study was conducted with machine auto-recorded QCPR (Quality of Cardio-pulmonary Resuscitation) data assisted by performance video. 110 clerkship medical students participated in 17 groups’ in-hospital resuscitation simulations after they attained BLS certification (AHA BLS training model) and Emergency Department clerkship. The individual performance quality and guideline compliance rate for four BLS components in the simulations were analyzed.

Authors’ prospective prediction and participants’ post-simulation focus-group interview were conducted to interpret the performance analysis based on the situativity perspectives.

Summary of Results: The individual performance quality and guideline compliance rate (mean/SD of quality, mean of compliance rate) were that compression speed (123.4/15.7 per minute, 94.9%), compression depth (41.4 /7.0 mm, 17.2%), compression recoil rate (91.3/18.6%, 77.5%), compression-ventilation collaboration (not applicable, 46.8%). Participants’ interview indicated the lack of cognitive authenticity of compression depth and the lack of interaction authenticity of compression-ventilation collaboration in BLS training may be the reason behind the guideline compliance pattern. This result was compatible with authors’ prediction based on situativity perspectives.

Discussion and Conclusions: Situativity theory provides two perspectives to analyze the authenticity of learning that is useful to exam BLS training design and predict performance outcome in some BLS components.

Take-home messages: Taking cognitive and social interaction authenticity into consideration in those workplace-based ability similar to BLS is thoughts worth thinking for training design and research about knowledge-to-practice gap.
3DD19 (23185)
Health promotion on diabetes: educational game as strategy to engage
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Background: The use of games as an educational strategy has the potential to improve patients' performance through improving their knowledge, skills and attitudes. And is a form of instruction where students learn professional competencies within a community. The aim is to describe the experience of educational meetings for promotion of self-care in diabetes.

Summary of work: We have designed a game to provide concrete experiences for students and patients with diabetes. "Diabetes Bingo" is a card game that illustrates etiology, pathophysiology and complications of diabetes, also demonstrating the importance of self-care, the practice of physical activities and review of some habits - diet, smoking, and alcohol consumption. After the game is played, students and patients undergo a structured debriefing session with faculty members to further enhance their self-reflective skills.

Summary of results: The actions taken allowed the exchange of experiences and knowledge construction by the members, beyond the understanding of the individual experience of this disease by health professionals and students. The impressive aspect of this practice is how use this game to hone their skills in self-care. The actions involve great mental concentration and intense exchange, punctuated by episodes of laughter and joy.

Conclusions: The actions improve the quality of life for patients. It add fun to the process of learning while promoting understanding and retention of the subject by students.

Take-home message: The game can be used to promote independent learning in a variety of ways. The key ingredients are that participants’ should have opportunity to teach others (peers and the teacher) what they learned.
Assessment of the educational environment at a medical college in Yemen

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Background: Objectives: To assess the educational environment at faculty of medicine, University of Science & Technology, Yemen, and to identify areas of this educational environment that should be enhanced.

Summary of Work: In this cross-sectional study, the 50-item Dundee Ready Education Environment Measure (DREEM) inventory (Arabic version) was used. It was administered to 250 undergraduate medical students of University of Science & Technology (UST) in December 2012. The purposes of the study as well as confidentiality were explained to the students before distribution of the questionnaire. Data were analyzed using SPSS 18 software.

Summary of Results: The response rate was 80.4 % (201 out of 250 students; 88 males and 113 females). The overall DREEM score was 111.5/200 (55.7%). This result indicated that the UST medical students’ perception of educational environment was more positive than negative. The mean total scores for students’ perceptions of learning, students’ perceptions of teachers, students’ academic self-perceptions, students’ perceptions of atmosphere, students’ social self-perceptions were 24.9/48 (51.9%), 27.2/44 (61.7%), 19.2/32 (59.8%), 24.4/48 (50.9%), and 15.8/28 (56.4%), respectively. These results showed that the students’ perceptions of atmosphere domain had the lowest score. Regarding the mean scores of items, the score of item 3 (There is a good support system for students who get stressed) was the lowest one (0.81) indicating the pressures suffered by the students.

Discussion and Conclusions: This study revealed that the medical students of UST perceived the learning environment positively. It also revealed some low-scored areas of learning environment that need some remedial measures (especially support of students and feedback).

Take-home messages: DREEM revealed areas that need to be improved, especially support of students and feedback.
3EE3 (23078)
Medical students' perception of the teaching environment in a Brazilian University
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Background: Positive teaching environments stimulate the acquisition and incorporation of newer concepts; conversely, negative student perceptions tend to harm such learning.

Summary of Work: To investigate their teaching environment, students from all years of the Universidade Nove de Julho (totalling 550 students) were invited to complete the Dundee Ready Education Environment Measure (DREEM), a questionnaire with a maximum of 200 points in 50 questions. It is divided in 5 dimensions (maximum scores): learning (48); teachers (44); student life (32); environment (48); social life (28). Answers were assessed with a Likert scale from 0 (strongly disagree) to 4 (strongly agree). Analysis with SigmaStat (SPSS, Chicago, IL) described variables as to their average, standard error, median, minimum and maximum values. Statistical significance of the averages’ correlation was assumed if p<0.05.

Summary of Results: Responses from 432 students were analyzed. The overall score was 105 (minimum 30, maximum 181), without significant gender differences. The lowest-graded dimension was social life, with an average of 10.72; the dimension with the best grade was ‘teachers’, with an average of 24.52. Analysis with SigmaStat (SPSS, Chicago, IL) described variables as to their average, standard error, median, minimum and maximum values. Statistical significance of the averages’ correlation was assumed if p<0.05.

Discussion and Conclusions: The overall score indicates a predominantly positive view of the learning environment by the students in spite of their very low perception of their social life. Although the general perception of the environment was positive, critical aspects (social life being a case in point) were detected, deserving attention from decision-makers.

Take-home messages: Even in a medical course with a very good overall perception, the negative impact of medical education on the students’ social life was detected; such known aspect of medical education should be on the educators’ agenda.

3EE4 (19679)
Pre-Clerkship Medical Students' Perceptions of the Learning Environment at Arabian Gulf University/ Bahrain
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Background: Learning environment in any medical school is found to be important in determining students’ academic performance. This study was undertaken to seek the perception of pre-clerkship medical students regarding the learning environment at Arabian Gulf University (AGU), Kingdom of Bahrain.

Summary of Work: Aim: The purpose of this study was therefore to evaluate the educational environments Arabian Gulf University medical schools in Bahrain, Pre-Clerkship Medical Students using the Dundee Ready Education Environment Measure (DREEM) inventory. Methods: The combined Arabic and English version of the Dundee Ready Education Environment Measure (DREEM) instrument was used. DREEM has previously been validated as a diagnostic instrument for assessing the quality of educational environment. DREEM instrument was administrated to undergraduate medical students (n=324) of pre-clerkship phase of the AGU medical program (second, third and fourth academic years) and the scores were compared using non-parametric and parametric tests.

Summary of Results: No significant difference in the students’ perceptions were found with regard to: academic year of study and gender, while nationality and academic achievement (grades) showed significant difference (p value was 0.048 and 0.018, respectively).

Discussion and Conclusions: The present study revealed that all pre-clerkship students perceived the learning environment positively. Nevertheless, the study also revealed some problematic areas of learning environment in AGU medical school that may need some remedial measures.

Take-home messages: The overall results of the present study suggest that some changes need to be introduced in the educational strategy and process at AGU medical programme. These changes would be of immediate value to the students, the teaching staff and the institution.
3EE5 (21883)
Education environment of undergraduate students in Prapokklao Hospital

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Background: The Medical Education Centre of Prapokklao Hospital has an undergraduate medical curriculum. Our centre had assessed the education environment only in teaching and learning aspects. This study assesses more aspects.

Summary of Work: 88 medical students used the Dundee Ready Education Environment Measure (DREEM) form in 50 items which had a score of 0 – 4 and domains of learning, teaching, academic self perception, perception of atmosphere and social self perception.

Summary of Results: There are 43 male and 45 female students. The mean of scores was 139.50. The male had higher scores than female (142.605, 136.53). The 6th year students had higher scores than 5th and 4th year students (142.16, 136.85, 139.64). The high GPAX had higher score than low GPAX (145.39, 139.24, 134.85). The lowest item was “The teaching over-emphasizes factual learning” and lowest aspect was Students’ social self perceptions.

Discussion and Conclusions: Education environment in Medical Education Centre of Prapokklao hospital had a high score and no difference in gender, level of class and GPAX.

Take-home messages: Medical Education Centre should pay attention to all aspects and items of education environment especially Students’ social self perceptions and low score items.

3EE6 (21882)
Assessment of factors influencing a clinical learning environment in a Mexican clinic

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Background: The clinical environment is a concept of great importance in medical training because it affects student satisfaction, learning and academic success. In this work the ACA-UNAM, MEX instrument developed by Sutton et al Hamui Alicia in 2013, to evaluate clinical learning environments was used.

Summary of Work: Cross-sectional study. 46 doctors are being trained in specialty Family Medicine in a Mexican clinic, on the UNAM program. The survey was the ACA-MEX-UNAM questionnaire validated in the Mexican population. The instrument consists of 28 items distributed in four different dimensions: interpersonal relations (6), educational processes (9), organizational culture (6) and dynamic service (7). Each item is likert-type, rated from 1 to 4 according to the following assessment: 4: always; 3: regularly, 2: sometimes, and 1: almost never. Five surveys were eliminated because they responded with the same score for all items.

Summary of Results: The overall score was 139.4 for educational environment from a maximum of 160 (86.6 %). The best qualified area was Educational Program and its implementation (89.55%), and the lowest score was the Interpersonal Relations (86.98 %). The question with the lowest score is the interest of the teacher to meet beyond the professional, and the highest was the communication with the teacher in academic affairs.

Discussion and Conclusions: In this study it was found in a Mexican clinic that students are more expansive in educational environments.

Take-home messages: It is possible to evaluate the clinical learning environment with ACA-MEX-UNAM instrument.
3EE7 (20598)
How do UCEEM scores correlate with other variables related to workplace learning climate? Further exploration of validity and usability of the Undergraduate Clinical Education Environment Measure

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Background: In a previous study, evidence from various sources supported the validity and reliability of the UCEEM, a 25-item instrument developed to assess medical student clinical educational climate (Strand et al. 2013). However, the evidentiary model (Cook & Beckman 2006) suggests that the relationship of instrument scores to other variables and consequences of instrument use are underutilized additional sources to assess construct validity. Thus, the aim of the present study was to further explore the construct validity and usability of the UCEEM by investigating the relationships of UCEEM-scores to other variables relevant to the learning climate being measured.

Summary of Work: The UCEEM is currently used at different time-points during interventions intended to improve educational environments and supervisory practices at clinical departments. At two departments, the UCEEM was distributed together with the Maastricht Clinical Teaching Questionnaire (Stalmeijer et al. 2010), an instrument evaluating individual clinical teachers. Additional qualitative data including interviews with various stakeholders was collected to further evaluate the usability of the UCEEM.

Summary of Results: Results indicate that MCTQ-scores at department-level correlate with UCEEM-scores on related supervisory dimensions. Higher UCEEM-scores after quality improvement interventions coincided with awards for “best clinical rotation” in two of the studied departments. Interviews showed that student and teacher narratives of educational climates corroborated the UCEEM-scores. Teachers and educational leaders reported that results were used to target areas for development. Stakeholders valued the feasibility and scientific approach of both instruments.

Discussion and Conclusions: Relationships between scores and other variables including qualitative data support the construct validity and usability of UCEEM.

3EE8 (20593)
Do scores make a difference? Consequences of using the Undergraduate Clinical Education Environment Measure (UCEEM) and the Maastricht Clinical Teaching Questionnaire (MCTQ)

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Background: In previous studies, evidence supported the validity and reliability of scores from the UCEEM (Strand et al. 2013) and the MCTQ (Stalmeijer et al. 2010), instruments developed to assess medical student clinical educational climate and individual clinical teachers. However, Cook & Beckman (2006) suggest that instrument scores should be supported by a variety of validity evidence including consequences of using an instrument. Thus, the aim of the present study was to investigate consequences of using the UCEEM and the MCTQ to further explore their validity and usability.

Summary of Work: The UCEEM and the MCTQ were implemented in clinical departments at different time-points during interventions intended to improve workplace educational environments and teaching practices. The evaluation process and results were discussed with teachers and educational leaders in faculty development projects. Through documentation of score discussions and measures taken to furthering the processes of improving the educational environments, and through interviews with students and other stakeholders, we studied the consequences of using the instruments.

Summary of Results: Results imply that the feedback generated by the two instruments and the dialogue evolving from the evaluation process had a favorable impact on learning climates and supervisory practices. Preliminary results show how UCEEM scores improved after measures were taken to further develop aspects of the educational environments. Students, teachers and educational leaders reported that the feedback yielded by the instruments raised awareness of e.g. learning objectives and strategies supporting student autonomy and participation in workplace practices.

Discussion and Conclusions: Evidence of consequences supports validity and usability of the UCEEM and the MCTQ.
3EE9 (21590)
Improving the learning environment at the University of Vermont College of Medicine

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Background: US Medical students report on the annual AAMC graduation questionnaire a significant incidence of mistreatment (e.g., public humiliation, 23%; sexist or ethnically offensive remarks, 14% and 7%, gender bias, 5%). The University of Vermont College of Medicine (COM) undertook a comprehensive effort to ensure that all stakeholders help promote positive and mitigate negative influences in the learning environment.

Summary of Work: The Dean created the Learning Environment and Professionalism (LEAP) committee, comprised of learning environment participants (physicians, scientists, residents, nurses, students) to formulate policies and create an action plan. Goals included improved confidential reporting of mistreatment, increased awareness, and streamlining of policies, reporting and adjudication procedures.

Summary of Results: The LEAP committee regularly monitors progress and evaluation data. An ombuds-person was hired for confidential consultation with learners and others. All course evaluations now address the learning environment. A confidential online reporting system was created and information on reporting mistreatment was imprinted on student identification badges. A curriculum including video vignettes was created to educate the learning community about professionalism and mistreatment. A student committee authored an honor code outlining their responsibilities in the learning environment that was overwhelmingly passed by a vote of each class.

Discussion and Conclusions: Changes in procedure were well received and implemented in all services. Early evaluation data indicate greater awareness of policies and high satisfaction with the ombuds-person.

Take-home messages: Maintaining a professional learning environment requires an institution-wide effort from all stakeholders.

3EE10 (19106)
Sex, gender and perceptions of educational environment in first year medical students

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Background: To ensure higher education quality, factors like students’ perceptions about educational environment (EE) must be considered. According to gender schema theories, there are differences between gender and sex, which motivated this study (Sponsored by FONDECYT #1121002).

Summary of Work: Barra’s Inventory of Sexual Role (IRI), Programs Assessment Scale (EEP) and Dundee Educational Environment Scale (DREEM) were applied to 70 first year medical students from the University of Concepción, Chile, prior informed consent.

Summary of Results: Analyzing the combined effect of sex (male / female) and gender (masculinity / femininity) on the dimensions of EEP and DREEM, multiple regression models do not make a statistically significant prediction of students’ perception about EE. Individually, by relating it to EEP, female is associated with more positive attitude toward career goals ($t = 2.28$, $p <0.05$).

Discussion and Conclusions: Women, controlling gender effect, were more interested in career goals. Feminity, controlling sex, valued more positively assessment and time distribution. The relationship between masculinity and EE may be associated with the valuation of masculinity in health formative processes. Perceptions of EE are related to sex and gender only for some dimensions of scales applied.

Take-home messages: Sex and gender influence academic experiences, in different ways.
Welfare of medical students and climate at the University of Botswana School of Medicine

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Background: New medical schools within the sub-Saharan-Africa have experienced a growing concern of students' dissension towards their learning and living environments. Despite this, there is limited research in the region over the cause(s). There are studies looking at educational environment in medical schools in addition to the various stresses students encounter. We however chose to use an in-house survey that addressed climate and living conditions and concerns of students in a developing country. The survey was targeted to enrolled Medical Students at the University of Botswana, School of Medicine (UBSOM). The curriculum at UBSOM is problem based therefore requires self-directed learning. The objective of the study was to better understand the welfare of students at UBSOM.

Summary of Work: The survey was blinded and voluntary. We sought to evaluate the perceptions and expectations of the students. The survey encouraged students to share their views on how UBSOM climate could be improved. Due to limited availability, the majority of students were not offered accommodation in the university residences. We also researched on the setbacks of living in various environments.

Summary of Results: Sixty-six percent of students participated in the study. The total mean scores for students' perception of the climate at UBSOM was positive. However, student perception of their living environment was disparaging.

Discussion and Conclusions: Students at UBSOM perceive the educational environment as having more positives than negatives. However, a number of areas need improvements.

Take-home messages: Schools within Sub-Saharan-Africa need to look closely at conditions in which students live, study, learn and work in order to build better medical professionals.

Clinical educational environment at the end of the Internship of Medicine in the School of Medicine, University of Chile: PHEEM survey results

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Background: The educational commitment is an obligation of educational institutions. For this, we must look at determinants of achievement in undergraduate education such as the educational environment, defined as "the most important manifestation and conceptualization of the curriculum".

Summary of Work: Objective: To describe the perception of the educational environment in boardroom Hospital Gynecology and Obstetrics, Internal Medicine, Pediatrics and Surgery. Methods: Cross-sectional study using the survey PHEEM 2012 to 164 graduates, for internship and campus. Determination of differences by campus or internship. Calculating partition coefficient of variance, including survey, internship and campus.

Summary of Results: The overall score was 103.70 ± 42.38, corresponding to "an educational environment more positive than negative, with room for improvement". The interpretation by dimensions of Autonomy, Perceived Social Support teaching was "more positive than negative", "headed in the right direction" and "more pros than cons" respectively. No major differences in the breakdown by campus and interned were found.

Discussion and Conclusions: The Medical School of the University is situated very close to other national and international institutions with a student-centered curriculum. To measure and analyze these results permanently will assess the impact of changes in clinical practice and curricular innovation processes.

Take-home messages: The educational commitment is an obligation of educational institutions. The educational environment is a feature that should be evaluated for continuous improvements in undergraduate schools. This research shows this process to also contribute to the development of knowledge in view of the introduction of these processes by other educational institutions.
3EE13 (20268)
Life Narratives, our memories and lessons – Humanization in teaching and assistance

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Background: The process of narrating one’s own experience contributes to the re-significance of one’s own trajectory.

Summary of Work: We collected narratives about humanization experiences during a Faculty Development Process in Brazil among 480 health professionals. The participation on the study was voluntary. Qualitative analysis was performed aiming at comprehension of the meanings attributed to “humanization”.

Summary of Results: 114 women and 14 men from different health professions and fields wrote their stories. Analytic categories emerged and were divided into values and actions associated with humanization. Values expressed as inherent to humanization were: respect of the patient’s culture, his/her singularities and rights as a citizen, valorization of the human and the health team, affectivity, ethics and justice. Humanization was also expressed in behavioral changes translated into actions such as: to perceive and respond to the patient’s needs, to accept, to empathize, to care, to understand and to share responsibility.

Discussion and Conclusions: Humanization of teaching and assistance is expressed in the commitment to the autonomy of each individual and appreciation of the health professional.

Take-home messages: The narratives are a strategy to development of a critical view about health professional practices.

3EE14 (22230)
Visiting tour of medical humanities museum to explore the humanistic issues of medical practice - a pilot study

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Shu-Chen Chen, Cathay General Hospital, Department of Medical Education, Taipei, Taiwan

Background: The curriculum of medical museum tour as a part of medical humanities education can be a special design. Museum of Medical Humanities of National Taiwan University College of Medicine, with its elegant architecture and historical value, is a unique humanities museum in Taiwan. It regularly holds special medical and cultural exhibitions, demonstrating the contributions of the college to medical development in Taiwan. It also provides educational and research information relating to medical humanities.

Summary of Work: In view of potential contribution of medical humanities museum touring to the educational qualities of humanities, we designed a pilot curriculum of exhibition tour for 52 medical students including clerk, intern and postgraduate first year physician (PGY) to visit the Museum of Medical Humanities. The curriculum contents include (1) main topic of human evolution and health plans for aging society; (2) humanistic issue exploration in medical practice through role presentation, topic discussion and video observation. They were asked to fill in questionnaires before and after the visit. The questionnaires and term reports were analyzed.

Summary of Results: The results showed improvement of self-awareness about human evolution (3.67 to 3.85, Likert scale) and human aging (3.97 to 4.23) before and after the visit. Satisfaction survey showed 78.8% for human evolution and 86.5% for human aging. The overall satisfaction score for the visit was 82.1%.

Discussion and Conclusions: The tour of the medical humanities museum plays a novel role in medical humanities education. It can stimulate the students’ awareness of humanities and promote their qualities of humanism through the museum visit, role presentation and critical discussion.

Take-home messages: What is the potential role of medical humanities museum to the medical humanities education?
Abstract Book: Session 3
Monday 1 September: 1045-1230

3EE15 (22342)
Teaching reflection, like dark clouds on summer day, can Haiku assist? How poetry affects the quality of undergraduate reflective writing

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Background: During a compulsory one week undergraduate teaching skills course, students are asked to reflect on an episode/thought that has impacted on them using a ‘what – so what – now what’ model. Engagement with this task was initially poor because it was perceived as boring and of limited utility but improved when a choice of creative modalities were proposed to express ‘What’ e.g. poetry, photography, art work.

Summary of Work: To evaluate and improve our teaching we have analysed student reflections using an ISCE framework (information, self-awareness, critical analysis, evidence of learning). Each domain was independently assessed by both authors and consensus reached by discussion. Quality of reflection was compared in 3 student cohorts between the two most frequent formats, prose (n=27) and haiku poetry (n=21).

Summary of Results: Overall quality was similar with both modalities but students submitting haiku were more likely to express thoughts and feelings clearly (17/21, 81% haiku versus 13/27, 48% prose) and to allude to their feelings (15/21, 71% haiku versus 7/27, 26% prose). Conversely students submitting haiku were less likely to comment on feelings of others or provide a clear plan for future learning.

Discussion and Conclusions: Increased expression of feelings with haiku may reflect the preferences/talents of students who choose to write them; alternatively the inherent restriction of syllables and mathematical approach to expression may be encouraging students to reflect more deeply on their feelings. We need to ensure our teaching leads to consideration of all aspects of reflection regardless of modality of expression.

3EE16 (22652)
A study to explore the nature of self-reflective essays from a course on Narrative Medicine

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Background: Medicine practiced with narrative competence may provide a better understanding the complex interactions among doctors, patients, colleagues, and the public (Charon, 2001). The study and practice of Narrative Medicine (Charon, 2006) provides insight into the human condition, suffering, personhood, our responsibility to each other, and offers a historical perspective on medical practice. In particular, attention self-reflection through writing nurtures skills of observation, analysis, empathy, and self-reflection – skills that are essential for humane medical care.

Summary of Work: This paper examines 30 essays written by students illustrating their self-reflective practice. These essays were collected as a part of a course in Narrative Medicine taught over the last three years. The Institutional Review Board has reviewed this study. Methods of analysis include qualitative content analysis to find themes across essays.

Summary of Results: Results show that students write about personal and professional issues. They use a standard essay format to convey these experiences. The essays include positive and negative experiences. Most students include global explanatory statements (Peterson & Seligman, 1987) to indicate their positive, negative, and hopeful and fearful stance towards their future as clinical professionals.

Discussion and Conclusions: The teaching of this course on narrative medicine has revealed that students are able to learn and share about their lives with their fellow students in a supportive environment. Writing over the course of a semester provides an opportunity to create a personal practice in self-reflection.

Take-home messages: These findings have implications for how medicine practiced with narrative competence is a model for humane and effective medical care.
Teaching professionalism through the language course for medical students: A study on using Humanities to teach values and develop medical students' professional skills

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Background: The past decades have seen a considerable growth in the medical humanities as universities strive to dissolve perceived barriers between subject areas, and medical educators seek ways of addressing human values in biomedical practices. This study investigated if issues of medical professionalism can be addressed in a General Education setting integrated with the humanities and PBL for medical students.

Summary of Work: The study, conducted in 2012-13, recruited a sample of 60 first-year Taiwanese medical students who took an English reading course. Topics such as Tradition and Values, Medicine, Life and Ethics were carefully designed, and materials such as short stories, painting were included. Each topic includes a PBL section intended to instigate the development of professional values in the students. Qualitative data based on PBL observations, student reflections, participant observations from other students, and interviews with students were collected and analyzed using Grounded Theory.

Summary of Results: The findings of data showed that students demonstrated improvement in: 1. observational and analytical skills, 2. critical reflection, 3. linguistic skills, and 4. awareness of professional values.

Discussion and Conclusions: The use of humanities can prompt medical students to engage in reflection of their profession, their identity and the very ethos that guides their education. By integrating humanities into PBL, students also developed observational and critical thinking ability required for their future profession.

Take-home messages: The results of this research demonstrated that humanities can serve as an invaluable resource in general education courses for medical education, combining opportunities for meaningful subject engagement and exploration of values and attitudes relevant to developing their professional identity as health providers.
3EE19 (21106)

Students’ perception on observational skills training in medical education: the role of fine art paintings

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Background: Observation is one of the important capabilities in a clinician. Learning how to observe is, however, a challenging process. The systematic observation of paintings is one means to enhance medical students’ observational skills. Our aim were to capture students’ perception regarding the use of visual arts in the observational skills’ learning process.

Summary of Work: One hundred and five students from the first year of medical school underwent two activities that occurred within the discipline of medical skills, where they were encouraged to think and understand the possible physical and environmental characteristics of individuals represented in art paintings. After a week, they answered a questionnaire about their perceptions around the impact of art paintings in their observational skills’ learning process.

Summary of Results: 99% of students agreed that observational skills is essential to medical practice and 95% that help to find clues that improve the ability to infer the physiological/pathophysiological state of patients. Regarding the use of paintings, the majority of students considered that art can assist in medical learning (85%), is useful for the development of observational skills (93%), can be beneficial for future medical practice (89%), can help improving the diagnostic capacity (80%), can help improving the perception of the patient’s living environment (77%), influenced the way they look at things (80%), was enjoyable (84%), would like to use again (80%), and should be incorporated into the curriculum (72%).

Discussion and Conclusions: Students have positive perceptions about the use of art paintings for the development of observational skills.

Take-home messages: Students see art paintings as a powerful tool for the development of observational skills.

3EE20 (21175)

Persistence of attitude of graduated doctor after humanity in medicine teaching: A follow-up study

Satang Supapon*, Khon Kaen Medical Education Center, Khon Kaen, Thailand

Background: KKMEC has been teaching humanity in medicine by a transformative learning approach for 6th year medical student since 2006. The students joined four to six three-hour activities throughout each academic year and overall response show 90% was changed their attitude of patient caring by this activities. The follow-up study aim to prove the persistence of attitude change after graduation.

Summary of Work: Visiting of all graduated doctors among 2010, 2012 at district hospital was done (N = 96). Self-administration questionnaire about attitude with humanity in medicine was created and completed by each doctor. Results reported by descriptive and content analysis.

Summary of Results: Eighty eight percents of doctors reflected that the activities were highly useful for their practice. They also reflected that teaching had affect on how kindness of caring the patient, good relationship with patient, pride on being doctor, voluntary manner, and happiness of working in rural hospital (high rating with 95%, 93%, 92%, 92% and 90% respectively). Qualitative analysis of free writing comments showed that 30% of them reflected about changing their attitude with patient care but didn’t report how they practice, 25% reported that they do holistic care better, and only 10% said what they’ve learned was useless and couldn’t apply with their practice.

Discussion and Conclusions: Humanity in medicine teaching by transformative learning activities had persistence effect on attitude of caring patient of most students even 2 years after graduation.

Take-home messages: Teaching humanity in medicine effect on good attitude of being a doctor and how student caring the patient, and transformative learning could be persistence.
Perceptions of fifth-year medical students on narrative medicine in clerkship of internal medicine

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Background: Narrative medicine is medicine performed with narrative skill and was offered as a model for humanism and effective medical practice. The aim of our study is to determine the perception of narrative medicine in fifth-year medical students.

Summary of Work: Two hundred medical students were enrolled in a thirteen-week clerkship of internal medicine during the 2012–2013 academic year. There were 6-8 students with each clinical teacher, reading the narrative writing with feedback and reflection during one-hour small group discussion. Student's perceptions of the narrative medicine experience also were determined by a 10-question survey with a 5-point Likert scale.

Summary of Results: The survey response rate was 86.6% (200/231). Students' responses to 5 items addressing student perceptions of the narrative medicine yielded a larger reliability (Cronbach alpha=0.930). Students' perceptions about the narrative medicine were favorable for agreement (strongly agree and agree) in the enhancement of reflection (85.5%), empathy (78.5%), and relationship between patients and doctors (72.5%), but less favorable agreement in relieving pressure during medical care (34.0%) and keeping writing motivation (37.5%).

Discussion and Conclusions: Perceptions of medical students on narrative medicine were more favorable in the enhancement of reflection, empathy, and relationship between patients and doctors, but less in keeping writing motivation. It deserves to develop a strategy to promote narrative writing in early pre-doctoral medical education for enhancing reflection and empathy.

Take-home messages: Students' perceptions on narrative medicine were more favorable in reflection and empathy, but less in motivation of keeping narrative writing.
Study engagement as an important factor on medical students' outcome

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Ernesto Rodriguez, Universidad Anahuac Mexico Norte, Health Sciences Faculty, Mexico City, Mexico
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Mariana Alvarez, Universidad Anahuac Mexico Norte, Health Sciences Faculty, Mexico City, Mexico

Background: For several years, we've heard how much time medical students say they invest on their study time and how they don't always obtain the expected outcome. Sometimes they feel frustrated and motivation starts to decrease.

Summary of Work: We conducted a study on 400 medical students using Utrecht's Study Engagement Survey (UWES-S), demographic variables, amount of time students study on and out of campus, how much time do they invest in their transportation from and to their homes, and which elements they consider to be distracters from their studies. Our goal was to analyze if the study time was really quality study time, or if it was time that lacked of concentration and engagement.

Summary of Results: There is a multiple correlation between the three UWES-S variables. Our data base's confiability is 80%, most students study on campus and they obtain a greater amount of study engagement compared to studying at home. The degree of absorption was higher than expected. Students with lower study engagement values were those who described their study time wasn't quite reflected on their outcomes.

Discussion and Conclusions: Study engagement is how students involve themselves on the study process. Using the Urtech-S scale we discovered those who studied and spent more study time on campus obtained better outcomes than those who didn't. Student's who had lower engagement values were the ones who complained about the time spent and general outcomes.

Take-home messages: We should emphasize on increasing study engagement on our students and help them gain the most of the time they invest on their learning.

Tips for developing student engagement – lessons from curriculum renewal

Gary Hamlin*, Bond University, Medicine, Gold Coast, Australia
Linda Crane, Bond University, Medicine, Gold Coast, Australia
Michelle McLean, Bond University, Medicine, Gold Coast, Australia

Background: Bond University School of Medicine, a private Australian medical school, with an intake of 100 domestic undergraduate students, renewed the MBBS programme in 2013. A central focus in first year of the guided, hybrid PBL programme has been to place the student at the centre of learning by enhancing their engagement.

Summary of Work: Year 1 students' perceptions of their learning experiences were garnered from: centralised University evaluation, weekly feedback embedded in the PBL process and written feedback to the Student-Staff Liaison Committee.

Summary of Results: Triangulation from the 3 sources of student feedback yielded 12 tips to foster student engagement.

Discussion and Conclusions: 1. Encourage student involvement in programme planning/management
2. Recruit committed educators, scientists and clinicians
3. Team teach to guide integration
4. Use cases to link theory with practice
5. Train students to identify learning outcomes, linked to course outcomes
6. Structure opportunities for students to link learning within and across sessions, cases, topics and domains
7. Provide a range of learning opportunities to support diverse preferences
8. Increase student participation in lectures
9. Plan student participatory sessions, e.g. the flipped classroom, for the application of knowledge in areas such as the foundation sciences
10. Make learning sessions/materials available for revision, e.g. session recording
11. Debrief following placements in community settings
12. Structure assessments, include practice and feedback

Take-home messages: Student engagement can be enhanced by student involvement in all aspects of curriculum from planning to delivery, and assessment to feedback.
ABSTRACT BOOK: SESSION 3
MONDAY 1 SEPTEMBER: 1045-1230

3FF3 (22114)
Intermediate lobbyists, involving students in curriculum design and planning committees

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Asja Maaz, Charité – Universitätsmedizin Berlin, Dieter Schefner Centre for Medical Education, Berlin, Germany
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Presenter: Peter Arends*, Charité – Universitätsmedizin Berlin, Dieter Schefner Centre for Medical Education, Berlin, Germany

Background: While student representatives’ involvement has expanded in medical faculties, little is still known about their position and performance in curricular planning committees. The Charité – Universitätsmedizin Berlin introduced a new competency-based medical curriculum in 2010 which has been subject to major revision in 2013/14. Medical students have been continually involved in the curricular design and implementation process. This survey clarifies students’ role within the curricular revision committee and points out their view on curricular development.

Summary of Work:
A focus group with medical students of the Charité was conducted and analysed. All of them were involved in the faculty’s planning committee in charge of the ongoing revision of the new curriculum as regular members or contributing participants. In addition, this survey consolidated data from participatory observations of 15 committee meetings.

Summary of Results:
Data obtained was analyzed via content analysis. The survey provided a characterisation of the students’ standpoint on the curricular revision process. Interestingly, students underestimated their actual performance and influence observed in the committee meetings. The same applied to the students’ perceived scope of action compared to their influence on decisions made in the committee.

Discussion and Conclusions: Students are an essential part of the Charité’s curricular revision process. The observed group of medical students shows a high motivation for committee engagement. The exploration of their role perception, performance and strategies can help draw conclusions on how to improve students’ involvement in curricular committees.

Take-home messages: The students’ role in curricular committee work is worth a closer look.

3FF4 (22366)
Development of the web-based formative test: the assessment of students, by students for students

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Kawee Voratarapong, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
Tatchanapong Chongcharoenyan, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
Tanat Lertussavavivat, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
Danai Wangsaturaka, Faculty of Medicine, Chulalongkorn University, Pharmacology and Medical Education Unit, Bangkok, Thailand

Background: Formative assessment, student engagement and technology-enhanced learning are ones of many innovative ideas in the 21st century medical education.

Summary of Work: Wishing to develop the student-owned, web-based formative test, we – a group of 3rd year medical students – conducted a survey with our classmates to assess their needs. HTML5, PHP5, JavaScript, CSS3, and SQL were then used to create the website. After launching the project, we distributed another questionnaire to obtain feedback from our peer students.

Summary of Results:
Based on the need analysis, the test format of our website is one-best answer MCQs. Other features include feedback, email logging-in, timer, scoring, and discussion board. The evaluation result shows an overall satisfaction of 4.21 of 5. Respondents felt that the most important advantages of this website were sustainability (41%), accessibility (21%), academic discussion (21%) and self-assessment (17%). When comparing the ratio of participants preferring classroom or web-based format of formative assessment, before and after launching the website, we find no statistically significant difference (p = .09). When asked for future contribution, they preferred item-entering (91%), item-editing (84%), feedback-providing (75%), and website-maintaining (47%). Our website currently contains 830 items – all of which were added by our peer students.

Discussion and Conclusions: The web-based formative assessment has successfully been created and welcomed.

Take-home messages: Development of the web-based MCQs for formative assessment is not beyond students’ reach.
3FF5 (22280)
Specialist nurse students' expectations when starting the programme in psychiatric care

Ulrika Södergren*, Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, Division of Nursing, Huddinge, Stockholm, Sweden
Lena Nilsson Wikmar, Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, Division of Physiotherapy, Huddinge, Stockholm, Sweden

Background: To have a scholarly specialist nurse programme in psychiatric care, we should not only offer a programme that fulfills the requirements of the official documents, but also consider the students’ expectations when starting the programme. By taking the expectations of the students’ into account, we shall be promoting their responsibility and self-directedness in learning.

Summary of Work: Specialist nurse students in psychiatric care were asked to describe a nursing situation they had experienced and focus on emotions and their actions. In these narratives they would also express their expectations of the programme and reflect upon strategies to reach their goals.

Summary of Results: Students' expect this programme to be the beginning of a life-long learning process. They expect to become more confident in encounter with patients, patients’ next of kin and the health care team and being in control of their emotions. Strategies mentioned are: information literacy, practicing reflection on nursing encounters and integration of newly acquired knowledge into clinical practice. The narratives also indicate something about the students’ personal epistemology.

Discussion and Conclusions: Various ways to meet the students’ expectations have been considered. A Clinical Reasoning Model is being implemented in teaching and learning activities and elective courses are devised in a more satisfactory way. Letting the students identify and express their learning needs and strategies was an attempt to promote their responsibility and self-directedness in learning.

Take-home messages: One way to secure a working cooperation and create a supporting learning climate between the students and faculty is to take the expectations of the former into account.

3FF6 (20698)
We all want to learn: PRIME GP, making large scale staff development work

Rebecca Farrington, University of Manchester, Community Based Medical Education, Manchester, United Kingdom
Rachel Lindley*, University of Manchester, Community Based Medical Education, Manchester, United Kingdom

Background: Most of the literature about faculty or staff development has excluded students as teachers of their own tutors. Over a 10 year period a faculty development programme for over 600 community tutors has been successfully designed and implemented, resulting in improvement in student satisfaction with placements. A key feature has been the inclusion of students in workshops.

Summary of Work: Evaluation data from standardised training workshops held over the last year was thematically analysed and showed that the most valuable component was the involvement of students. Students also enhanced their own confidence and teaching skills. More detailed results will be discussed.

Summary of Results: Student involvement in staff development may help by breaking down traditional student: teacher barriers and lead to a more realistic and constructive dialogue. Their presence helps tutors to understand the students lived curriculum experience. Budding educationalists within the student population can begin to broaden their teaching repertoire by teaching their teachers.

Discussion and Conclusions: The success of our programme relied upon a range of key factors including student involvement, core content delivered credibly by practising teachers and resources that reflected tutors learning needs.

Take-home messages: Student inclusion in staff development should be a core component of tutor training.
**3FF7 (21164)**
Creation of an iBook for Cardiovascular Examination

**William Melton**, University of Manchester, Manchester Medical School, Manchester, United Kingdom

**Background**: At the Manchester Medical School students enter into their clinical years with only a few short hours of standardised teaching in how to examine a patient’s cardiovascular system. Students from Manchester Medical School complete 4 week Personal Excellence Pathways (PEPs) after their first semester, during this 4 weeks I set about creating an interactive iBook to fully explain the intricacies behind cardiovascular examination.

**Summary of Work**: The iBook was created during a 4 week PEP using the Apple product iBooks Author and the videos used in the iBook were created using iMovie. I designed the iBook to be interactive and intuitive using video, audio, clinical images and links to a glossary to ensure students have a full explanation of the examination and the signs they might expect to illicit.

**Summary of Results**: The iBook was enjoyable to create and took a surprisingly small amount of time given the breadth and depth of the subject. Filming the videos took a lot less time than I thought it would however obtaining clinical images for the relevant signs took longer than expected.

**Discussion and Conclusions**: A large number of students now use iPads and Apple laptops as an integral part of their work. An interactive iBook for examination is a useful tool that is interesting, educational and widely accessible by the student population. The iBook can also be spread widely across the student body with ease.

**Take-home messages**: During a 4-week PEP it is possible to create an innovative learning tool that can enrich the education of medical students at your university.

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**3FF8 (20882)**
Mixed student teams supporting older people after hospital discharge

**Fiona Kent**, Monash University, Faculty of Medicine, Nursing and Health Sciences, Clayton, Australia
Jennifer Keating, Monash University, Faculty of Medicine, Nursing and Health Sciences, Frankston, Australia

**Background**: A mixed discipline student clinic was established to provide both opportunities for interprofessional education and delivery of patient care. The primary care clinic focussed on the health screening of community dwelling older people recently discharged from hospital. Within the clinic, final year students from medicine, nursing and allied health worked in teams to identify factors affecting health or independence and made referrals for relevant support.

**Summary of Work**: We conducted a prospective evaluation of patient outcomes attributable to clinic attendance. Key outcomes were the nature of the care provided, follow-up referrals generated and patient perceptions of the support received. We also conducted focus groups with six teams of students to investigate perceived educational outcomes.

**Summary of Results**: 96 recently discharged medical inpatients (mean (SD) age 76 (7) years) attended the clinic. In consultation with patients, student teams made referrals to a wide range of services including podiatry, physiotherapy and home help. Patient perceptions of the consultation, measured with the Patient Experience Questionnaire, were completed by 61/96 (64%) of participants and were favourable. Students reported that they learnt about the knowledge, skills and roles of other disciplines, referral options, issues that affect the health of older people, and gained skills in teamwork.

**Discussion and Conclusions**: Undergraduate students, working in mixed discipline teams, are able to deliver a useful additional health screening service to older people recently discharged from hospital.

**Take-home messages**: The logical combination of a patient group in need of multi-faceted consultations and students in need of authentic interprofessional learning opportunities was well regarded by both patients and students.

This project was possible due to funding made available by Health Workforce Australia, an Australian Government Initiative, and the Department of Health, Victoria.
3FF9 (19670)
Perspectives on the common challenges faced by medical students in leading educational projects - A University of Toronto experience

Meah Ming Yang Gao* University of Toronto, Faculty of Medicine, Toronto, Canada
Felicia Janulewicz, University of Toronto, Faculty of Medicine, Toronto, Canada
Robyn Thom, University of Toronto, Faculty of Medicine, Toronto, Canada
Carla Rosario, University of Toronto, Faculty of Medicine, Toronto, Canada
James England, University of Toronto, Faculty of Medicine, Toronto, Canada
Lisa Richardson, University Health Network, Department of Medicine, Toronto, Canada

Background: Medical students are often involved in leading educational projects during their medical school training. They face unique challenges as they are required to balance educational and clinical duties while at the same time often managing large scale projects. Literature on the challenges and solutions to effectively leading educational projects as medical students is limited.

Summary of Work: The Internal Medicine Clinical Encounters (IMCE) project at the University of Toronto is a student-led initiative dedicated to creating an online, interactive, evidence-based internal medicine virtual patient case series for clerkship students. As the co-chairs for the 2013-2014 year, we reflected on our experiences and identified common challenges faced by student leaders and explored some effective solutions.

Summary of Results: We have identified three key areas where medical student leaders mostly identify challenges. (1) Project planning, recruitment and administrative support, (2) Implementation and team engagement and (3) Outcomes, evaluation and sustainability. Specific challenges and proposed solutions will be addressed in detail in each domain.

Discussion and Conclusions: Each year many medical students take on new leadership roles from existing projects often with informal and limited project handover. After communicating with other leaders, we have found there to be a common set of challenges which can often be avoided with appropriate knowledge sharing and anticipatory guidance.

Take-home messages: By identifying common challenges and solutions medical student leaders face, we hope to draw attention to this common experience and encourage leaders to effectively provide project handover.

3FF10 (20103)
Deep learning through a greater “sense of purpose”

Ian Kerr, Griffith University, Medicine, Gold Coast, Australia
Ali Salajegheh, Griffith University, Medicine, Gold Coast, Australia
Alice Ayres, Griffith University, Medicine, Gold Coast, Australia
Thomas Brennan*, Griffith University, Medicine, Gold Coast, Australia
Claire Harrison, Griffith University, Medicine, Gold Coast, Australia
Ken Donald, Griffith University, Medicine, Gold Coast, Australia

Background: The OSCE is an accepted format to assess clinical skills. Assessment driving learning and being an important vehicle for learning are acknowledged concepts in educational literature.

Summary of Work: A group of Year 2 students of a four year medical program developed OSCE stations for a formative exam. Input from academic staff ensured that the stations were of comparable quality and standard to those used in summative examinations. The developed stations were used in a non-compulsory Year 2 formative OSCE. The study compared the summative exam results in 3 groups: a) the station writers, b) formative OSCE examinees and c) those sitting only the summative assessment.

Summary of Results: The means of groups (/800) a, b and c were 490, 481, 473 respectively measured by ANOVA, with group (a) significantly higher mean mark compared to (c) (SE=6.75, p= 0.012).

Discussion and Conclusions: Student development of OSCE stations resulted in students being required to deconstruct the respective skills and consider the sub skills involved in the process. This improved students ability to demonstrate, in a summative OSCE that the skill had been learned. The student and academic staff collaboration resulted in improved staff student relationships. Involvement of students in the development of OSCE stations results in an improvement in their clinical skills.

Take-home messages: Student involvement in development of assessment items motivates deep learning through a greater “sense of purpose” with a consequent improvement in their clinical skills.
Learning portfolio and mentoring to promote students’ professional development and reflective skills

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Helen Setterud, Örebro University, School of Medicine, Örebro, Sweden

Background: Learning portfolios are increasingly used to stimulate reflection and assess professional skills in medical education. The literature has suggested important aspects for effective use of portfolios such as clear goal and instructions, proper introduction, flexible and user friendly format and mentor support.

Summary of Work: The aim of this presentation is to describe a learning portfolio at the Medical School at Örebro University, Sweden. The design and implementation of the portfolio is discussed in relation to guidelines found in the literature.

Summary of Results: The aim for the portfolio is to foster students’ reflective skills and professional development. Students work with their portfolio throughout the medical programme. At the end of each semester, they compile a portfolio containing reflections on their progression. Students receive feedback from mentors. We have found that introduction of the concept of portfolio to students and mentors is important. It needs to be done repeatedly during the programme to keep alive the intention with the portfolio as a tool for professional development. We continuously evaluate and revise the instructions and the written information to students and mentors to make it clear and instructive. The mentors follow the students for several semesters which help the students to catch sight of own learning and progress.

Discussion and Conclusions: Portfolio can enhance students’ reflective skills, but it needs thoroughly planning and a clear picture among students and mentors of the concept of portfolio. Mentor support can help students to get sight of own learning and progress.

Take-home messages: Thoroughly planning, continuous mentor support and a clear, common picture can promote effective use of portfolio.

Reflection of teaching practice: Learning from experience

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Background: The National Curriculum Guidelines suggest new ways to train health professionals. Changes in the traditional pedagogic profile of health lectures and subject coordinators aim to reach best teaching practices. The importance of reflecting on teaching practices brings change to the deployed educational activities.

Summary of Work: The objective of this report is to present reflections on teaching practices during 2013. This was based on the analysis of portfolios as an assessment tool in the practical discipline of the Nutrition Course at a higher education institution in southern Brazil. Based on the analysis of the content obtained by the use of portfolio-related learning objectives and itinerary guide, thus allowing the subject coordinator to critically reflect on his actions.

Summary of Results: This is an experience report, using a portfolio instead of a report previously used as part of the assessment of practical discipline in the Unified Health System (SUS). The portfolio was completed and delivered at the end of the semester, featuring short assessments based on the summative assessment. The total number of students (approximately 70%) did not achieve the objectives of the instrument. Thus, leading the subject coordinator to reflect on his practice.

Discussion and Conclusions: The subject coordinator is responsible for the in-depth study of the assessment instrument that addresses the goals of subject and pedagogical design of the course. The continuing development of the subject coordinator contributes substantially to the formation of critical and reflective practitioners in their practical environment.

Take-home messages: The constant need for the subject coordinator’s development is important to allow the use of new methods during teaching-learning process.
The importance of external training and training team size in clinical practice

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Background: Hiroshima University Hospital implements a portfolio system for reflection of clinical training. Dental trainees have their first experiences of 'On-the-job training' in the university hospital or in external private dental clinics. We examined how they did 'reflection in action' in these Community of Practice.

Summary of Work: We made transcript from oral presentation of SEA (Significant Event Analysis) style by dental trainees in Hiroshima University Hospital (n=35). And we determined the depth of reflection by two kinds of scales (Moon 2004, O'Sullivan 2010). Moreover, we analyzed qualitatively by using SCAT (steps for coding and theorization).

Summary of Results: There was no significant difference in the depth of reflection between sexes or various academic backgrounds. However, a significant difference in presence or lack of external training experiences was recognized. As a result of SCAT, the description about “interaction with other people, especially with a clinical instructor” was shown frequently in the group of deep reflection. In addition, “to accept as a member of a medical staff group” provided a deeper reflection.

Discussion and Conclusions: Experiences in external clinics have a close connection with staffs and trainees as Community of Practice can make deeper reflections and critical reflections.

Take-home messages: We need to make a small Community of Practice in a large-scale organization like a university hospital to make many close connections. This construct may be able to be adapted not only for dental trainees in Japan but also for global dental trainees and other medical trainees.

Evidence for Transformation, Looking in Student Portfolios

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Background: Our faculty development course requires completion of a portfolio which includes reflections on teaching and education activities undertaken by the learner. We postulate that students are transformed (according to Mezirow’s theory of transformative learning) by participating in faculty development activities. Further we expect that there will be evidence of this transformation in the reflections written by students.

Summary of Work: To demonstrate if transformative learning is occurring we first identified themes that would be suggestive of transformation. We then looked at a sample of our student portfolios and identified if these themes were present in the student reflections.

Discussion and Conclusions: Though there are limitations to what can be gleaned from a student portfolio, student reflections are a rich source of feedback for programs about the type of learning that is occurring.

Take-home messages: Learner portfolios in faculty development programs are an important source of feedback about the type of learning occurring in programs.
3FF15 (20925)
Integration of log book, a tool that enables nursing students to achieve the clinical learning objectives through reflection and communication

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**Background:** Evaluations from nursing students showed a request for more reflection and feedback from supervisors during the clinical placement in our cardiology ward. Writing a reflective log book is viewed as an effective tool to promote student reflection and learning, self-assessment and evaluation of the clinical learning experience.

**Summary of Work:** With an effort to enhance reflection and communication between nursing students and supervisors we aimed to integrate and evaluate the use of log book in clinical placement. This pilot study took place during fall 2013.

**Summary of Results:** The evaluation from nursing students (n=4) and supervisors (n=7) after implementing the log book showed that majority of students (75 %) and supervisors (85 %) considered it useful during the clinical placement. All supervisors but not every student viewed the log book as a support during final evaluation. Every student found that integrating the log book led them to reflect on their learning and development. Neither students nor supervisors considered writing log book as time-consuming. Everyone except for one student thought the ward should continue with log book.

**Discussion and Conclusions:** The use of log book provides a process for both formative and summative assessment based on either personally derived or externally pre-decided learning objectives. It also encourages students and supervisors to give feedback and discuss the contents which are important in the learning process.

**Take-home messages:** To integrate log book as part of the clinical placement enables the nursing students to reflect on their learning, improve communication with supervisors and provide opportunity to achieve clinical learning objectives.

3FF16 (20460)
Stimulating students’ interest in a subject matter

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**Background:** Not all subject matters interest every student. The self-determination theory proposes three factors that facilitate intrinsic motivation – competence, autonomy and relatedness. This study aims to determine the relationship between improved competency in a subject and students’ interest in the subject matter.

**Summary of Work:** This is a cross-sectional study involving 131 medical students. Students’ competency in a subject was determined using self reports of attainment of new knowledge/skills and confidence in applying the knowledge/skills learned, following a clinical rotation in a related clinical specialty. Students’ perception of the relevance of knowledge/skills learned and interest in the subject were also ascertained. Spearman’s correlation was performed to determine the relationship between self reported competency in the subject and perceived relevance of knowledge/skills learned with interest in the subject.

**Summary of Results:** 43.5% of students agreed/strongly agreed that the clinical rotation had increased their interest in the subject. There were statistically significant correlations between attainment of new knowledge/skills (r = 0.49, p < 0.001), confidence in applying the knowledge/skills learned (r = 0.37, p < 0.001) and perceived relevance of new learning (r = 0.57, p < 0.001) with increased interest in the subject.

**Discussion and Conclusions:** In this study cohort, self reports of improved competency in a subject and perceived relevance of new learning were associated with increased student’s interest in the subject.

**Take-home messages:** Help students develop competencies in a subject matter and highlight how these competencies are relevant to their future practice.
3GG1 (21101)
The efficiency of “Give Me Five” and “Regular” Morning report models to train the “patient care” skills of young physicians

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Background: This study compared the effects of the “Give Me Five” morning reports (MRs), which characterized by sequential and interactive case discussion by all participants, with “Regular” MRs in term of “patients care” skill training.

Summary of Work: Between February 2011 and August 2013, young physicians (337 of residents, 248 of interns and 205 of clerks) were enrolled and follow-up for 3 months from ten divisions of Internal Medicine Department in Taipei Veteran General Hospital.

Summary of Results: Junior (intern and clerk) attendees gave higher educational values scores to the trained skills obtained from the “Give Me Five” MRs than the senior (residents) attendees. After training, a higher application frequency of trained skills was reported by senior “Regular” MR attendees, which contrasted with the junior attendees, who reported a higher application frequency of trained skills for the “Give Me Five” MR model. The mini-CEX/OSCE scores were higher for the “Give Me Five” MR attendees than for the “regular” MR attendees. Increasing participation in the “Give Me Five” MRs significantly improved the mini-CEX/OSCE scores of all attendees, but this reached a plateau when participation reached 7 times per month.

Discussion and Conclusions: “Give Me Five” MRs are able to effectively train young clinicians in basic clinical skills, while “Regular” MRs seem to markedly enhance “work reports” and “controversy and professionalism issues dealing” skills. Undoubtedly, all elements of two MR models should be intergraded together to ensure patients safety and good discipline among young clinicians.

Take-home messages: Conclusively, our study suggested that all elements of the “Regular” and “Give Me Five” MRs need to be properly integrated with each other in order to ensure good discipline among young clinicians within the medical care system.

3GG2 (19036)
A learner-focused approach to preliminary medicine education

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Background: In the United States, Preliminary Medicine residents spend the first post-graduate year of training (PGY1) in Internal Medicine, with subsequent post-graduate medical education in a medical specialty. Typically a preliminary medicine year is a standard Internal Medicine curriculum regardless of future specialty. Our program changed from a Transitional Year program to a Preliminary Medicine program in 2012. Our goal was to create a learner focused preliminary medicine year, based on future specialty.

Summary of Work: A novel PGY1 Internal Medicine curriculum was created for each specialty, with input from the speciality program directors. The last 1-2 months of the PGY1 year were dedicated to rotations within their future specialty. The preliminary medicine residents had quarterly meetings with an Associate Program Director as well as Resident Retreats to address concerns and promote improvement.

Summary of Results: Annual surveys were performed with a standard Transitional Year class in 2012, then with two modified Preliminary Medicine classes in 2013 and 2014. Survey results substantially improved in the areas of: supervision, faculty interest, using evaluations to improve, scholarly activities, service to education balance, process to deal with concerns, quality improvement projects, and ability to raise concerns without fear.

Discussion and Conclusions: Preliminary Medicine residents have unique education needs to prepare for future specialties. A learner focused curriculum leads to improved outcomes in resident education.

Take-home messages: A novel PGY1 curriculum, with a learner-focused approach based on future specialty, leads to improved resident education and program satisfaction.
An evaluation of development and improvement projects as part of the internship at the Sahlgrenska University Hospital

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Background: Internship in Sweden includes the mandatory specialties medicine, surgery, psychiatry and primary care. Internship at the Sahlgrenska University Hospital focuses on clinical care, research and education. Development and improvement of the internship is done continuously to maintain high standards and provide high quality training for the intern. In order to develop the internship it is mandatory during internship at Sahlgrenska to conduct a development and improvement project.

Summary of Work: A summary and an evaluation of the improvement projects between years 2003-2013 was made and analysed.

Summary of Results: Forty-five improvement projects regarding mentoring, training and organization had been presented at Sahlgrenska. Particular emphasis has been on preparing the intern for acute care but examples of improvement projects include e.g. emergency medical compendium, training days in acute medicine, primary care, clinical pharmacology or medical law, improvement of the intern room and accompanying practical elements.

Discussion and Conclusions: Projects that have been of particular importance are the makings of acute care compendium in medicine and surgery, which contributes to a more independent and secure work for the intern. The interns themselves appreciate projects regarding acute medical care and in many cases focus their improvements projects on this area. Improvement project are of great importance to influence, develop and improve the internship today and in the future.

Take-home messages: • Improvement project are of great importance to influence, develop and improve the internship.
• Acute medical education is of great importance for the intern.
• Further improvement and develop projects needs to be done.

Speaking Up - An analysis of FY1 doctors’ preparedness for making inter-specialty referrals

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Background: The burden of initiating inter-specialism care often falls to the junior member of the medical team. Frequently FY1’s feel they lack training, and are therefore underprepared, to effectively communicate with senior clinicians in other specialities when seeking advice or requesting investigations.

Summary of Work: Qualitative feedback was collected from 70 FY1 trainees across the Yorkshire & Humber Postgraduate Deanery using free-text & multiple-choice questions. Trainees were encouraged to reflect on preparedness at time of graduation and whether they felt curricular background (PBL vs. traditional) was of influence. Information was also sought to establish their exposure to communication skills training as undergraduates and as new Foundation doctors along with age at graduation and educational background.

Summary of Results: Every FY1 reported difficulties when seeking advice or investigations from other specialities since commencing training. Overall, trainees reported a lack of formal communication skills teaching as part of their undergraduate curriculum with little exposure to any formal methods or approaches in communication. Those from schools with problem-based curricula; where skills in collaboration and communication are implicitly required, reported more favourable outcomes.

Discussion and Conclusions: Our study suggests communicating effectively with other teams when requesting investigations or specialist advice is an area of weakness for FY1 trainees. This could potentiate a detrimental effect on patient care as modern medical curricula trend away from teaching soft skills such as inter-disciplinary communication, Tomorrows Doctors need to learn to speak to one another effectively.

Take-home messages: • Newly qualified FY1 doctors feel unprepared and frequently experience difficulties during inter-speciality communication.
**3GG5 (21447)**

**How valuable is bedside teaching to newly qualified doctors?**

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**Background**: Bedside teaching is generally viewed as an essential part of learning in the clinical environment. However, there is little recent research regarding which aspects of bedside teaching are valued by newly qualified doctors in the UK.

**Summary of Work**: The views of two groups of newly qualified doctors, foundation year one (FY1) (*n*=42) and foundation year two (FY2) (*n*=46) were sought using a self-administered questionnaire. It explored their perceived value of bedside teaching in developing communication skills, professionalism, clinical reasoning, clinical skills and examination, and managing acutely ill patients.

**Summary of Results**: Both groups reported bedside teaching was valuable and felt that they would benefit from more. They valued being observed ‘doing’ more than observing colleagues. They valued highly clinical teaching which involved presenting a patient and discussing management with a senior colleague. FY2 doctors placed a greater importance on bedside teaching than the FY1 doctors. FY2s found bedside teaching to be significantly more valuable in learning clinical skills (*p*=0.028), examination skills (*p*=0.022), developing communication skills (*p*=0.020), and professionalism (*p*=0.018) than FY1s.

**Discussion and Conclusions**: This initial study found that newly qualified doctors value bedside teaching as an effective tool for learning clinical medicine and for professional development but felt it is underutilised. Interestingly and unexpectedly the more experienced doctors (FY2) place a higher value on bedside teaching. We are currently exploring this area with semi-structured interviews and will have further data to present.

**Take-home messages**: Bedside teaching is valuable for newly qualified doctors, particularly when they participate.

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**3GG6 (19373)**

**One-and-a-half hour rest after night shift evaluation follow-up: Three years’ experience of Taiwan southern medical center**

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**Background**: On duty is a complex work load. It might cause whole night unrest. Subsequently the over fatigue phenomenon became the most significant issue for those PGY students. It affected greatly their daily patient care and learning qualities.

**Summary of Work**: There were 148 PGY1 students enrolled in the following day one-and-a-half hour break after night shift scheme (AM08:30~AM10:00), held in Kaohsiung Memorial Hospital medical training demonstration center from 2012 Aug 1 to 2013 July 31. Before the course ended, a survey was given to investigate such a scheme’s benefits and deficiencies in order to improve for the next course. Reliability Cronbach α 0.73 Validity 0.9.

**Summary of Results**: The results showed:
1. In terms of maintaining a good working attitude with colleagues being effective in complementary effects, we found the significance decreased in the 2013 survey (*P*=0.031).
2. After the scheme which affected the students was executed, the delay after work proportion were increased, but there was no significant difference in 2013 (*P*=0.105).
3. The reasons for not fulfilling this next day rest off-duty scheme was mainly because the students’ rest time was cut short thus leading to delay in leaving. If students’ schedule can be managed properly then work-learning efficiency can be improved, and they can leave on time.

**Discussion and Conclusions**: Observing our last 3 years study in learning effect aspects, students will benefit from this schedule by reducing after hour fatigue, increase their caring quality and learning efficiency. We hope not only to promote this system application to other similar internal departments but also these subclinical units.

**Take-home messages**: Develop general medicine training demonstrations and central teamwork spirit, fully allocate a substitute system, in addition to teaching the class properly. Assist students to plan their daily schedule to allow PGY1 student to balance between physically abilities and creating a better learning environment.
3GG7 (20778)
Regional Junior Doctor Teaching Program - a novel approach

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Background: Severn Deanery is spread across a wide geographical area in the Southwest region of England. The Deanery has previously experienced heterogeneity, in both quality and quantity, in the teaching opportunities available to its foundation trainees. Severn school sought to improve the situation with an innovative regional program.

Summary of Work: A formal deanery-wide teaching program was instituted with a centrally co-ordinated online booking system. A diverse catalogue of topics are provided throughout the region by various NHS hospital trusts. Pre-approved study leave ensures trainees can leave their work environment and focus fully on the educational day ahead. Quality assurance is now comparable across the region as feedback is collated in a consistent manner. Potential obstacles to the scheme were identified early to facilitate a successful launch. An example was trust reluctance based on the financial cost of providing the study days; this was countered by Deanery support of £1000 to each trust per study-day provided.

Summary of Results: Standardised feedback is graded from 0-4: Excellent 4, Good 3, Average 2 and Poor 1. Feedback for the program is positive, with all study days averaging good-excellent ratings (>3).

Discussion and Conclusions: Severn has instituted a novel regional teaching program with an electronic booking system for Deanery-wide study days. The program has been very well received and allows foundation doctors to tailor their training to their individual educational needs.

Take-home messages: This approach has many benefits:
- Standardised teaching experiences
- Reduces impact of work-flow pressures
- Diverse catalogue of study days
- Enhances academic networking
- Uniform quality-assured content

3GG8 (22402)
What are the major sources of improving the practical proficiency for new doctors?

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Background: Since 2010, the CPX and the OSCE have been included in the medical doctor license examination in South Korea. Most of the medical schools in South Korea, since then, have reinforced the clinical clerkship programs in medical education. In this paper, I try to find out which educational programs in medical schools contributed more to improving the practical proficiency for the new doctors. This paper employed the perceptual measures, rather than the objective measures.

Summary of Work: I surveyed 129 residents (1st and 2nd year) of 5 hospitals using the questionnaires asking which educational program was more important for improving their practical proficiency.

Summary of Results: The result showed that the advices of the senior residents were the most important, and the lectures at medical schools, clinical professors’ educations during the resident’s training periods, and internship followed. The clinical clerkship at the medical school was relatively less important.

Discussion and Conclusions: The results indicated the need to strengthen the clinical clerkship and the educational abilities of the senior residents. The limitation of the paper is that the sample size is small and is based on the perceptions of the residents.
The Effectiveness of a short High Dependency Unit Placement for Foundation Year 1 Doctors in a District General Hospital: A Teaching Evaluation Project (2012-2013)

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Background: Foundation doctors (FY1) are rarely exposed to critical care training. Our project was designed to evaluate the effectiveness of a two-week placement on a surgical High Dependency Unit (HDU) for surgical FY1 doctors at a District General Hospital, over an 18-month period. We evaluated the improved competence by these doctors in attaining eight key competencies outlined in their curriculum, following this placement.

Summary of Work: Questionnaires were given to 17 consecutive FY1 doctors to evaluate their competence in carrying out eight core skills (outlined by the Foundation Programme curriculum), before and after a two-week HDU placement. Each question was scored on a 0-5 point scale (0 reflecting no influence on the doctor’s competence and 5 indicating strong positive influence). The ‘Wilcoxon Signed Rank Test’ was used to evaluate perceived improvement.

Summary of Results: There was 100% response rate and a statistically significant improvement (p<0.05), across all competencies following placement. FY1 doctors strongly agreed the placement contributed to the following: Promptly assessing acutely ill patients (94%,n=16); Identifying/responding to acutely abnormal physiology (88%,n=15); Safely delivering fluid challenges (94%,n=16); Monitoring (100%,n=17); Requesting senior help (82%,n=15); Pain management (94%,n=16); Communication/handover (87%,n=14); Obtaining/interpreting arterial blood gases (71%,n=12). All doctors strongly recommended the placement.

Discussion and Conclusions: We have shown a 2-week placement in HDU for Foundation doctors strongly contributes to attaining core skills stipulated in their syllabus. The placement contributed mostly to assessing acutely unwell patients, responding to abnormal physiology, understanding the principles of monitoring and pain management.

Take-home messages: Offering such placements more widely would be beneficial in enhancing the education and training of pre-registration doctors.

A novel approach to case based discussions

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Background: Limited data exist about the educational value of students performing a case based discussion (CbD) to a group of their peers.

Summary of Work: The aim of the study was to evaluate the use of CbDs in a group format as an alternative to one on one case based discussions. Foundation year one (FY1) doctors were invited to present a case that they had been involved in the care of to a group of their peers. The format would involve discussing the case and relating it to current literature followed by questions posed by the lead of the session first to the trainee then to the group. The trainees would then fill in a questionnaire about the process.

Summary of Results: 13 trainees participated in the exercise. All agreed that this assessment had more educational value than the standard format of CbD. The most beneficial points about the experience were feedback, researching the topic and learning from others’ experiences. All trainees agreed that this assessment should be introduced into the foundation program.

Discussion and Conclusions: Presenting CbDs to a group could be educationally beneficial if added to the current foundation program.

Take-home messages: We believe that slight changes to the execution of CbDs can further enhance its success as an assessment tool in the foundation programme. By preparing, presenting and gaining feedback on CbDs trainees are exposed to a wider skill set. Another advantage to this small group setting is the ability to learn from others’ experiences.
**3GG11 (23040)**

The challenge of establishing a junior doctor teaching programme in the modern clinical environment

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**Background:** As foundation trainees in Cardiology, we identified the need for a specialty specific teaching programme. The Foundation Programme is designed to provide broad based training. However, junior doctors require specialty specific knowledge, not represented in the Foundation Curriculum, to promote high-quality, safe patient care. Previously, departmental teaching was conducted on an ‘ad hoc’ basis and often cancelled.

**Summary of Work:** Questionnaires identified the main barriers to teaching as:
- workload
- reduced working hours and shift working, as a consequence of the European Working Time Directive
- difficulty scheduling teaching due to consultants and registrars variable work patterns.

We piloted an 8 week programme, delivered by junior doctors under registrar supervision. We adopted a flexible approach, liaising with the consultant each week to organise teaching around work schedules.

**Summary of Results:** Trainees gave positive feedback on teaching delivered and valued the opportunity to receive feedback about their teaching. However, four sessions were cancelled or rearranged due to clashes with the ward round.

**Discussion and Conclusions:** The modern clinical environment presents conflicts to teaching, because of shift working and increasing emphasis on service provision. We identified that consultant support is key to ensuring juniors receive teaching, through agreeing a fixed time for teaching, that is protected from non-urgent clinical commitments. Furthermore, with trainees rotating every 4-6 months we recognised that consultant engagement, through attending and delivering teaching, is imperative for continuity.

**Take-home messages:** Speciality specific teaching should be promoted across all specialties. Involving trainees and consultants is key to fostering an ethos of education and learning, and ensuring sustainability of departmental teaching.

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**3GG12 (20878)**

Postgraduate education in Kampo (traditional Japanese) medicine: A current survey of clinical training hospitals

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**Background:** There is no precise survey of postgraduate education in Kampo medicine in Japan.

**Summary of Work:** We conducted a postal questionnaire survey of 58 clinical training hospitals in Kanagawa prefecture to identify the problems of establishing postgraduate Kampo education programs.

**Summary of Results:** There were 41 effective responses (71%).
- (1) Most instructors (83%) recognized that clinicians need to use Kampo medicine.
- (2) Most instructors (63%) thought that residents should be taught Kampo medicine during their internships.
- (3) Only 15% of the hospitals (representing 18% of all residents) had Kampo education programs.
- (4) Approximately 71%, 11%, and 7% of instructors at hospitals without Kampo education programs pointed out the lack of Kampo instructors, time, and need to teach Kampo, respectively.
- (5) Approximately 71%, 11%, and 7% of instructors at hospitals without Kampo education programs pointed out the lack of Kampo instructors, time, and need to teach Kampo, respectively.
- (6) Approximately 83% of hospitals had no Kampo education program and no plan to introduce one in the future.

Approximately 43%, 26%, 26%, and 6% of hospitals permitted future Kampo instruction through voluntary study, lectures sponsored by Kampo manufacturers, study sessions with other hospitals, and independent study sessions, respectively. Our survey revealed most instructors understand that Kampo education is needed, but little of it is done mainly because of the lack of Kampo instructors. Therefore Kampo education should be introduced in large hospitals where many residents belong and Kampo instructors are likely to be found.

**Discussion and Conclusions:** To promote postgraduate Kampo education, Kampo medicine training programs should be introduced in large hospitals.

**Take-home messages:** To promote traditional medicine, training programs should be introduced in large hospitals.
**3GG13 (20991)**

“*If you could change one thing...*”. Greek residents’ opinions about their educational environment

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**Background**: Sufficient specialty training is a prerequisite for offering high quality care to patients and is unambiguously linked to the educational environment quality. Aim of the present study is to report Greek specialty trainees’ opinions about advantages and disadvantages of their training environment.

**Summary of Work**: The two open questions (“If you could change one thing in this position, what would it be?”, “And what would you not change?”) of the translated Postgraduate Hospital Education Environment Measure (PHEEM) were used to assess residents’ opinions. Three independent researchers classified the responses of each open-ended question into main theme and subthemes based on a content analysis approach. Repeated consensus meetings with all authors lead to an agreement over the final categories, and frequencies were calculated.

**Summary of Results**: Out of 10700 residents in Greece, 731 participated, 562 of which answered the first and 416 the second open question. Eight basic categories were identified: Education/training; 97% out of the 562 would change it, 20% out of the 416 wouldn’t.

Workplace; 55%, 15%. Responsibilities; 37%, 6%. Values; 20%, 29%. Autonomy; 15%, 7%. Salary; 12%, 0.2%. Trainers; 9%, 12%. Unclassified 6% 10%. Challenges include faculty support, creating a realistic time line, obtaining appropriate administrative supports and identifying and assuring resources.

**Discussion and Conclusions**: With few exceptions participants would change their training, and more than half would change their workplace conditions. On the other side, they wouldn’t change their values and, where it is satisfactory, their training.

**Take-home messages**: A drastic redesign and organization of educational environment is required for Greek residents, according to participants’ opinions.

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**3GG14 (20191)**

Establishing New Postgraduate Medical Education Programs, Identifying the Essential Elements

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**Background**: In order for postgraduate medical education programs to meet the societal needs of the populations they serve, there are essential elements that must be considered when developing and implementing these programs. Our experience with the Royal College of Physicians & Surgeons of Canada standards and implementation strategies provides a model for establishing both Canadian and international programs.

**Summary of Work**: The Royal College Standards provide the overall requirements of an accredited postgraduate specialty program. They have been developed and refined through an iterative process involving educators, trainees and other stakeholders. Recently as new programs have been considered both in Canada and internationally, discussions with program directors and postgraduate deans have identified the steps taken locally to successfully establish new programs. Review of these steps has allowed the development of a structured approach to the transformation of standards into actual programs.

**Summary of Results**: The discussions with creators of new programs identified ten specific development steps and the challenges they encountered. While programs vary in the amount of attention devoted to each step, success requires that each of the individual steps is considered. Steps include environmental scanning, needs assessment, definition of desired outcomes, matching requirements to resources, etc.

**Discussion and Conclusions**: Identifying the essential elements required to develop a new postgraduate medical education program before beginning the process provides a realistic roadmap towards obtaining approval for a new program.

**Take-home messages**: Creating new postgraduate medical education programs can be simplified if the essential elements are known in advance of beginning the process.
3GG15 (20779)
Medical education and critical decision making guidance through smartphone/tablet applications

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Background: Medical applications are already utilised by practitioners at all levels with minimal local guidance or validation. The efficacy of this is difficult to quantify. Given recent changes in attitude surrounding the use of devices in clinical areas and the chronic mismatch between staff numbers and desktop interfaces within clinical areas, the role of electronic devices is set to increase.

Summary of Work: NHS Lothian has excellent mobile/tablet-based applications including the clinical care handbook. We created further in-house applications and piloted all of them within the emergency department and hospital at night teams through provision of a mixture of mobile devices. The aim was to augment the in situ clinical decision processes of junior doctors. Usage data was gathered through the applications and the users were surveyed regarding usefulness, improvements and ergonomic factors.

Summary of Results: This is an ongoing pilot. At the time of submission, the test group had been identified and questioned, funding secured and hardware purchased. There has been initial enthusiasm from both seniors and juniors for this intervention. We will present data surrounding the effect on their clinical decision making.

Discussion and Conclusions: It is hoped that the pilot will lead to larger scale distribution of hardware with our own applications plus useful pre-existing applications. One goal being the health board could centrally approve and distribute applications. This will allow more NHS Lothian specific data to be added.

Take-home messages: Doctors at all levels would be encouraged to create and contribute to this learning and development platform. Along with streamlining access to valuable resources.

3GG16 (22790)
Educational audits for quality improvement and assurance in postgraduate medical education

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Background: Since the quality of patient care is substantially influenced by the quality of residency training, the importance of quality assurance (QA) and quality improvement (QI) in clinical education is widely recognized (e.g. WFME standards). The University Medical Center Utrecht therefore developed an educational audit as part of a comprehensive and integrated program for QA and QI in postgraduate medical education (PGME).

Summary of Work: Generic audit techniques were adapted to create an audit procedure. After 3 pilot audits, the process was evaluated and adjusted. The current process is as follows: An audit committee consisting of 2 program directors and 2 residents from other programs analyzes documents of the program (e.g. outcome of the past external accreditation, results of other internal quality measurements) and identifies issues. The chairperson leads the conversation with the delegates of the audited program. The committee advises about important and urgent improvements. The program director is in the lead regarding subsequent plans for improvement and implementation. The audits take place under the governance of the Central Council for Postgraduate Education of our institution.

Summary of Results: 14 audits have taken place. Participants are enthusiastic about exchanging best practices between different programs and receiving peer-reviewed recommendations. The audit reports provide the Central Council for Postgraduate Education with meaningful information for its responsibilities respecting the governance of PGME.

Discussion and Conclusions: Educational audits are a valuable part of our quality system, fostering improvement plans and their actual execution. Audits help programs to prepare for external accreditations.

Take-home messages: Educational audits produce valuable feedback from peers to improve quality of PGME.
3HH1 (21848)

Clinical Practice in Medical Students’ Curriculum: Lithuanian Case

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Background: The aim of the following paper is to assess the students’, attitude concerning the clinical practice organization and acquisition of practical skills during medicine studies at LSMU.

Summary of Work: The 6th course students (250), after the clinical practice completion in 24 LSMU bases in 2012/2013, were provided with the questionnaires asking to assess (score from 1 to 5) the whole clinical practice cycle in general, its separate parts (internal diseases, surgery, obstetrics and gynaecology, children’s diseases, emergency and resuscitation skills), the clinical practice process (practical work benefit, work intensity, number of disease cases, physicians’ support, etc.), and to name cycle strengths and weaknesses. Response frequency was 74 %.

Summary of Results: The study results demonstrated that 80 % of respondents were satisfied with work organization and the acquisition of practical skills quality. General assessment of the practice cycle correlated with practical work benefit and the assessments gained during clinical practice (rs = 0.7); and with physicians’ and clinical practice teachers’ support (rs = 0.6).

Discussion and Conclusions: Summarizing, the research outcomes have revealed that good assessment of the whole cycle is related not only to its good organization and the quality of the obtained knowledge and skills, but also to good relationship between a student and practice mentor. In order to better the cycle quality of clinical practice it is requested to secure that students had a practice teacher (mentor); obtained clear information about their functions and responsibilities during clinical practice, giving feedback and collecting a portfolio, which could reveal weaknesses and strengths of practice.

3HH2 (22560)

Autoevaluation of medical students’ nightshifts

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Background: Recent legal modifications regarding medical students’ duties changed their organisation in hospitals. Nightshifts should be an opportunity to learn and practice strategies in acute situations. Therefore, this study aims to assess undergraduate medical students’ level of satisfaction regarding their medical duties.

Summary of Work: Students from the area were invited to complete an online questionnaire and rate their nightshifts. For this, closed-ended questions were used and the scores given to the items “academic quality”, “autonomy”, “working atmosphere” were evaluated.

Summary of Results: 3361 evaluations of hospital departments were included in 2013, in which a students’ duty is organized. Medical students were satisfied with the organisation of their, medical duties (overall rating: 15.37 / 20). Ambulance emergency teams and paediatrics emergency rooms were awarded the highest scores. General ratings were proportional to workload resulting in a range from 12.55 / 20 for a light workload, to 15.91 / 20 for a heavy one. This study highlights differences between the tasks allocated to students: the level of autonomy in linked to the department the students work in. Moreover, duties in gynaecology get a better rank among younger students whereas more senior students prefer training in intensive care units.

Discussion and Conclusions: Despite an overall satisfaction, undergraduate medical students remind us their interest in clinical education during nightshifts so that they are looking for duties with a high level of autonomy and heavy workload.

Take-home messages: The closer to clinical cases they are, the more they improve their clinical skills by self-training … under the global supervision of senior doctors.
**3HH3 (20194)**

**Increased cognitive load due to knobology impairs learners’ utility of ultrasound**

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**Background**: Ultrasound is increasingly used in medical education, but the associated cognitive load with learning ultrasound is unknown. Our study evaluated cognitive load associated with ultrasound use and perceived utility in a clinical setting.

**Summary of Work**: Our curriculum consists of formal and informal ultrasound training sessions. In addition, 25 residents enrolled in an intensive 29 hour course. All internal medicine residents (PGY 1-3, n=90) were invited to complete a survey regarding cognitive load measured on a validated nine-point scale. The survey included items on general use (12 items), procedural skills (8 items), and physical examination (7 items). Perceived utility of ultrasound in physical examination and procedural guidance (2 items) was measured on a five-point Likert scale.

**Summary of Results**: Sixty-five residents (69%) completed the survey. Of these, 17 (26%) had received intensive training. Highest cognitive load was found with spatial understanding (5.6 +/- 1.7), advanced knobology (range 5.7 +/- 1.7 to 6.3 +/- 1.8) and confidence with image interpretation (5.7 +/- 2.0). Learners who completed the intensive training reported significantly lower cognitive loading with advanced knobology and teaching ultrasound skills (p <0.05) than those who completed less intensive training. Only cognitive load associated with being confident in image interpretation was significantly inversely associated with perceived utility in guiding procedures (Beta = -0.047; P=0.04).

**Discussion and Conclusions**: Intensive ultrasound training is associated with lower cognitive load. A high cognitive load with image interpretation is associated with lower perceived utility in procedural guidance.

**Take-home messages**: We recommend intensive formal training in ultrasound.

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**3HH4 (19916)**

**Continuous building of a holistic mind throughout the medical curriculum**

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**Background**: Holistic care is internationally regarded as a crucial element in medicine. To allow undergraduates to understand it, medical schools should expose students to the concept continually throughout the curriculum.

**Summary of Work**: Experiential learning with real patients was used to introduce the holistic concept in the first pre-clinical year before any medical courses. The model was then integrated into each organ system-based courses utilising a case-based approach. In clinical years, students were encouraged to reflect holistic approach upon patient cares in all rotations. Analyses were performed to evaluate student’s satisfaction, learning and practice of this concept in Years 1, 3 & 5.

**Summary of Results**: The satisfaction towards holistic care teaching sessions in Years 1, 3 & 5 were 4.46/5, 3.98/5 and 4.13/5, respectively. Seventy percent of the first year students felt that they had learned holistic concepts. Also teaching holistic care helped students learn ethics better and have more positive attitude to become doctors. The average scores of knowledge tests of Years 1, 3 & 5 students were 68%, 75% and 86%, accordingly with moderate variation in each class. Clinical performance scores of Year 5 were 86% on average.

**Discussion and Conclusions**: Teaching holistic care to undergraduates resulted in high satisfaction. However, better intervention is essential to ensure correct understanding in all students.

**Take-home messages**: Students preferred the use of real patients in teaching holistic concept than case scenarios. High satisfaction does not guarantee the success of learning in terms of knowledge.
3HH5 (20066)
Heart-Head-Hand Interpersonal Skills Learning

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Background: Although some interpersonal skills are intentional, most are spontaneous expressed from inside. Thus, learning Interpersonal skills must go beyond a technical training but rather the art of learning from within.

Summary of Work: Learning experiences were integrated constructively. For 4th-year students, self awareness and emotional sensitivity (heart) were cultivated by the Enneagram and appreciation inquiry. For 5th-year students, effective communication (head) was learned by instructional observation of physician’s delivering bad news. For 6th-year students, their communication practices (hand) were assessed by patient’s feedback. Along with each learning experience, self and group reflections were the main process to let them assimilate and synthesize their own skills.

Summary of Results: The students' expressions (via artworks, writing or discussion) indicated their deeper inner understandings. Some 4th-year students knew more in their own and friends' inner feelings/values. Some 5th-year students reported the unspoken messages they perceived while bad news communication. Some 6th-year students mentioned that patient's feedbacks let them aware of their limitations in communication.

Discussion and Conclusions: Medical students were differences in personality and experience. Their backgrounds were essential, as the soil for cultivating interpersonal skills. The learning process must be crucial; all modalities (heart-head-hand) should be applied, the teacher acted as facilitator, along with timely opened self and group reflection. Although assessment of the outcomes are not obviously seen, we as gardeners should believe in the seeds' potential, and follow the process we believe in, without expectation of a showy outcome.

Take-home messages: Interpersonal skills learning could be applied in medical students. Heart-Head-Hand Learning Process is essential to teaching the art of medicine.

3HH6 (21793)
Clinical based learning (CBL) in studying process in the Children Infectious Diseases Department

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Background: The Children Infectious Diseases Department integrated a new study form into the educational process – CBL.

Summary of Work: Department employees arranged methodical drafts on “Secretory diarrhea” topic, which includes aims, tasks, clinical cases and answers for the teacher. This method consists of a teacher introducing the form of lesson to students. He randomly divides students into small groups, each group gets an individual clinical case. Teacher observes students' participation in intracommand, inter-command discussion and problem solving. He evaluates them according to work, competency and professionalism monitoring. Teacher grades task solving accuracy and problem solving fullness and originality. Important element of CBL is feedback from teacher to commands and vice-versa.

Summary of Results: Our pedagogical experience allows us to say that while reporting results in students possessing not only good discipline knowledge but also leadership usually take part in command discussion. Passive students usually prefer to stay silent. Participation of each command isn’t equal in discussion. Students of opposite commands rarely actively participate in discussing “not their” problem and that doesn’t help right decision making.

Discussion and Conclusions: This educational form allowed the increase of clinical thinking level and skills of students for using knowledge in problem solving.

Take-home messages: CBL increases interest and motivation, forms responsibility in students.
Using ISBAR model in a prehospital telephone consultations. A pilot study

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Background: ISBAR is a modified, standardized way of reporting patient information in health care. It was originally developed for military purposes to give situation reports in a standardized way. Physician on-call in Southern Finland Helicopter Emergency Medical System (HEMS) receives more than 7000 telephone calls from the prehospital EMS personnel asking advice or acceptance for procedures or in decision making. The quality of the calls varies, which is a risk for patient safety. The purpose of this pilot study was to test if a structured consultation model would improve the quality of the consultation to make the on-call physician's task easier.

Summary of Work: Twenty voluntary Emergency Medical Technicians and paramedics were evaluated twice in a simulated unstable chest pain scenario. After the pre-test everyone attended a two-hour education of ISBAR and started to use it clinically. The same group was evaluated again about two months after the implementation of ISBAR model to the physician's consultations.

Summary of Results: Eighteen items that were assessed from the eighteen phone calls of pre- and post-test video recordings. The observer was blinded to the groups. Cronbach’s alpha was poor: 0.397. After the intervention, the personnel were better able to identify their clinical capabilities (p<0.05).

Discussion and Conclusions: The change was smaller than expected, but it might make a significance in patient safety. More studies of the EMS personnel's reporting practices are needed.

Take-home messages: Changes in clinical pre-hospital consultation practices are not easily achieved.

Learning relationship, patient-student encounters at a clinical education ward

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Background: Patients’ involvement in health care students' learning is indispensable but there is a paucity of knowledge about students' learning processes in encountering patients. The aim was to explore patient-student encounters in relation to students’ learning at a clinical education ward.

Summary of Work: An ethnographic approach including 10 observations with 11 students and 10 patients was used. The observer followed students taking care of patients during a morning shift. After each observation follow-up interviews were conducted with students and patients separately. Data were analyzed using an ethnographic approach.

Summary of Results: When students managed to create a good atmosphere and a mutual relationship, patients became active participants in students’ learning. Students showed interest in patients as individuals taking care of patients independently with support from supervisors. If students did not manage to create a good atmosphere, the relationship became one-way and patients participated passively, just letting the students to practice on their bodies. Students considered patients as objects on which to practice different tasks.

Discussion and Conclusions: Patients as active participants result in learning with patients whereas patients as passive participants result in students’ learning from patients. Students showed interest in patients as individuals taking care of patients independently with support from supervisors. If students did not manage to create a good atmosphere, the relationship became one-way and patients participated passively, just letting the students to practice on their bodies. Students considered patients as objects on which to practice different tasks.

Take-home messages: A patient-centered pedagogical framework enhances learning as a joint action between patients and students. Providing students with possibilities to interact with patients in a meaning-making learning process could be considered as a pedagogical strategy for students within all health care professions.
3HH9 (23173)
Dilemmas and challenges that medical students experience when learning to conduct complete consultations

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Background: Medical interviewing or conducting a consultation forms the core competence of the medical profession. Within a complete consultation communication skills must be integrated alongside clinical reasoning and physical examination skills. We wanted to explore how medical students experience conducting such complete consultations. The research questions were: 1) How do students experience conducting complete consultations with simulated patients? 2) How do students experience conducting complete consultations with real patients?

Summary of Work: Six focus groups were conducted with pre-clerkship and clerkships students. Pre-clerkship students (year5) participated in the integrated consultation training with simulated patients. Clerkships students (year6) practiced with real patients about one year. Transcripts were analyzed using qualitative content analysis.

Summary of Results: Pre-clerkship students were motivated to practice complete consultations with simulated patients and felt like ‘real physicians’. However within this simulated setting, respondents found that building one part of a doctor’s identity – being ‘knowledgeable’– was at odds with another part of their identity – being present and supportive for the patient. Having a more active role as a clerk brought the clerkship students closer to deciding what kind of doctor they would be themselves, so they could translate this into their actions and develop an own consultation style. A process that was hampered by conflicting demands of role models. Because the consultation model, taught by the faculty, and clinical supervisors’ behavior were often at odds, students felt torn between conflicting demands.

Discussion and Conclusions: Students practicing complete consultations encounter the dilemma of whether to prioritize medical problem solving above attention for communication with the patient. Integrated consultation training advances this dilemma to the pre-clerkship period. During clerkships this dilemma is heightened because real patients trigger empathy and responsibility, which invites students to define what kind of doctor they want to be.

3HH10 (22617)
Self-assessment of clinical competencies: Pre-post comparison after active student participation in patient care at a Clinical Education Ward for Integrative Medicine (CEWIM)

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Background: Final year rotations have been criticised for lacking possibilities of active participation and adequate clinical supervision. The aim of our study was to see how learning and professional development of final-year medical students was affected by active student participation in clinical care during a 16 weeks rotation on a CEWIM in internal medicine under structured supervision. At the CEWIM, integrative medicine is practised by complementing conventional with anthroposophic medicine.

Summary of Work: Final year medical students (n=48), who participated at the CEWIM were asked to rate their agreement with 94 statements on a 6-point Likert scale, divided in 10 categories to physician competence (six clinical skills categories, decision making, personal development and self-reflection, communication and collaboration, and anthroposophic medicine). Students completed the questionnaire before and after their rotation.

Summary of Results: According to quantitative analysis of self-evaluation, all 10 categories of the questionnaire showed statistically significant (p<0,001) improvement. Students made most progress in diagnostic, therapeutic and decision-making skills as well as in communication and collaboration. Slighter growth was observed in personal development.

Discussion and Conclusions: Students’ self assessed clinical competence improved after a CEWIM rotation with active student participation in patient care. These outcomes match results of qualitative interviews reported at AMEE (2010). Changes in personality over a 4 months period seem hardly feasible. In the future the results of this study should be compared to conventional final year rotations.

Take-home messages: Accountability in patient care under structured supervision improves self-efficacy of students and offers an authentic and experience based vocational preparation.
The physician as teacher: An evolution of roles as experienced in a novel HIV counseling and testing scenario

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Background: Medical students have identified gaps in HIV-related education, which have been addressed by innovative methods such as simulated clinical encounters (SCEs). These SCEs are often supervised by physicians with varying degrees of HIV-specific experience or formal education in teaching.

Summary of Work: The Collaboration for HIV Medical Education implemented a SCE involving 67 second-year medical students at the University of Toronto. The students administered an HIV point-of-care test with pre- and post-test counseling to 22 persons living with HIV/AIDS (PHAs), who were trained as patient instructors (PI). Sixteen clinical preceptors facilitated student feedback. Qualitative data was obtained through recorded focus groups or individual participant interviews.

Summary of Results: Initially, only physicians were recruited as preceptors. PHA-PIs and research team members observed that physicians often failed to facilitate dialogue between medical students and PHA-PIs, preventing PHA-PIs from sharing their lived experiences. Subsequently, nurses, social workers, and counselors were recruited as preceptors. These providers demonstrated a more intuitive, non-hierarchical approach to preceptorship. Two selected PHA-PIs went on to act as preceptors, providing insight into the roles of power and authority within the SCE environment.

Discussion and Conclusions: These results suggest that physicians may benefit from further training in preceptorship. Involvement of patients in simulated encounters requires preceptors as facilitators, a position many physicians are unfamiliar or uncomfortable with. Allied health care workers and PHAs may be well poised to teach medical students and physicians alike.

Take-home messages: Perhaps the evolution of medical education requires not only a multi-disciplinary approach but further focus on physician training through faculty development programs.

Improving confidence in clinical data interpretation skills among clinical medical students: A peer-led, multiple session approach

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Background: Clinical data interpretation is a crucial skill that many medical students currently feel they lack teaching in. Peer-to-peer teaching is increasingly recognised as an effective tool in medical education. Our aim was to improve first clinical year students’ confidence in such data interpretation skills through a peer-led teaching scheme based on clinical case discussions spread over a number of weeks.

Summary of Work: For six weeks, first clinical year students attended one weekly one-hour tutorial focusing on different data interpretation skills in the context of clinical case discussions. Tutorials were led by second clinical year students. Feedback questionnaires using 1-5 Likert scales assessed attendees’ opinions on the usefulness and quality of the sessions and their confidence in the interpretation skill before and after. Free text answers were encouraged.

Summary of Results: 114 students provided feedback. Before the sessions, 25% of students felt confident in the clinical data interpretation skills compared to 81% afterwards. Students rated the sessions as extremely useful and of high quality. Many respondents praised (1) the effectiveness of learning in the context of case discussions, and said (2) that covering one topic per week allowed them ample time to consolidate skills learned.

Discussion and Conclusions: The scheme was extremely successful in improving students’ confidence in interpreting clinical data, and the case-based, multiple session format was well received.

Take-home messages: A peer-led, multiple session approach to teaching important data interpretation skills in the context of clinical cases is an effective way of improving confidence in those skills among medical students in the early stages of their clinical studies.
**3HH13 (21859)**

Simulating a PACS experience for undergraduate medical students studying radiology: A low cost solution

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**Background:** Medical educators recognise that radiology teaching is under-represented in the undergraduate medical curriculum [1]. Although web-based radiology teaching resources exist, we aimed to simulate an authentic radiology experience for our students by using a simulated ‘picture archiving and communication system’ (PACS). Some medical schools have achieved this by linking directly into hospital PACS networks [2], but others may encounter resistance from Hospital Trusts over concerns regarding the security of patient data.

**Summary of Work:** There were two phases to setting up our low-cost PACS: Phase 1: we acquired permission from the Hospital Trust Caldicott Guardian to allow radiology colleagues to share their anonymised, consented teaching images and we liaised with the hospital PACS manager to archive appropriate images. Phase 2: we purchased OSIRIX, the DICOM viewer used in our Hospital Trust’s radiology departments across the region.

**Summary of Results:** We have set up an iMac server for our image database which is managed by academic staff who collate clinical images for our case-based curriculum. Staff and students access the images in the Dissecting Room via other DICOM nodes on iPads.

**Discussion and Conclusions:** In this way, students learn how to view and interpret DICOM images using OSIRIX.

**Take-home messages:** This provides a relatively low-cost, but more authentic context for undergraduate radiology teaching than web-based radiology teaching.

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**3HH14 (19834)**

Lunch and learn: Involving patients with neurological conditions in informal learning experiences

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**Presenter:** Judy McKimm*, Swansea University, College of Medicine, Swansea, United Kingdom

**Background:** Involving patients in medical students’ learning is vital but poses challenges in clinical teaching as service pressures and shortened hospital stays impact on the time learners and patients spend together. The Swansea Graduate Entry Medicine (GEM) curriculum includes ‘learning weeks’ designed around patient problems/cases, culminating in an ‘expert clinical forum’ where a panel of clinicians and patients answer students’ questions.

**Summary of Work:** A small-group learning model aimed to enhance communication and learning from patients. The lead clinician contacted patients living with long term neurological conditions by telephone, inviting them to talk with students in small groups over lunch about living with their condition. Students were asked to talk informally with the patients about their condition, experiences, hopes and fears, supported by the lead clinician and neurology consultants.

**Summary of Results:** Students and patients found the informality a valuable way of communicating in depth about their experience. Students reported that ‘lunch and learn’ brought home the impact of living with long-term, neurological conditions, particularly in raising awareness that many patients lead a full life despite living with significant disabilities.

**Discussion and Conclusions:** Patients can feel objectified in formal lecture-based settings and schools can increase patients’ meaningful input by reducing communication barriers. Embedding opportunities for students to learn informally from patients’ real life experiences provides a useful, enjoyable adjunct to formal learning.

**Take-home messages:**
- Learning informally from patients in a structured session enhances theoretical learning.
- Patients feel valued and involved working in small groups and a relaxing environment.
3HH15 (2239)
Using a Delphi study to develop a questionnaire to identify medical students’ approaches to the clinical learning

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Background: Transition to the clinical years represents a major challenge for students who have to be able to learn from experience in the context of patient care. Despite its relevance, little is known of how medical students approach this period.

Summary of Work: We conducted a Delphi study to obtain an expert consensus in order to develop an instrument to identify students learning approaches and strategies in the early clinical years. A panel of 42 students and 49 teachers from 15 Chilean medical schools was presented with a questionnaire of 80 items built according the results of a qualitative study conducted previously. Experts were asked to analyze the relevance and clarity of the items.

Summary of Results: After two rounds of analysis, a 49-item questionnaire was obtained. A pilot test indicated that it was clear and user-friendly. The next step is to determine the questionnaire’s validity and reliability in a larger sample of students.

Discussion and Conclusions: According to a national expert panel of students and teachers, Chilean medical students use a wide variety of strategies during the transition to the clinical years. While some categories seem apparent, empirical factors must be identified to understand the transformation of medical students in experiential learners.

Take-home messages: Medical students and clinical teachers should be aware of the way students approach the challenge of learning in the early clinical years. The instrument developed in this study may help students and medical educators understand this process and to optimize their learning and teaching efforts.

3HH16 (23096)
Can the training time and experience of standardized patients have an effect on the result of Clinical Performance Examination?

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Background: Making one standardized patient (SP) who can act like a real patient and score the performance of medical student applicant at the same time requires many hours of training. But if we restrict the domain of scoring, we can reduce the time of SP training.

Summary of Work: We selected 8 preparatory SPs who worked as an actor or actress as a side job for the purpose of saving time and money. They didn’t need to be taught about acting but required 1 hour of education about the role and responsibility as a SP. Moreover we spent 1 hour for introduction about checklist composition, 1 hour for meeting 2 simulated doctors who were internal medicine specialists, and 1 hour for a debriefing about their short experience as SP. After then we made a mini-CPX (Clinical Performance Exam) for 2nd grade medical students which consisted of history taking and patient-physician interaction domains only. Physical examination was intentionally excluded for its difficulty of training. 6 senior SPs who had received more than 1 hundred hours of training and worked as SPs for more than 8 years attended the exam and 8 junior SPs who received 4 hours of SP training and never had experienced SP before.

Summary of Results: The paired T test was analyzed between the mean score of Senior SPs and that of Junior SP. There were no significant differences in the score of history taking and patient-physician interaction domains between senior and junior SPs(p<0.05)

Discussion and Conclusions: SP training without physical examination domain could be simpler.

Take-home messages: This experience gave 2nd grade medical students a chance of an early exposure to clinical medicine.
Abstract Book: Session 3
Monday 1 September: 1045-1230

3HH17 (23196)
Teaching communication skills in order to make inevitable death discussable

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Background: A timely discussion about the inevitable death of terminally ill patients is imperative to avoid misunderstanding about the care that is wanted and ensures that appropriate measures are taken. Too often patients are ‘over-treated’ because the nearby death is not discussed. A reason is that doctors are trained to provide curative treatments rather than handle the heavy emotions from patients facing the end of their life. Also patients are reluctant to start this subject. There is an increasing awareness that doctors need to be trained to start this discussion with patients.

Summary of Work: Effective communication about inevitable death can contribute to optimal palliative care during the final phase of life. Therefore, we have developed a communication module for physicians. During this 4 hour training physicians:
a) become aware of their own emotions that may hinder effective communication with palliative patients.
b) are provided with the relevant theory and skills.
c) practice these skills with the help of a professional actor.

Summary of Results: During the last 3 years we have offered this module to hospitals in the Netherlands. Participants - internal oncologists, gynaecologists and intensive-care physicians - generally appreciated this module. It provides practical communication tools to initiate a consultation about inevitable death.

Discussion and Conclusions: Communication skills regarding inevitable death are helpful in initiating a discussion with patients.

Take-home messages: A timely discussion about the inevitable death requires communication skills that can be taught.

3HH18 (23197)
Assessing shared decision-making skills of 3rd year medical students

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Background: 70% of patients wants to be involved in their care. Shared decision-making (SDM) meets this need, having a positive effect on satisfaction, quality of life and the doctor-patient relationship.

Summary of Work: We teach 3rd year medical students a 6-phase SDM consultation model: 1. Start (goal, equipoise). 2. Informing (treatment options, pros/cons). 3. Deliberation (weighing considerations, concerns). 4. Preference. 5. Preferred role in decision-making. 6. Decision. Video recordings of 364 students conducting SDM consultations with simulation patients were made, uploaded in students' digital portfolio, shared with two peers and assessed by teachers. Summative assessments were made using a semi-structured rating list. Assessments were categorized as: below expectations (4-5), meets expectations (6-7-8), and above expectations (9-10). Furthermore, students provided written reflections on self-selected events in their consultation. They both received and provided peer-feedback. By fulfilling this assignment, students received a positive assessment of 'professional behaviour'.

Summary of Results: A semi-structured rating list was developed to assess SDM skills of 364 medical students. The average assessment was 7,2. 16 students (4,4%) failed, whereas 24 students (6,6%) performed above expectations. The majority of students (89%) performed at ‘meets expectations’ level. All students fulfilled their reflective assignment.

Discussion and Conclusions: Our 6-phase consultation model can be used to teach SDM skills. These skills can be assessed using our semi-structured rating list.

Take-home messages: SDM skills can be taught and assessed.
**3II1 (19329)**

**Medical study abroad: Motivation and outcome of Erasmus outgoing students at Medical faculty Maribor**

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**Background**: The higher education exchange programme, Erasmus, has growing rates of students spending part of their studies abroad. It therefore sparks many questions about the motivation as well as outcomes for participating students. To this date there has not been a study, which examined aspects important for outgoing medical students. Based on theory we have made following hypothesis: 1. Students deciding to go on exchange are academically successful and more involved in field connected extracurriculars; 2. Highest ranking reasons for going on study abroad is language proficiency; 3. Participating in exchanges motivates students for more active engagement in society.

**Summary of Work**: So far, we have developed a 63 items questionnaire, focusing on the personal component, logistical factors of the exchange experience, as well as the outcomes after returning back to Slovenia. We are researching the impact overall social and academic involvement, factors of motivation and also the personal background, its effect on the decision to spend time abroad. We are examining medical students integration at foreign universities and putting focus on students' perceived outcomes after returning home, with special focus on motivation for social engagement and sharing their experience.

**Summary of Results**: So far, we have developed and administered the questionnaires. The questionnaire and data will be presented.

**Discussion and Conclusions**: This study enables us to understand Erasmus outgoing medical students as well as help them to gain most from the experience when returning.

**Take-home messages**: Better understanding of students leads to better faculty support systems.

**3II2 (22884)**

**Global Health teaching and learning in the community**

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**Background**: As medical schools innovate in teaching Global Health, medical anthropology and social accountability, the Medical School of International Health in Israel, has developed an introductory course that combines the teaching of key Global Health competencies with experience gained on student placements in local communities and NGOs.

**Summary of Work**: A practical and lecture-based course was developed that focuses on understanding local communities, social capital and how much can be achieved by the community themselves through effective partnerships and the development of local infrastructure. Medical students were supervised in local communities, where they met patients in their homes. Students learned about patients’ health, access to healthcare services, personal perceptions of health and disease and the social determinants of their health.

**Summary of Results**: Of a class of 37 students, 14 interviewed a patient (4 students interviewed more than one patient). The remaining 19 students opted to undertake literature reviews or biomedical research. Case-based discussions were held in class with particular emphasis on the analysis of Global Health problems. These were then written up as Global Health case reports.

**Discussion and Conclusions**: Practical placements have introduced students to the diverse ethnicities and cultures in Israel. More needs to be done to help them make sense of what they have seen and heard, and more anthropological training and support is planned for the course next year.

**Take-home messages**: To really understand the complexity of Global Health problems and their effects in patients’ lives, students need to be enabled to get close to patients, have the opportunity to see how they live and appreciate what they think.
3113 (21813)
Including international students in a UK undergraduate medical programme

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Background: The views of staff and international students were sought to explore the experiences of international students and how their learning experience could be enhanced.

Summary of Work: 102 tutors responded to an online survey and 17 international students participated in focus groups exploring their experiences of the programme.

Summary of Results: From the online tutor survey:
• 67% recognised international students required different support than UK students,
• 19% felt cultural awareness was delivered within curriculum,
• 76% agreed cultural awareness should be an important element of the curriculum.
• 89% were not aware of how to signpost international students to the university support systems.

From the focus groups students identified:
• problems regarding induction to the UK NHS and social care systems
• the need to internationalise the curricula
• mentoring systems that addressed their requirements
• stereotypical portrayals of ethnic groups within PBL scenarios
• issues regarding attitudes of staff and religious observance

Discussion: Although students identified problems with regard to participation and language barriers they also recognised the importance of PBL with regard to opportunities to develop these skills. Internationalising the curricula to encourage participation from international students and to fulfil the university’s globalisation strategy was also highlighted. Tutors and students believed cultural awareness and diversity should be an important aspect of the curricula and tutors required support with respect to this.

Discussion and Conclusions: As a result of the issues raised a number of interventions are currently being explored and implemented in the medical programme.

Take-home messages: Enhancing the experience of international students requires a commitment to internationalisation and equity which will benefit all students.

3114 (21845)
Remembering old partnerships: Networking as new medical schools within BoLeSwa countries

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Background: In Southern Africa, former members of the Botswana-Lesotho-Swaziland (BOLESWA) partnership, Botswana and Lesotho, have established their first and only publicly funded medical schools in their countries. Swaziland has a private medical school. The three countries have a long history in their partnership through the University of Botswana, Lesotho and Swaziland System, a derivative of the BOLESWA. Botswana and Lesotho are also members of a newly founded consortium, the Consortium of New Southern African Medical Schools (CONSAMS). The UBLS was established in Lesotho in 1964 through a Royal Charter, two years before the three countries gained independence. It was founded to address manpower constraints in the anticipation of their independence. The three countries had agreed to concentrate on different professional trainings as follows: Botswana in Engineering, Swaziland in Agriculture and Lesotho in Medicine.

Summary of Work: CONSAMS was established as a unique collaborative approach involving South-South networks which includes South-North partnerships. This creates an opportunity to strengthen medical education in the region. The BOLESWA partnership is further strengthened by their participation in CONSAMS as two of the five founding members. Other members include Mozambique, Namibia and Zambia.

Summary of Results: Sharing resources through regional and international partnerships.

Discussion and Conclusions: The Sub-Saharan African Medical School Study has examined the challenges, innovations, and emerging trends in medical education in the region and has made recommendations on how to better share resources. CONSAMS is one innovative way of addressing this.

Take-home messages: Partnership between the BOLESWA countries have been strengthened through CONSAMS. This has afforded the new medical schools to share limited resources.
**3II5 (22410)
Enhancing global health and education between Zambia and Japan**

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**Background:** This era of international partnerships brought Mie University in Japan, and the Zambian Hospital together to address the issues of injury surveillance in Zambia. Since 2007 Mie University has started university partnership program in the context of international collaboration. Furthermore, WHO injury surveillance project in Zambia is ongoing. This article describes injury surveillance program participants’ outcomes of interprofessional collaboration between different health professions and specialties in Zambia and Japan. Injury surveillance project in Zambia is ongoing. This article describes participants outcomes of interprofessional collaboration between different health professions and specialties in Zambia and Japan.

**Summary of Work:** In Feb. 2014, we conducted a workshop in association with the WHO, on fatal injury surveillance in Zambia, with the aim of capacity building and developing inter professional collaboration among local health care workers. 20 medical doctors' different specialties including orthopedic surgeons, pathologists, biostatisticians and Japanese observers participated in this workshop. All participants worked and learned together to understand injury prevention. We assessed 1) pre-test and post-test (before and after the workshop to measure injury knowledge), 2) questionnaires about present injury situation, and 3) interviews about this workshop.

**Summary of Results:** 10 out of 20 participants have completed. 8 were orthopedic surgeons and 2 were pathologists. 6 were junior and 4 were senior doctors with more than 5 year experience. 6 junior doctors had to go to multiple departments to treat the patients (emergency room, inpatient ward, outpatient ward and mortuary). Pre-test and post-test evaluation average score increased by 10.7%. (P<0.005) For biostatisticians it was a good opportunity to meet with doctors and see the flow of data gathering and entry. Japanese observers learned different teaching skills.

**Discussion and Conclusions:** In conclusion, there were better understandings in injury surveillance system. This workshop was effective as interprofessional collaboration.

**Take-home messages:** Developed country and emerging country collaboration is challenging, interprofessional collaboration between different health professions is effective to develop sustainable partnerships.

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**3II6 (20015)
Ensuring equal learning opportunities for international students studying medicine and STEM subjects in two higher education institutions**

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**Background:** Ensuring equal opportunities for learning for culturally and linguistically diverse students might be difficult. The focus of this study was to explore which factors offer these opportunities for medical and STEM students in two Irish higher education institutions based in Dublin and Bahrain.

**Summary of Work:** Narrative inquiry was chosen as the research approach and method of analysis. Ten semi-structured interviews were conducted with language minority and English native speaking students from Egypt, Pakistan, Bahrain, China, USA, Canada and India. Validity of research was ensured by undertaking respondent validation, cross-checking transcribed data with field notes, voices triangulation and double-coding. NVivo was used to store and analyse the data.

**Summary of Results:** The emerging themes highlighted that cultural competency of lecturers, engagement with students, transparent and meaningful assessment can ensure equal opportunities for learning. These themes were important for students from all nationalities and all linguistic backgrounds.

**Discussion and Conclusions:** The findings suggest that the daily practice of a medical teacher in higher education, rather than students' societal culture, plays a major role in creating equality for learning. Despite making indirect links to their societal and previous educational cultures, the participants indicated that, through setting up transparent and meaningful assessments and through engaging with and learning about their students, their tutors can help with learning in higher education.

**Take-home messages:** We are aware of the limitations of these findings as they are from the pilot stage and we are yet to conduct 15 more interviews at each research site.
"LabMond", Laboratorio di Mondialità: An Informal Education project on Global Health issues. What is the impact in the core curricula of Italian Medical Students?

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Background: As stated in the final WHO Commission on Social Determinants of Health report, Social inequalities are ‘killing on a grand scale’: wide gaps among and within countries still remain and, in this sense, Global Health studies become a priority on the agenda of international health policy. The lack of education on Global Health themes in Italian academic curricula was highlighted by several studies, among which is the mapping of the Italian graduation courses within the "Equal Opportunities for Health" European project.

Summary of Work: For this reason, in 2006 SISM, the Italian medical students network who promote Medical Education, Global Health and Human Rights, gave birth to LabMond. LabMond is a three-days long educative event dealing with Global Health topics (health inequalities, health policies, social determinants of health, migration medicine, etc) through non-formal education methods.

Summary of Results: The project is managed by a Scientific Students' Group, which cooperates closely with SISM partners for a transdisciplinar approach to Global health field.

Discussion and Conclusions: The target of this project is to promote a cultural change in Global Health theories and practices, raising medical students' awareness on Global Health topics and enhancing the development of new teaching methods, like small working groups, case studies and theatre based learning.

Take-home messages: Instead of accepting the absence of relevant academic courses, students organised to promote the education on Global Health among the Italian Universities.

The Swansea, Gambia Link: Embedding mutually beneficial international exchanges into the medical curriculum

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Background: Globalisation has increased the need for medical students to learn about healthcare inequalities and cultural differences, to better serve increasingly multicultural, mobile communities. A partnership between the medical schools in Swansea and The Gambia was established in 2007, supported by the Tropical Health and Education Trust. The Link aimed to promote shared learning, research and improve healthcare outcomes primarily through annual student exchange visits.

Summary of Work: To develop a more sustainable, two-way partnership, in 2011, Welsh Government and a local Health Board agreed that NHS funding could be used to embed into the Swansea curriculum a formal, two-week clinical placement in The Gambia for twenty students accompanied by a tutor. In return, Swansea hosts medical students and teachers from The Gambia.

Summary of Results: Formalising placements has extended partnership arrangements, contrasting with most uni-directional, medical elective programmes where students from high resource countries visit low resource settings.

Discussion and Conclusions: Global health partnerships provide valuable hands-on experience of health and healthcare delivery. They can be integrated into medical curricula but need to be sustainable and equitable.

Take-home messages: Embedding student exchanges formally into the curriculum through partnership arrangements provide sustainable, equitable benefits to both countries.
Comparison of the achievement in the Medical National License Examination Step 1 between the Joint Medical Programme SWU-UoN and the Thai Programme

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Background: The Thai medicine programme (TMP), Faculty of Medicine, Srinakharinwirot University (SWU) has been established since 1985. In 2003, the Joint Medical Programme (JMP) with the Faculty of Medicine and Health Sciences, the University of Nottingham (UoN), UK, was initiated. This study was designed to compare the achievement of the 1st exposure to the national license examination (NLE) step 1 of medical students between both programmes.

Summary of Work: During 2010-2013, we have followed score of the 1st exposure to the NLE step 1 of the both programmes. A selected group of TMP students who had low score in the pre-clinical subject was arranged for an intervention consisting of extra-lectures, small group discussions, and questions and answers (Q&A) by advanced students 1–2 hours daily for two months before the NLE. Additionally, the students of the JMP are subjected to an intervention by tutorial activities consisting of self-tutorial sessions and Q&A periods during weekends for three months before the NLE.

Summary of Results: During 2011, 2012, and 2013, the percentage of the students in the TMP who passed the 1st exposure for NLE step 1 were 92.50% (N=120), 99.16% (N=119), and 99.16% (N=119), respectively. Whereas, that of the JMP during the same period, were 40.0% (N = 10), 22.2% (N = 9), and 100.0% (N = 10), respectively.

Discussion and Conclusions: The intervention for both TMP and JMP study were effective indicated by the improvement of their scores in NLE.

Take-home messages: An important factor was to motivate the students’ concern of the important of the NLE step 1.

Evaluating the effectiveness of an extended basic science curriculum in international medical students

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Background: Extended basic science curriculum programs are becoming increasingly prevalent, particularly in international medical schools. Trinity School of Medicine follows a standard basic science curriculum that is taught on the island of St. Vincent, West Indies. Beginning in January 2013, an extended Individualized Learning Plan (ILP) was introduced that allows students to split the 1st semester curriculum into two reduced course load semesters.

Summary of Work: Incoming 1st semester students were followed during the basic science curriculum. Academic data included: undergraduate GPA (uGPA), MCAT and grades. Academic data for students enrolled in ILP was compared with those who were not enrolled in ILP.

Summary of Results: When taken alone, neither MCAT score, nor undergraduate GPA was predictive of student academic success. However, when both factors were considered, we found students in ILP were significantly less likely to fail one or more classes than academically similar students who were not enrolled (p<0.01).

Discussion and Conclusions: 80% of students with MCAT scores less than 25 and an uGPA less than 3.0, who did not follow the ILP track, failed at least one course in the basic science curriculum during the first semester. Failure rate was significantly reduced to 10% in students who met both the above criteria, but who followed the ILP plan. Further, we found a 0% failure rate in ILP students who only met 1 of the above criteria.

Take-home messages: Reduced coursework in the 1st two semesters appears to overcome the relationship between low pre-MD academic scores and the risk of failure in the MD program.
Background: The number of international students in Romanian Medical Universities is growing in recent years. International students are a special group for every university, because they face a lot of stressful situations in the host country due, for instance, to different academic demands, cultural context, language differences. A particularly interesting case is represented by the recent increase in international student who decide to study Medicine abroad. Longer duration of studies, impact of following this specific degree in a foreign language, cultural differences, are expected to weigh in more in this field of study than in a different one.

Summary of Work: The purpose of this study was to assess associations between psychological adaptation and stress coping strategies in international and domestic students studying General Medicine at the University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Romania. The study recruited 421 first year students: 268 Romanian and 153 international students (English section). The participation in the study was 90% of the students. Stress-coping strategies were measured by COPE questionnaire. STAI Scale was used to measure anxiety.

Summary of Results: In stressful situations international students used different stress coping strategies when compared to domestic students. Stress coping strategies used by international and domestic students were differently connected to academic stress and personality variables.

Discussion and Conclusions: Special attention needs to be given to international students so that they can more successfully adapt to studying and living in a foreign country.

Number of papers published in English from the nursing departments of 42 national universities in Japan for the past ten years

Background: In Japan, the departments of nursing were established by 2004 in 42 national four-year universities, and graduate school programs for master's degree have been established by 2008 in all these universities, and for doctor's degree in 27 of them. As the school system changed, the need for writing papers in English has increased, and the importance of English education has been emphasized. However, the number of papers published in English, as an outcome evaluation of English education, has not been examined before.

Summary of Work: The lists of teachers (n=1322) in the departments of nursing of 42 national universities were obtained from the websites. The number of papers published by the teachers who have nursing licenses (n=1150, 87.0%) was counted from 2004 to 2013 using the SCOPUS database.

Summary of Results: The total numbers of papers in English of 42 universities per year from 2004 to 2013 were 98, 109, 118, 128, 142, 158, 191, 224, 224, and 233. According to universities, the mean and standard deviation of the total number of papers in 10 years was 38.7±52.1 (range: 1―323). Fifty-eight teachers (5.0%) published more than 10 English papers, while 733 teachers (63.7%) published no English papers in 10 years.

Discussion and Conclusions: The number of papers published in English, which varied a lot among both universities and teachers, seems to be increasing in total.

Take-home messages: The current data will be a baseline for the long-term evaluation of English education in the departments of nursing in the future.
The success in Human Biology subject of first year medical students in the Joint Medical Programme SWU-NU is independent of the IELTS scores

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Background: The joint-medicine programme between Srinakharinwirot University, Thailand and the University of Nottingham, UK has operated since 1985. Successful applicants with the IELTS score at least the overall of 7.0 have to spend their first six months studying various subjects, especially Human Biology composed of 27 topics from human anatomy to microbiology in English. We therefore investigated the correlation between the students' IELTS scores and the passing rate of the 27 topics.

Summary of Work: Data were collected from three batches of first year medical students enrolled in the preparatory course between 2011 and 2013. In order to pass the subject, they must reach at least 60% of the total mark for each topic. Students were divided into four groups: 1) fail between 0 and 5 topics, 2) fail between 6 and 10 topics, 3) fail between 11 and 15 topics and 4) fail between 16 and 20 topics. Seven students with band 7.5, 5 students with 7.0 and 5 students with 8.0, fail between 0 and 5 topics. In group 2, there were 9 students with band 7.0, 7.5 and 8.0. For group 3, there was one student with 7.0 and one student with 8.0. There were 2 students with 7.5 in group 4.

Summary of Results: The result shows no correlation between the IELTS scores of the medical students and their pass rate.

Discussion and Conclusions: English proficiency is not the main factor to indicate the passing rate of students during their preparatory course.

Take-home messages: Students cannot only rely on their English skill to understand and master the subject.
Culture difference in faculty development workshop of health providers between Australia and Taiwan

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Jen-Hui Fu, Chang Gung Memorial Hospital, Pediatric, Taoyuan, Taiwan
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Background: To evaluate and describe the faculty development workshops which used of TOTR (Teaching On The Run) base from Australia in four hospitals at Taiwan.

Summary of Work: Two clinical teachers from Taiwan participated in a TOTR workshop in Australia. Then six faculty development workshops adapted from TOTR were held in four hospitals in Taiwan. 117 Taiwan clinical teachers participated in these workshops. Six workshops included first two invited facilitators from Australia using English, the other 4 workshops used Chinese by Taiwan facilitators.

Summary of Results: A total of 117 participants attended the workshop and all completed questionnaires. Participants rated the workshop highly and found it a valuable learning experience. Compare with English version and Chinese version workshop post-course questionnaire, participations rated 93.80% satisfaction to teacher in English workshops and 93.03% in Chinese workshops. Participations rated 85.80% satisfaction to pre-workshop E-learning material (from TELL Centre website, Australia) in English workshops and 82.00% (adapt version from CGMH website) in Chinese workshops. They also rated 91.92% overall satisfaction to English workshops and 91.18% to Chinese workshops. The observation between Australia and Taiwan workshops were also recorded and compared.

Discussion and Conclusions: We found the participants from Taiwan were more passive in pre-workshop E-learning but presented microteaching skills well equally in two groups. Taiwan participants were less active and less inquisitive. They gave post-workshop rating and comments more politely and less critically. Because of the culture difference between Australia and Taiwan, we should make several adjustments to TOTR workshops. First, early and frequent notifications to participants before the workshop should be considered. Second, facilitators of workshop should make more efforts to encourage Taiwan participants to more active. Third, the critiques and critical comments from participants should be more emphasized and welcomed in the workshop at Taiwan.

Take-home messages: Several adjustments should be made to TOTR workshops in Taiwan.
5.5. They showed low personal interest about 'student overall satisfaction (out of 6), which made the average urgent' topics or 'most impactful' topics varied from feasible/applicable' topics were similar, but 'most development' and 'student assessment'. Their 'most practice of teaching and learning', 'curriculum topics on average, most of them included 'theory and can you run a workshop by yourself?' they chose 4.19 licensing exam'. When we asked 'About which topic positive responses to our faculty development finished. Discussion and Conclusions: A total of 104 faculty participated in 6 sessions. Following the session the overall average confidence to teach increased from 2.9 to 4.2 on a 5 point Likert scale (88% of submeasures increased, 17% no change, and 3% decreased in confidence). 100% of teachers who responded felt prepared to teach and 81% of teachers few weeks after they taught reported that they will/or have changed their practice. Discussion and Conclusions: Given the challenges to implement clinical practice change, a two for one FD strategy can be an effective means to support development of specific clinical teaching skills and stimulate a corresponding change in clinical practice.
**ClinSSAC: The effect of a multimodal program on clinical supervisors' education skills**

Joanna Tai, Monash University, HealthPEER, Melbourne, Australia  
Vicki Edouard, Monash University, HealthPEER, Melbourne, Australia  
Fiona Kent, Monash University, HealthPEER, Melbourne, Australia  
Debra Nestel, Monash University, HealthPEER, Melbourne, Australia  
Margaret Bearman, Monash University, HealthPEER, Melbourne, Australia  
Elizabeth Molloy, Monash University, HealthPEER, Melbourne  

**Presenter:** Charlotte Denniston*, Monash University, HealthPEER, Clayton, Australia

**Background:** Clinicians require support to become educators and supervisors. HealthPEER Monash University and Monash Health developed ClinSSAC (Clinical Supervision Support Across Contexts), a half-day face-to-face interprofessional workshop, which was delivered in 2012-13. An online equivalent with additional context and discipline specific e-learning modules was launched in May 2013. To encourage self-assessment of education skill, the Maastricht Clinical Teaching Questionnaire (MCTQ) was administered during the workshop and six months later.

**Summary of Work:** The program sought to provide participants with the foundations of supervision, including areas of concern such as managing underperformance.

**Summary of Results:** Of 944 workshop participants, 902 completed a general evaluation survey, and 505 consented to analysis of their MCTQ ratings. A range of professions was represented, with a median four years' supervision experience. The overall workshop mean rating was 3.67 (4=very helpful and 1=irrelevant). The MCTQ was praised as a tool to promote individuals' reflection on their clinical teaching skills (mean participant rating 3.29). The majority of participants had not previously encountered a framework to assess and guide their development as educators. Follow-up analysis demonstrated a sustained increase in educator skill after six months.

**Discussion and Conclusions:** Participants' evaluation and improved MCTQ ratings suggest the interprofessional program was appropriately designed. The interactive workshop allowed participants to share experiences and trial strategies to engage learners. This format also allowed for on-the-fly adaptation, and improvements to subsequent workshop delivery. Interactive and multidisciplinary face-to-face workshops were seen to improve supervisory skills across disciplines. Participants praised the MCTQ as a reflective tool.

**Take-home messages:** Interactive and multi-disciplinary face-to-face workshops were seen to improve supervisory skills across disciplines. Participants praised the MCTQ as a reflective tool.

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**Evaluation of a program for developing clinical teaching skills of lecturers at Benha faculty of medicine**

Hossam Maaty*, Benha Faculty of Medicine, Neurosurgery, Cairo, Egypt

**Background:** Clinical learning is influenced by several factors including learning environment, and teaching staff skills; lack of this skills may leads to poor quality of clinical education.

**Summary of Work:** This study was conducted to develop and evaluate a training program for developing clinical teaching skills of lecturers at Benha faculty of medicine. The study including 70 lecturers working at clinical departments of the faculty, and 425 students enrolled in 5th and 6th academic years. Three tools were used for data collection; first: lecturers' knowledge questionnaire, second: lecturers' observation checklist, third: students' satisfaction questionnaire. These tools were used pre/post and 3 months latter. The program was implemented in 2 months period; with 2 sessions per week (3 hours for each).

**Summary of Results:** The study results revealed that the implementation of this training program resulted in statistically significant improvement of lecturers' clinical teaching skills (knowledge and performance), and students' satisfaction in relation to performance of lecturers in the clinical sitting. The mean scores of all items were decreased after 3 months in comparison to immediate post program.

**Discussion and Conclusions:** We recommended that introducing such educational training program before employment for the lecturers may develop their clinical teaching skills, roles, characteristics, and responsibility in the clinical sitting. In addition; this may help the developing of new teaching/learning strategies in medical school.
‘Transforming Medical Teachers’ – the impact of faculty development

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Michael Begg, University of Edinburgh, Learning and Technology Section, Edinburgh, United Kingdom
Debbie Aitken, University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom

Background: The rise of programmes developing the teaching skills of doctors over the last decade has gone hand in hand with significant changes to postgraduate doctors training and GMC requirements. Systematic reviews of development programmes tend to focus upon individual participation satisfaction surveys rather than higher level evidence of effectiveness. With continual NHS and academic reforms, what measures can we take to ‘future proof’ the evolution of appropriate clinical education through faculty development programmes?

Summary of Work: This work looks at one particular clinical educator programme and the skills and knowledge acquired by participants on such programmes. It also explores the ongoing impact and relevance within the communities of practice and professional contexts to which they return.

Summary of Results: Personal Construct Psychology theory affords a rich mechanism for eliciting personal psychological maps of subject domains. The work will report on how structured interviews using Kelly’s repertory grid technique reveal how participants relate general aspects of their professional practice to the outcomes of the programme.

Discussion and Conclusions: Gaining insight into participants’ experiences will provide means to move beyond the measurement of satisfaction and help direct future services to better meet their needs.

Take-home messages: Faculty development programmes need to be planned in a way that develops, inspires and supports clinical education longitudinally throughout the many changes and challenges the NHS environment will undergo in the future. Responding to the ongoing experiences of teaching clinicians is essential to their core development.

A faculty development program for health professionals of Sub-Saharan African countries: the case of the University “Onze de Novembro”, Cabinda, Angola

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Anabela Sinandinse, University Onze de Novembro, Instituto Politécnico, Cabinda, Angola
João Filipe Camanda, University Onze de Novembro, Faculty Medicine, Cabinda, Angola
Maria Amélia Ferreira, Faculty Medicine University Porto, Department Medical Education and Simulation, Porto, Portugal

Background: Health education in Sub-Saharan African countries has evolved with the development of new courses, driven by policies and awareness for alignment with community and health system necessities. Improving the quality of educational programs is urgently needed. This has been identified by the University “Onze de Novembro” in Cabinda (Angola).

Summary of Work: A course in “Pedagogical Development for Health Professionals” has been delivered to 19 staff members of the Faculty of Medicine and Health Sciences Institute, University “Onze de Novembro”. The participants were the selected from stakeholders involved in the educational programmes. Twelve sessions were performed, interactive lectures, small-group discussions and exercises, role plays and simulations and experiential learning, a final assessment of participants was made, and a final evaluation of the course was performed.

Summary of Results: Assessment of participant satisfaction showed that acquisition of knowledge, methods and quality of teaching staff were highly evaluated (95% of the participants); the more positive aspects of the course focused competences of the trainers, organization of the course and interactivity; the less positive aspect was the length of the course (considered too short).

Discussion and Conclusions: Faculty development sits within the framework of organizational change, development and transformation, and is dependent on high-level institutional support. The staff development course has been rated as relevant and useful emphasizing increased personal interest, enthusiasm and educational leadership.

Take-home messages: Faculty development has a critical role to play in promoting quality, identified as a need by this University of a Sub-Saharan African Country in search of improving quality of health education.
Faculty development: Challenges towards a successful programme

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Marcia Hiromi Sakai, State University of Londrina, Public Health Department, Londrina, Brazil
Ruy Guilherme S. Souza, Federal University of Roraima, Center for Biological and Health Sciences, Boa Vista, Brazil
Sigisfredo Luis Brenelli, State University of Campinas, Department of Clinical Medicine, Campinas, Brazil
Suzana Melo Franco, UNA-SUS/Fiocruz, Executive Secretariat, Brasilia, Brazil
Katia Kiyomi S. Santos, Foundation to Support the Development of Technological, University Hospital of Northern, Londrina, Brazil

Background: Faculty development is essential to obtaining success in a curriculum changing process, mainly in medical courses that apply student centered methodologies. Many medical schools are introducing this programme to prepare teachers to perform in these courses. Two key issues of faculty development were analyzed in this research: teaching learning strategies and teacher motivation.

Summary of Work: The research design was qualitative. Focus groups and content analysis were utilized. The study included six Brazilian medical schools which implemented active methodology, for instance, PBL. The focus groups consisted of teachers.

Summary of Results: Participants highlighted teaching skills deficit, mainly in innovative curriculum, when assuming roles as facilitators, managers, and instructor, among others. Feelings of insecurity before the challenges of small-group tutorials, resistance to interdisciplinary module integration, student assessment uncertainty and “theory-practice” integration difficulties were also reported. Some perceived the need to change concepts and values while others mentioned feeling unprepared to work in the course. First issue discussed was the “teaching-learning” strategy of effective faculty development. Therefore, duration; “student-teacher” focused strategies and formative assessment were elaborated. The second was motivating teacher participation in the programme. Were the reasons for participation spontaneous or obligation? Did the course meet the teachers’ needs? Would they participate in a second edition of the programme? These were questions that required asking during programme planning.

Discussion and Conclusions: Teachers emphasized increased self-confidence post-participation. Valorization of undergraduate teaching instead of researching career in medical schools is important for curriculum change consolidation.

Take-home messages: Faculty development needs to be based on critical and reflective methodology, teachers’ needs, and formative assessment.

Creating a new pedagogy for Faculty Development in Medical Education

Jana Bajcar*, University of Toronto, Faculty of Medicine, Toronto, Canada
Cleo Boyd, University of Toronto, Faculty of Arts and Science, Mississauga, Canada

Background: Our challenge was to set the stage for new teachers to be effective in a new expansion campus of an established medical school.

Summary of Work: We designed a new approach to engaging new teachers by applying a process that we had developed that we refer to “Assess, Align, and Engage”, which reflects a "learning-centered" environment. The content that we applied this process to was “Understanding your learner” and “Feedback”. To create alignment between the needs of the teacher and the learners they will need to engage in the learning process, we combined the use of generational theory, teaching/learning characteristics, and the transactional model of communication to generate in depth conversations about the challenges of teaching students and extending this process to the faculty as learners.

Summary of Results: Twelve sessions have been attended by 78 faculty to-date. A qualitative reflective questioning approach was used to evaluate the sessions. Participants’ responses were analysed thematically and a number of themes emerged. The central theme was the “Need for teachers to change their ways of thinking about their own learning”. Specifically that everyone is a learner, thus a learning-centered environment is created.

Discussion and Conclusions: New pedagogies are created when we understand that learning-centered and learner-centered environment are not the same thing. Learning-centered teaching and learning requires a collaborative environment in which faculty and students are constantly learning and teaching each other.

Take-home messages: Old ways or even current ways of thinking about learning have to be challenged constantly if we are to meet the challenge of medical education in the 21 century.
**3JJ9 (19924)**

**Teacher Training in a Network of Veterinary Universities**

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Christian Gruber, VetMedUni Vienna, Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT), Vienna, Austria

**Background:** KELDAT is a network project of all German-speaking veterinary universities funded by the VolkswagenStiftung and the Stiftung Mercator. The aim of the project is to build and maintain a competence centre that unites expertise in Medical Education and makes it accessible for all participants. As one part of the project, several didactical courses for teachers of all participating universities were offered.

**Summary of Work:** Ten different courses were offered to the universities as well as the possibility to create additional workshops for special needs. Topics were chosen from the categories “e-learning”, “assessment”, “skills training” and “general didactics”. Attendance and acceptance were measured.

**Summary of Results:** Since February 2012, 60 courses with 789 participants given by 12 trainers of the KELDAT took place. Most courses were done in the categories “e-learning” (29-302) followed by “assessment” (14-149), “general didactics” (13-226) and “skills training” (4-112). 10 (16.7%) courses were done online. The feedback of the participants was generally positive but showed improvement opportunities in the announcement of the courses at the participating universities. The use of virtual classrooms was new to most teachers.

**Discussion and Conclusions:** Even if the most universities had offered quite expensive external teacher training programmes, there was a high demand for education trainings specialized on Veterinarians. Trainings done by KELDAT fitted widely into this demand. The courses offered by KELDAT will be developed further in content, amount and promotion, especially concerning the use of virtual classrooms.

**Take-home messages:** Using an interuniversity network for teacher training helps the participating universities to profit from joint expertise at low cost and high acceptance.

**3JJ10 (21810)**

**Development of a Basic Teaching Licence Course for Health Professional (HP) Educators: To Inspire Teaching**

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Catheriene Arokiasamy, International Medical University, IMU Centre for Education (ICE), Kuala Lumpur, Malaysia

Amutha Navamoney, International Medical University, IMU Centre for Education (ICE), Kuala Lumpur, Malaysia

Victor Lim, International Medical University, School of Medicine, Kuala Lumpur, Malaysia

Vishna Nadarajah, International Medical University, School of Medicine, Kuala Lumpur, Malaysia

**Background:** Their role as teachers are diverse; facilitating PBLs, developing e-learning materials, curriculum development and assessment.

**Objective**

1. To develop a basic teaching licence (BTL) course
2. To obtain feedback on the effectiveness of the course
3. To promote interest amongst faculty to enhance teaching skills

**Summary of Work:** Based on the International Medical University (IMU) learning model, the IMU Centre for Education (ICE) developed a 5 day BTL course. The course content covers the roles of HP teachers, outcomes based education, small and large group teaching, assessment and personal and professional development. The participants are assessed via a written assignment on how they have applied what they had learnt to improve aspects of their learning and teaching roles.

**Summary of Results:** There was initial resistance to attending the full 5 days and submission of assignment, however advance announcements of the BTL calendar (3 times a year) and detailed feedback on how to improve assignments has helped increase participation. Approximately 60% of participants successfully completed the BTL assignment on their first attempt and with the rest completing after receiving feedback and making subsequent revisions. Faculty irrespective of designation or discipline appreciated the opportunity to network with colleagues. BTL created an awareness on the institutional learning philosophy and the need for life-long learning in education amongst faculty. Persistence and being open to feedback, on the part of ICE helped ensure commitment from faculty as well. There is now greater awareness of the value of attending the
BTL course resulting in an increase in the number of requests for participation.

Discussion and Conclusions: The BTL as a faculty development tool will continue in the institution and is being developed as an introductory module for higher qualifications in HP education.

Take-home messages: A Basic Teaching Licence provides training in teaching skills that are aligned to the university learning philosophy.

3JJ11 (23084)
Croatian training model for medical teachers: Strengths and weaknesses

Gordana Pavlekovic*, School of Medicine, University of Zagreb, Zagreb, Croatia
Mladenka Vrcic Keglevic, Croatian Association for Medical Education, Zagreb, Croatia

Background: Different models of medical teachers' training are widely developed. At the beginning of 1990s, Department of Educational Technology at School of Medicine in Zagreb started with the first short training programmes for medical teachers in all four Croatian medical schools. Since 2000, one-week courses entitled "The Art of Medical Education" have been organized several times per year, mainly for younger teachers with the aims to encourage and enable them early in their career to learn and put into practice contemporary approaches in teaching and learning medicine. The aim of this presentation is to describe main characteristics, strengths and weaknesses of the Croatian training model and link them with present challenges in this field.

Summary of Results: Programme is specific in aims and contents, it is more oriented towards the-state-of-art in medical education, not only to “practical skills". Participants are teachers with various professional backgrounds and interprofessional cooperation is used as an instructional strategy. Trainers are not experts in pedagogical or didactical knowledge, they are well experienced medical teachers aware to share their own experiences and reflections with participants. Discussions on strategies and policies of high education and perspectives of Croatian Medical Schools development with relevant representatives of decision-makers from Ministry of Health, Ministry of Science and Education, University and School Boards are very useful and welcome.

Discussion and Conclusions: Besides positive examples, several challenges are present. They do not differ from worldwide actual dilemmas. Long-term studies and responsibility to support future research and development in this field belong to both academic and medical professional societies.

3JJ12 (21709)
First experience in a Master Program: Course/workshop e-learning Moodle platform for professors of undergraduate clinical area: "Assessment of Clinical Competence". Faculty of Medicine, UNAM

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Pedro Martín Hernández-Quiroz, University School of Medicine Westhill, Evaluation Coordination, México City, Mexico
Lydia Zerón-Gutierrez, Faculty of Medicine, National Autonomous University of Mexico, Clinical Education and Medical Internship Department, México City, Mexico

Background: The Clinical Education and Medical Internship Department of the Faculty of Medicine, UNAM implemented a "Master Program" with different topics which seeks online pedagogical training for professors.

Summary of Work: 15 constructivist professor-training courses (2013-2016) were planned, the first of them for professors of the clinical courses through e-learning by Moodle platform called "Assessment of Clinical Competence". Objectives: to diagnose knowledge and skills developed by clinical professors to assess students competences, determining the progress of these professors after completing the course/workshop (30 hours; topics: matching lists/rubric/OSCE/Mini-Cex/multiple-choice questions). Methods: A quasi-experimental study. In this first experience 13 professors were trained and performed the same diagnostic and final evaluations by true-false questionnaire with 46 items.

Summary of Results: 19 professors registered, 13 completed the course. Median diagnostic evaluation was 7.35, final was 9.08 with p 0.001 Kruskal-Wallis test, that showed improvement in knowledge after the course/workshop.

Discussion and Conclusions: The e-learning by Moodle platform indicated it is a good tool for professor training in the clinical area assessment with a significant advance in knowledge after the course/workshop. Surely the pre-test grade was good because professors had prior preparation on the topics. The e-learning and Moodle platform allow advances in self-paced learning, knowledge is reinforced as many times as needed and allows consulting online additional knowledge.
Take-home messages: The use of e-learning and Moodle platform are recent education tools and that allow academic training in a simple, accessible and high quality way. This initial experience suggests continuing this form of educational update.

3JJ13 (20397)
Faculty development program at Tbilisi State Medical University

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R. Beriashvili, Tbilisi State Medical University, Tbilisi, Georgia
M. Mamaladze, Tbilisi State Medical University, Tbilisi, Georgia

Background: Improvement of teaching competencies of academic personnel is prerequisite for successful transition of medical education from outdated to modern standards of teaching at Tbilisi State Medical University (TSMU). This goal was set by currently running TEMPUS project MUMEENA (“Modernizing Undergraduate Medical Education in EU Eastern Neighboring Area”).

Summary of Work: Establishment of Faculty Development Center at TSMU was preceded by training of working groups composed of academics in EU partner medical schools (in UK, Netherlands, Italy and Spain) in modern methodology of medical education. Trained academics developed faculty development program and started trainings for the rest of TSMU academic staff.

Summary of Results: Trainings at Faculty development center are running predominantly as interactive workshop activities aimed to enhance professional, instructional, leadership and organizational skills of academics, mastering in new methodologies of teaching, learning and assessment. Themes of faculty development curriculum imply teaching in small and large groups, methodology of OSCE and case-based clinical reasoning, interactive lectures, composing MCQs, etc. Special questionnaires were designed to get feedback from trained academic staff. Overall satisfaction with faculty development programs was high. Participants consistently found programs acceptable, useful and relevant to their objectives.

Discussion and Conclusions: Based on feedback analysis, training of academic staff resulted in increased knowledge in medical education methodology and improvement of teaching skills.

Take-home messages: Elaborated and faculty development program at TSMU might serve as the best practice example for the rest of medical schools in Georgia and other Post-Soviet countries.

3JJ14 (23194)
Faculty Development for Letters of Reference: Supporting New Teachers and Students through this essential process for Residency Application

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J Bajcar, University of Toronto, Faculty of Medicine, Toronto, Canada
P Coates, University of Toronto, Faculty of Medicine, Toronto, Canada

Background: In Canada, post-graduate residency matching is increasingly competitive; for many residency programs the Letters of Reference (LoR) play a critical role in the application process. To support new faculty who may lack experience and confidence in crafting these LoR’s, we designed, implemented, and preliminarily evaluated a unique Faculty Development (FD) Strategy.

Summary of Work: The resulting FD session included an explanation of the selection process, and preparation for writing the letter whether generic or program specific. The design of the strategy was informed from survey data obtained from Post Graduate Program Directors who represent the end users of the LOR. We developed a tool kit with information about the selection process; 17 tips for writing effective reference letters and 11 tips for Reference Letter Conversations with the requesting students.

Summary of Results: To date, 22 individuals attended the FD workshop. Self-assessed confidence to perform key tasks increased by 73% from an average of pre: 2.2 to post: 3.8 (5 point likert scale). Majority of attendees agreed with the tips for reference writing (> 90% agreed with 10 tips and 70-90% agree with 6 tips) and with tips for creating an effective conversation with students (100% agreeing with 10).

Discussion and Conclusions: The FD strategy was well received and will continue to be offered. Key information will be shared with students to help them prepare and approach faculty for reference letters.

Take-home messages: Faculty development can address writing effective letters of reference which is an essential skill for new faculty.
Preventing IPE-ready Faculty Teams: An Innovative Masters in Health Professions Education Degree

Deborah Navedo*, MGH Institute of Health Professions, Health Professions Education Program, Boston, United States
Alan Leichtner, MGH Institute of Health Professions, Health Professions Education Program, Boston, United States
Mary Knab, MGH Institute of Health Professions, Health Professions Education Program, Boston, United States

Background: As programs emphasizing interprofessional practice and IPE are launched broadly, the need for faculty versed in the implementation of IPE activities has dramatically increased. Yet, most instructors have been assumed to have the ability to teach in this context simply because they were expert practitioners. Distinctly lacking were programs for faculty to learn about health professions education in an explicitly interprofessional context.

Summary of Work: An innovative master’s program was started in 2012 with an explicitly interprofessional cohort model. Courses were offered in a combination of on-site intensive sessions and online learning. Collaborating interprofessional programs include the Harvard Macy Institute and the Center for Medical Simulation. Current students and alumni participated in a survey as well as focus groups to better understand the impact of the program.

Summary of Results: Fifteen alumni and twenty-five current students from medicine, clinical psychology, pharmacy, physical therapy, and educational administration were invited. All of the participants found the interprofessional nature of the program invaluable; benefits included familiarity with educational practices in other professions and improved ability to collaborate across professions for both teaching and scholarship. The focus group findings confirmed the impact of the program at both the individual level and at the program level at their institutions of origin.

Discussion and Conclusions: Early results indicated that a masters degree in education that brought clinical educators from across professions together had the added benefit of significantly improving their effectiveness as IPE educators and researchers.

Take-home messages: Un-silo-ing graduate programs for educators may be the next challenge to create truly effective faculty teams.
SESSION 4: Simultaneous Sessions
Monday 1 September: 1400-1530

4A SYMPOSIUM: Simulation-based Mastery Learning in Medical Education
Location: Gold Plenary, Level +2, MiCo

Panel: William McGaghie, Loyola University Chicago
S. Barry Issenberg, University of Miami Miller School of Medicine, United States
Diane B. Wayne, Northwestern University Feinberg School of Medicine, United States
Doris Ostergaard, Herlev Hospital and University of Copenhagen, Denmark

The use of simulation-based mastery learning (SBML) for acquisition of clinical skills and professionalism is growing rapidly in medical education. Mastery learning is a stringent form of competency-based education where high achievement is expected of all learners with little or no outcome variation. Clinical skills include invasive and surgical procedures and communication with patients, families, and health professionals. Research demonstrates that SBML, used under the right conditions (e.g., curriculum integration, deliberate practice, rigorous measurement, feedback, faculty preparation, organizational support), can have large and sustained effects on knowledge and skill acquisition and maintenance among medical learners. Research also shows that SBML can achieve translational outcomes measured by improved patient care practices and patient and public health outcomes. This symposium will have four presentations: (a) SBML features, (b) outcome measurement, (c) translational results, (d) implementation issues, and will include ample time for audience participation and discussion.

4B SYMPOSIUM: New Perspectives on Curriculum and Course Design: The End of PBL?
Location: Auditorium, Level +3, MiCo

Panel: Jeroen Van Merrienboer, Maastricht University, the Netherlands
Diana Dolmans, Maastricht University, the Netherlands
Geoff Norman, McMaster University, Canada
Ann Roex, University of Leuven, Belgium
Felikje van Stiphout, University Medical Center Utrecht, the Netherlands

How can curriculum and course design be optimised to achieve the best possible results? PBL seemed to be the answer, but new perspectives stress the importance of gradual development of professional competencies. Four-component instructional design (4C/ID), for example, supports a gradual development by sequencing learning tasks from simple to complex, and tasks are combined with guidance/support that gradually decreases in the learning process. 4C/ID is based on solid psychological principles and emphasises the characteristics of learning tasks: They are based on real-life tasks and preferably involve knowledge, skills and attitudes. This new perspective differs not only from traditional discipline-based curricula, but also from PBL curricula where knowledge is typically taught in PBL groups, skills in a skills lab, and attitudes in simulated patient contacts. This symposium will explore differences and commonalities between competency-based and PBL curricula. Contributors will debate the question: Is this the end of PBL?

4C SYMPOSIUM: PhD Programs in Health Professions Education: Who, What, Where, Why and How?
Location: Brown 3, Level +2, MiCo

Panel: Ara Tekian, University of Illinois at Chicago
Olle ten Cate, University Medical Centre Utrecht, The Netherlands
Charlotte Ringsted, The Wilson Centre, University of Toronto and University Health Network, Toronto, Canada
Lambert Schuwirth, School of Medicine, Flinders University, Adelaide, South Australia

During the past decade, a significant number of PhD programs have been established in health professions education (HPE) worldwide, to meet increased demand for preparing scholarly leaders. There are various routes to achieve this goal, from enrolment in structured programs with coursework and thesis, to working under the supervision of experts and publishing research papers in refereed journals. This symposium describes the current status of these programs, debates and explores issues of disciplinary diversity and traditions, and deliberates perspectives of institutions, faculty, and students by answering the questions – who, what, where, why, and how.
4D1 (18541)
The impact of resident- and self-evaluations on faculty’s subsequent teaching performance

Benjamin Boerebach*, Academic Medical Center, University of Amsterdam, Professional Performance Research Group, Center for Evidence-Based Education, Amsterdam, Netherlands
Onyebuchi Arah, University of California, Los Angeles (UCLA), Department of Epidemiology, School of Public Health, Los Angeles, United States
Maas Jan Heineman, Academic Medical Center, University of Amsterdam, Board of Directors, Amsterdam, Netherlands
Olivier Busch, Academic Medical Center, University of Amsterdam, Department of Surgery, Amsterdam, Netherlands
Kiki Lombarts, Academic Medical Center, University of Amsterdam, Professional Performance Research Group, Center for Evidence-Based Education, Amsterdam, Netherlands

Introduction: Nevertheless the growing popularity and use of teaching performance evaluation systems in medical education around the world, the literature on the effects of performance evaluations on faculty’s subsequent teaching performance is sparse. This study explored how faculty’s teaching performance evolved after two cycles of (self-)evaluation, feedback reporting and follow-up. Furthermore, the influence of over- and underestimating one’s own performance on subsequent teaching performance was investigated.

Methods: In a multicenter prospective cohort study, 351 faculty self-evaluated and were evaluated by residents during annual evaluation periods for three subsequent years, using validated evaluation tools (Boerebach et al., 2012). At the end of each evaluation period, faculty received a personal report summarizing residents’ feedback. Changes in faculty’s teaching performance evaluated on a 5-point scale were studied using growth models. The effect of faculty over- or underestimating their own performance on subsequent performance was studied using regression analysis. We estimated the regression models using Robins’ g-methods (Robins and Hernan, 2009). During the presentation of this paper, we will shortly explain how we used this innovative method that usually yields more precise results in longitudinal data analysis.

Results: Compared to the first (median score: 3.83, 20th – 80th percentile score: 3.46 – 4.16) and second (median: 3.82, 20th – 80th: 3.46 – 4.14) evaluation period, residents evaluated faculty’s teaching performance higher during the third evaluation period (median: 3.91, 20th – 80th: 3.59 – 4.27), p

Discussion and Conclusions: The findings of this study suggest that feedback can be helpful for teaching performance enhancement. Faculty who overestimated their performance had lower subsequent teaching performance as evaluated by residents. These negative effects may be caused by the perceived inaccuracy of the feedback by overestimating faculty or by other negative (emotional) reactions evoked by overestimating one’s own performance (Brett and Atwater, 2001). Specific guidance and support in the reflection process could help faculty in their interpretation and management of the feedback received. The finding that faculty who overestimated self-evaluated lower in subsequent evaluations, while faculty who underestimated rated themselves higher in follow-up evaluations can be explained by the self-consistency theory, that states that people seek to minimize the discrepancy between self- and external ratings of performance. In conclusion, faculty’s teaching performance was enhanced after two cycles of evaluation, reporting and feedback. Overestimating own teaching performance could impede subsequent performance.

References:

4D2 (18852)
A study of the real time use of iPads in clinical learning

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Introduction: The ubiquitous ownership of smartphones (estimated to be owned by 12.2 million adults in UK) and increasing use of tablet computers (estimated to be owned by 60% of mobile phone users in the UK[1]) and increasing use of tablet computers (estimated to be owned by 12.2 million adults in UK) leads to questions about the benefits or costs of having constant access to information. Research by Sparrow et al [2] suggests that the Internet is becoming an external memory source; resulting in people being more likely to recall where information is...
rather than the information itself. Whether or not medical students use mobile technology as an external memory store might influence how well they are able to learn facts. We studied what resources medical students are using in clinical learning and whether there is preliminary evidence that they are using the Internet as an external memory store.

Methods: We developed four clinical scenarios mimicking the clinical learning experiences of our clinical students. Each student was given two scenarios and asked to prepare for a clinical teaching session using their iPad. We screen captured their preparations using Reflector and Screenflow software. We analysed the screen captured data noting a) websites visited b) time spent on each website and c) number of actions. We coded actions as either 'external memory store' or not e.g., storing information for later use.

Results: Results of the first scenario are included here. Participants (n=40) took a mean time of 26 mins 36 secs to complete the task. 41% of the time was spent using web browsers, most visited sites being NICE Guidelines, Patient.co.uk and Google. 20% of the time was spent using offline medical apps. 25% of the time was spent using word processing apps. The mean number of individual coded actions was 77 actions per participant. 10% of the actions were storing information on the iPad. Less than 1% of actions were clearly accessing previous information. 7% of actions were searches indicating previous access of the same information. Combined, this gives an estimate of 18% of all actions being those involving using the iPad as an external memory store.

Discussion and Conclusions: There is evidence that students spend some time using their iPads as external memory stores. However, a far greater amount of time was spent in actions that were not coded as such. An additional finding was that students often used web browsers and the sites they were visiting were not always sites that are provided for them. Almost 20% of time was spent using the iPad as an external memory store. Experimental studies would allow exploration of the impact of this on retention. Students are spending much of their education time on sites created by bodies other than medical schools. Medical schools should take steps to ensure that their students are accessing high quality information through their mobile devices.


4D3 (18752)
Clarifying variability in clinical performance judgment by examining social impressions

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Introduction: Although direct observation of trainees' clinical performances has been essential for assessing clinical learning, supervisors’ ratings of the same performance are often highly variable. In the social judgement literature, similar levels of variability in ratings have been associated with the idiosyncratic impressions raters form about the performer. Importantly, however, research has shown that these idiosyncratic rater impressions of a performer tend to partition into a finite number of distinct, coherent subgroups. (1) This study investigated the proportion of variance in Mini-CEX ratings that can be attributed to such ‘partitions’ of the social impressions raters are forming about residents.

Methods: We asked volunteer physicians to assess and reflect on video-recorded patient encounters for 7 residents. For each video, raters completed a Mini-CEX (7 dimensions, 9-point scales) and provided open-text responses to questions including one that asked them to share their impressions or subjective inferences about the resident. These responses became items to be sorted by naive participants in a Latent Partition Analysis (LPA). (2) The best fitting set of partitions for each resident was used as an independent variable in a set of 1-way ANOVAs to determine the proportion of rater variance explained in Mini-CEX ratings of ‘overall clinical competence’.

Results: 48 physicians assessed at least 1 resident (34 assessed all 7). The sorting of the seven sets of raters’ impressions was completed by 14 naive participants. Upon inspection of the LPA results, each partition produced by the LPA comprised a set of coherent inferences related to the resident’s feelings, motives, goals and/or personality traits. The impressions described in a given partition differed from, and often conflicted with, the content of other partitions for the same resident: e.g., inferring that a resident prioritized his own needs vs. genuinely caring about the patient, or that observed behaviors revealed the resident’s true nature vs. revealing the constraints caused by the situation. There was little overlap in the content of partitions for different residents. Across residents, the number of partitions in the best fitting LPA models ranged from 2 to 5, with a modal value of 4. When these partitions were used in the 1-way ANOVAs, across residents the partition assignment of raters’ inferences accounted for
between 9 and 56 percent of variance in overall ratings (mean=32%).

**Discussion and Conclusions:** When asked to provide social impressions about a resident whose performance they were rating, physicians offered perceptions that were idiosyncratic, but could be partitioned into distinct and often conflicting descriptions of the resident. There was a tendency for subgroups describing similar social impressions to also give more similar performance ratings. This suggests social judgments may be a significant source of variance in Mini-CEX ratings.

Conclusion: Rater inferences are typically viewed as sources of idiosyncrasy and, therefore, construct irrelevant variability in performance ratings. However, our findings that idiosyncratic perceptions tend to be finite in number and replicable across multiple raters, offer the possibility that these social impressions are more than just assessment “noise”, and could provide useful information about the resident.

**References:**

**4D4 (18706)**

**Teaching using Twitter: not quite the new black?**

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**Introduction:** Microblogging tools such as Twitter are increasingly used in medical education. They increase involvement and enhance the learning experience through real-time dialogue, exposing students to extended networks and resources[1]. However, research describing learning outcomes that Twitter can support is currently missing.

In particular, the impact of Twitter on students’ knowledge and involvement remains unexplored in medical education. To fill this gap, we present the analysis of a Twitter-based educational activity to teach first year undergraduate medical students about emergency planning and pandemic influenza through four short scenarios based on work originally published by NHS Social Media.

Our evaluation aimed to identify and compare themes and concepts, and show the application of learning within students’ comments.

**Methods:** The scenarios were discussed and moderated through Twitter. Students also had the option to participate through the University’s virtual learning environment (VLE) or email tutors directly. Public tweets using a hashtag (#fluscenario) were collected with a Google archiving tool. All data was anonymised before analysis and the research was approved by University of Dundee Research Ethics Committee.

Analysis was with ATLAS-TI, employing a coding framework[2] to cross-analyse themes from students’ discussion and evidence of learning and reflection. Comparisons were made between the tweets and contributions sent through VLE and email.

Additionally, at the end of the activity we collected feedback using a questionnaire.

**Results:** 178 students participated: 7 used email or VLE alone, 139 used Twitter alone, 30 used a combination of Twitter and VLE. In total 2,987 Tweets were recorded; the mean number of Tweets per student was 13.8 (range 1-88).

On Twitter, students moved rapidly from a pragmatic discussion of the scenarios to a much wider-ranging conversation, introducing references and experiences from elsewhere, including personal considerations and cross-referencing the medical curriculum. Application of learning was also observed, e.g. linking multi-resistant strains of other diseases with pandemic influenza.

In contrast, communication received by email or VLE was comparable with an essay format. Students simply answered each question posed by the scenario and there was little expansion in terms of personal reflection. There was also no interaction between students in blog posts.

**Discussion and Conclusions:** Twitter can be used to effectively teach by developing conversation and applied learning in complex areas. Students commented that they enjoyed a novel format and appreciated direct and quick responses from tutors. However, our student evaluations indicated that many students did not value the experience. Two key themes arose from the negative responses: constraints posed by the 140 character limit and the public exposure of Twitter. Students appear to be sceptical about the contribution that Twitter can make to their education. Contrary to the beliefs of many educators, not all students are comfortable with social media regardless of educational value.

**References:**

**4D5 (18925)**

**Are longitudinal integrated clerkships a good choice for all medical students?**

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**Introduction:** As longitudinal integrated clerkships (LIC) become implemented more widely and as
programs to date have shown that they compare well to other clerkship models (Walters et al, 2012; Thistlethwaite et al, 2013), research is now focusing on how and why these programs work and for whom. The LIC at the University of Alberta, the Rural Integrated Community Clerkship (ICC), comprises the entire 3rd year of the 4 year graduate entry program. The program is voluntary and students apply to the program. An important question for the program administrators was “Who should choose the ICC?”

Methods: This presentation is based on material from 36 reflective conversations from a study conducted over 6 years with former LIC students as they completed their 4th and final year of the MD Program. Students were asked if they thought the ICC was for everyone. Participation was voluntary. The study began in a hermeneutic phenomenological frame which evolved into an iterative approach to the collection and analysis of the material in these conversations, in the tradition of interpretive description.

Results: Four key concepts emerged: 1) approach to learning; 2) personality; 3) attitude; and, 4) career goals. Participants felt that prospective students needed to be self-directed and willing to take responsibility for their own learning. They indicated that applicants for the LIC should be comfortable with being self-evaluative. They also said that applicants needed to be adaptable and comfortable with uncertainty. Given that this was a rural LIC, an important attitude was a willingness to leave the city behind and live rurally, being open to the experience. Many of the former students pointed out that some of the benefits of the LIC would not be achieved if students didn’t integrate themselves into their communities. Finally there was some uncertainty about the appropriateness of this rural LIC for students considering certain subspecialties. However, while there was concern that students might not be competitive in the match for those specialties, participants also acknowledged that some LIC students had been successful in matching to highly competitive subspecialty residencies. This concern is in contrast to the students’ description of the program as the best learning experience available for 3rd year and that it prepared them well for 4th year. As this is a study of students in a rural LIC, some results may not be generalizable to urban programs.

Discussion and Conclusions: Former students described the ICC as the best way to learn the core disciplines of medicine which are the task of the 3rd year in the MD Program. However, they identify the need to adapt the approach to learning in order to make the best of this different learning environment. Embracing rural life and integrating into the community were seen as necessary to realize the full potential of the program. While participants generally acknowledged that all students could benefit from the program, they felt that students considering the LIC needed to determine if it would be a good fit for them.

**4E1 (19958)**

"It's a whole different ball game": A longitudinal audio diary study of junior doctors’ preparedness

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**Background**: “Preparedness for practice” is a poorly understood and highly subjective term. Medical graduates face significant challenges through the transition from medical school into the clinical workforce. However, little is known about the longitudinal aspect of preparedness.

**Summary of Work**: A longitudinal audio diary methodology was used as part of a larger national study. 28 Foundation Year 1 (FY1) doctors across four UK sites were recruited. Following initial narrative interviews, participants were asked to record weekly audio diaries about their experiences of being a FY1 doctor. A thematic framework analysis was conducted to identify main themes concerning both what trainees narrated and how they narrated their experiences.

**Summary of Results**: To date 22 interviews have been conducted, with 158 audio diaries submitted (from 26 participants) totalling 480 minutes of data. The main themes include:
1. Explicit definitions ‘preparedness for practice’
2. Transition-talk
3. Perceptions of their own preparedness and unpreparedness for practice
4. Enabling/inhibiting factors
5. Becoming a doctor

**Discussion and Conclusions**: The transition of medical graduates into the workforce involves more than the initial transition from medical school. Participants talked about the longer-term transition difficulties. We will present the ‘becoming a doctor’ theme in detail to illuminate participants’ experiences.

**Take-home messages**: 1. “Preparedness for practice” has a significant longitudinal dimension and encompasses the wider issue of becoming a doctor. 2. Audio diaries are key to developing our understanding of these longitudinal issues and informing development of future medical education policy and practice.
Preparedness for practice following the introduction of enhanced practice placements

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**Background**: The goal of undergraduate medical education is to ensure that new doctors are prepared for practice. Recent changes in UK undergraduate programmes include the provision of more hands-on experience through a 'Student Assistantship' placement. This study explores the effects of this experience on preparedness.

**Summary of Work**: A questionnaire study was carried out with a cohort of new doctors (n=356, 92% response rate) in one region of England. Questions were mapped to key outcomes in the GMC's guidance for medical degrees, and also addressed exposure to different areas of practice during the final year.

**Summary of Results**: Analysis focused on 344 UK graduates whose programmes are regulated by the GMC. Large minorities reported not gaining experience in prescribing (33%) or acute management (27.5%), and respondents reported a median of 1-2 experiences of providing immediate care in acute settings. More specific questions about acute conditions found variation in exposure – from 265 (77%) having actively participated in management of COPD exacerbation, to only 42 (12%) participating in management of anaphylaxis. Overall, and for specific conditions, greater experience was associated with greater reported preparedness (p < 0.01).

**Discussion and Conclusions**: While increased hands-on experience is associated with increased preparedness for practice, many students lack this opportunity in final year placements.

**Take-home messages**: Educational initiatives need to explicitly consider areas of particularly low experience in order to improve graduate readiness for practice.

Perceived preparedness and learning needs of medical trainees undertaking outpatient clinics

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**Background**: The clinical consultation is the hallmark of medical practice. There is a strong emphasis on the development of consultation skills in primary care but appears more variable for medical trainees within the hospital setting. This study sought to explore the degree of preparation offered to medical trainees before embarking on their first outpatient clinic and to identify learning needs that would be a prerequisite for a better experience.

**Summary of Work**: All second-year Core Medical Training doctors working in the London Deanery were invited via e-mail to complete an online validated questionnaire. A reminder e-mail was sent 4 weeks later soon after which the data was analysed.

**Summary of Results**: Response rate was 24% (n=37/156). Only 35% of trainees underwent an induction process. The majority reported feeling ‘poorly prepared’. How best to dictate letters, follow-up on requested investigations and manage time effectively were the top three chosen aspects of guidance trainees wished they received prior to starting. The two most commonly chosen responses to improve the experience included time devoted to prior consultant observation with feedback along with prior tutorials on common patient presentations at the clinic.

**Discussion and Conclusions**: Medical trainees report a lack of preparation upon undertaking outpatient clinics.

**Take-home messages**: Supporting medical trainees to feel better prepared in the hospital outpatient setting needs to be prioritised with the aim of developing standards to facilitate consultation skills training within this clinical environment.
Improving perceived preparedness of students entering clinical education in a single session: A novel near-peer approach

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Background: Many UK medical students entering clinical education feel underprepared despite formal induction periods. Long-term near-peer shadowing programs in other countries have proven effective in making pre-clinical students feel better prepared for clinical learning. Our aim was to improve students’ levels of perceived preparedness using a single session near the start of their first clinical year.

Summary of Work: We, students in our second clinical year, composed and delivered an interactive one hour session for 100 students two weeks into their first clinical year. It included information and advice drawn from reflections on our own experiences. Students’ perceived levels of preparedness before and after were assessed using a feedback questionnaire with 5-point Likert scales and free text spaces.

Summary of Results: 75 attendees provided feedback. Perceived preparedness dramatically increased: only 9.3% felt “prepared” or “very prepared” for the year before the session, and 76% after. 41% felt under-prepared before, 0% after. Feedback on the quality of the students running the session was unanimously positive. Written feedback included praise for the “informal atmosphere” and “approachability of the older students”.

Discussion and Conclusions: This single near-peer session made new first clinical year students feel considerably better prepared for the year. Older students were able to deliver a high quality session with a supportive environment enabling attendees to confidently express concerns, ask questions and engage in discussions.

Take-home messages: A near-peer approach to improve feelings of preparedness in students starting their first clinical year can be highly effective, even when as simple as a well-designed one-off session.
4F1 (22491)
A low cost/open-source system for delivering feedback in OSCEs and clinical attachments

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Background: Efforts to deliver feedback in OSCEs/clinical attachments are hampered by either expensive, administration heavy paper based systems or expensive, commercially licensed electronic systems. It is difficult to evaluate the effectiveness of these systems without a large upfront expenditure of funds. Low cost alternatives are needed.

Summary of Work: We implemented an extremely low cost mixed electronic/paper system for delivering feedback in OSCEs and clinical attachments. This involved paper feedback sheets with barcodes being scanned and automatically emailed to individual students. The necessary software was obtainable for between £0 and £100 in total ($0-$170/€0-€120). We trialled and monitored OSCE feedback without a large upfront commitment, and extended it to clinical attachments.

Summary of Results: No significant technical problems were encountered and staff felt comfortable with providing feedback on paper. The quality of feedback was evaluated thoroughly using funds that would otherwise be directed to software licensing or administrative support.

Discussion and Conclusions: This feedback mechanism can be delivered for as little as the cost of paper and staff time. This allows institutions to evaluate the utility of feedback for OSCEs/attachments without a large upfront expenditure.

Take-home messages: While feedback for OSCEs and clinical attachments may be challenging to deliver, it is not necessary to use expensive commercial or bespoke software. Low-cost/open-source solutions, such as the one described here, may serve as a permanent solution or as a trial to evaluate the utility of more expensive solutions.

4F2 (22503)
Students at risk of failing assessment can be identified within eight weeks of starting medical school

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Background: Identifying students at risk of failing is a major priority. Research often focuses on failing students or those not attending classes. Interventions can then only occur after students have failed or underperformed. If students at risk can be identified before failing assessment, interventions may help students avoid failing altogether.

Summary of Work: 240 first year medical students provided data on five measures of performance and engagement. The measures – taken within eight weeks of starting medical school – were: tutorial attendance, a formative examination mark, date of first login to the virtual learning environment (VLE), compliance with a routine administrative task and completion of student surveys.

Summary of Results: All predictors were associated with performance at the first major assessment diet, sat fourteen weeks after starting medical school. Time of first login to the VLE, tutorial attendance and performance on the formative examination were especially effective predictors with medium-large effect sizes.

Discussion and Conclusions: Important indicators for underperformance are present immediately upon arrival at medical school. Our model was able to effectively predict student performance in advance.

Take-home messages: Failing assessment is only one part of a pattern that is observable through a variety of other indicators. These indicators can help us plan early interventions for students and support those engaging in unhelpful study patterns before they fail assessment. The routine collection of such data will greatly aid the identification of students at risk.
**4F3 (20280)**
Translating the concept of evidence-based assessment into everyday educational practice: Building a DREAM

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Lara Stepelman, Medical College of Georgia at Georgia Regents University, Educational Innovation Institute, Augusta, GA, United States

**Presenter:** Robby Reynolds*, AAMC, Medical Education Online Programs, Washington, DC, United States

**Background:** As efforts to finalize a unified definition of competence in health professions education evolve, educators seek an accessible collection of comprehensive resources that assess competence.

**Summary of Work:** DREAM (Directory and Repository of Educational Assessment Measures), a collaborative initiative of Georgia Regents University and the Association of American Medical Colleges, was developed in response to this need, serving as a free online repository that contains critical synopses and downloadable copies of assessments that have been applied in health professions education. With a mission to support the achievement of excellence in health sciences education, DREAM offers educators, researchers and program/curriculum evaluators easy access to publically accessible assessment information. Each DREAM publication contains a Critical Synthesis Package which includes a copy of the assessment instrument itself, a 1,200 word peer reviewed Critical Analysis of the instrument, and supplementary materials that aid in the administration of the instrument.

**Summary of Results:** Following launch as a MedEdPORTAL Publications Special Collection in October of 2013, the DREAM team has successfully recruited over 120 eligible instruments and published 52 Critical Synthesis Packages.

**Discussion and Conclusions:** Ultimately, DREAM strives to enhance consistency, encourage the use of best practices, and maintain innovation in health professions education assessment.

**Take-home messages:** DREAM is an innovative educational resource with the mission to achieve excellence in health sciences education by providing easy-to-locate, publically accessible information about assessment tools to health science educators, educational researchers, and program/curriculum evaluators.

**4F4 (23035)**
Validating an Integrity-focused Situational Judgement Test for Pre-Interview Selection into Medical School

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Jonathan Dowell, University of Dundee, School of Medicine, Dundee, United Kingdom
Fiona Patterson, Work Psychology Group, School of Medicine, Derby, United Kingdom
Mark Rodgerson, University of Dundee, School of Medicine, Dundee, United Kingdom

**Background:** Despite the emerging success of the Multiple-Mini Interviews (MMIs) it is often not practical to interview all applicants to medical school. Situational Judgement Tests (SJTs) present applicants with work-related scenarios accompanied by plausible multiple-choice type responses and hold promise for assessing core personal attributes at the pre-interview level for all medical school applicants. This study aims to investigate the reliability and construct validity of an SJT focused on integrity in the UK context.

**Summary of Work:** The SJT consisted of fifty effectiveness-type items pertaining to ten integrity-related scenarios, each developed from interviews conducted with faculty. MMI candidates sat the SJTs after their interviews but the result played no part in selection. Relationships were examined between SJT score, pre-admissions measures and the HEXACO personality inventory, with the Honesty-Humility dimension having a clear conceptual link to integrity. Face validity was also determined.

**Summary of Results:** Two hundred of 553 (36.2%) interviewees participated in the study. Statistically significant correlations were observed between SJT score and the HEXACO personality dimensions of Honesty-Humility (.36), Extraversion (.26) and Conscientiousness (.35), MMI score (.24) and negatively with the academic score (-.23). There were no significant associations with UKCAT. Most applicants strongly agreed that the SJT appeared relevant and valid.

**Discussion and Conclusions:** Results suggest the SJT is a valid measure of integrity and other desirable personality traits, with encouraging correlations with MMIs and high face validity. SJTs therefore hold promise as a psychometrically robust pre-interview screening tool.

**Take-home messages:** An SJT for medical school admissions demonstrates construct validity and potential utility.
Error disclosure training for junior health professionals: A study of experiences, perceptions and confidence

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Background: Few junior health professionals have received training in disclosing medical error to patients and their families, including low harm incidents. Education usually targets senior rather than junior clinicians, particularly medical staff. Research into patient experiences of incident disclosure also highlights gaps between patient and clinician perspectives of appropriate disclosure practice.

Summary of Work: This paper describes perceptions and attitudes towards medical error and disclosure of an interprofessional group of junior clinicians who attended an innovative program involving consumer advocates. Confidence to disclose errors was also measured. Participants were surveyed pre-training, immediately post-training and at 3-months.

Summary of Results: Key changes pre- and post intervention were a decrease in participants’ concerns about the legal ramifications of error disclosure, including less fear of apologising and being sued. Greater awareness that an apology is expected by affected patients was also evident. Confidence to disclose errors increased immediately post-intervention and dropped only slightly 3 months later. Most participants reported having only experience of minor errors.

Discussion and Conclusions: Participation in the training program led to increased confidence and changes in attitudes to error disclosure, particularly around legal concerns often identified as barriers for clinicians. Most participants lacked direct experience with serious error and its disclosure suggesting the need to maximise learning opportunities for junior clinicians through observation and mentoring by senior staff.

Take-home messages: Junior clinical staff benefit from education programs in the area of open disclosure with changes in attitudes evident beyond the immediate training period. Education in disclosing error should be targeted at all health care professionals and commence in the early years of clinical practice.
4G SHORT COMMUNICATIONS: OSCE 2: Implementation in Practice

Location: Theatre Room 12, Level 0, MiCo

4G1 (22917)
Is the communication OSCE a valid measure of medical students' responsiveness to patient emotion?

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Background: Few studies have examined the transfer of medical students clinical communication skills from the simulated OSCE to patient consultations in Primary care. This is surprising given the centrality of the OSCE in the assessment of medical student communication skills, and consistent calls by researchers and educators to incorporate "authentic" patient encounters in research.

Summary of Work: 37 medical students were videoed in their final 4th year communication OSCE. The same cohort was then also videoed in several patient consultations each (n=138) in the following 5th placement based year. All videos were micro-coded to analyse medical students responses to patient emotional cues with the Verona Consensus Coding Scheme.

Summary of Results: Medical students were consistently missing a significant proportion of simulated patient and patient emotional cues in both settings. A significant positive relationship (with a large effect size) was also found between medical students responsiveness to simulated patient emotional cues in the OSCE and patient emotional cues in Primary care.

Discussion and Conclusions: The 4th year communication OSCE is a valid measure of medical students responsiveness to patient emotion in Primary care.

Take-home messages: The communication OSCE cannot be a valid measure of medical students clinical communication without longitudinal analysis incorporating patient consultations.

4G2 (20573)
Standardised clinical examination videos in orthopaedics – An effective pre-assessment revision tool for undergraduate medical students

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Hee Kit Wong, National University of Singapore, Orthopaedic Surgery, Singapore

Background: Student performance during clinical assessment conducted in the form of Objective Structured Clinical Examination (OSCE) could be affected by inconsistency in clinical examination techniques (CET). Standardization of CET involves either fixing or following similar sequence and style, which can be reinforced through video demonstration. Given that the examiner and the simulated patients used in the OSCE have been trained in a standardised manner, the recall capability of the individual students would be the sole variable in student assessment. The authors produced a video demonstrating standardised CET to study the student perception and their performance post video exposure.

Summary of Work: A cross-sectional prospective cohort study of 260 Year 3 undergraduate medical students was conducted. After successful video production, 128 students attended the video workshop 3 days prior to the OSCE assessment. Feedback based on the Likert scale was obtained from the attendees and their OSCE performance was analysed. This was compared to the performance of non-attendees.

Summary of Results: Approximately 95% of attendees felt that the video series had standardised the CET and acknowledged the videos for their clarity and brevity. About 85.5% felt that their understanding of common Orthopaedic conditions has improved. Most (90.9%) considered the videos to be relevant to the curriculum requirements. Attendees scored higher on average (74.01%) compared to non-attendees (61.88%). Furthermore, attendees were more likely (37.2%) to receive positive qualitative remarks from the examiners than non-attendees (9.1%).

Discussion and Conclusions: The use of standardised videos of CET in Orthopaedics gained positive perception from the students and improved their performance in OSCE. We suggest video as an effective tool for pre-assessment revision.

Take-home messages: Standardised video can be used to learn and revise CET in Orthopaedics effectively.
**4G3 (22735)**

**Novel approaches to OSCE in basic and clinical sciences**

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**Background:** OSCE celebrates its thirty-fifth jubilee, but like its inventor, Professor Ronald Harden, is ever young and open to new ideas.

**Summary of Work:** We propose two new approaches to OSCE successfully implemented in our University: group and basic science OSCE (GOSCE and BOSCE). GOSCE allows four exam-takers in each station, making examination faster, cheaper, and more life-like. It suits the best the emergency medicine examination. BOSCE is for the schools with integrated basic science teaching that want to assess them in a similar fashion in clinical context.

**Summary of Results:** Before entering the station in GOSCE, the students are prescribed the roles of leader, two assistants, and observer. The observer gets the checklist and assesses the work of other peers. The rest of the team deal with the case and are assessed by tutor using one checklist. Each examinee also gets points for performing his/her role. BOSCE has stations with clinical cases requiring applying 2-3 basic science disciplines, and are assessed by checklist including separate points for all disciplines. The last station is the pharmacology station where exam-takers should rationalize the prescription to the patient in one of the previous stations. At BOSCE, the students receive the final score, and the score for each discipline.

**Discussion and Conclusions:** The students, faculty and administration accepted well both GOSCE and BOSCE. All stakeholders had their reasons for accepting it, which could be a focus of another publication.

**Take-home messages:** Despite recent publications about the end of OSCE era, the novel approaches to this well-reputable assessment tool can breathe in the new life into it.

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**4G4 (22341)**

**An audit of OSCE feedback across UK medical schools**

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**Background:** Feedback does not guarantee improved performance but is recognised as a powerful influence whose impact is in part dependent on the type and format of information given to students. We undertook an audit of feedback provided by UK medical schools after Objective Structured Clinical Examinations (OSCEs) to inspire and inform us about implementable practices that, from a theoretical perspective, are likely to effect an improvement in performance.

**Summary of Work:** All UK Medical Schools were asked to provide data on five topics concerning current OSCE feedback procedures. These were: whether they provided feedback beyond a mark/rank for individual stations and overall mark, use of written feedback, use of verbal feedback, and whether they delivered feedback using specialist software.

**Summary of Results:** Seventeen of thirty one schools responded. One school gave no feedback beyond mark. Eleven gave personalised feedback in various formats to all and 5 to students in difficulty only. One institution gave immediate verbal feedback after the OSCE. Nine schools reserved verbal feedback for students in difficulty. Eight schools used specialist software and five different systems were employed.

**Discussion and Conclusions:** Feedback on OSCEs varies significantly between schools. Some schools provide types of feedback that empirical studies suggest are likely to be effective but further work is required to explore this.

**Take-home messages:** To maximise the effect of feedback we must pay attention to (inter alia) the format of information we give students. Sharing this audit may encourage us all to adopt workable, cost-effective solutions for OSCE feedback.
The use of video-recorded ward rounds in OSCEs to assess medical record keeping

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Background: Medical record keeping is a vital skill for medical students to learn to practice safely and communicate effectively as doctors. It is therefore a skill that requires assessment as it forms part of professional competence. We have previously examined written communication (e.g. clinical discharge summaries) in medical school OSCEs and have now developed a novel approach to assess ward round documentation, a task expected of future doctors.

Summary of Work: We video-recorded three clinical scenarios junior doctors commonly face using simulated patients, trainee doctors and nurses. The lead clinician would directly address the camera, instructing the medical student to make an entry in the patient’s notes as they would in a real clinical encounter, with 5 minutes allocated for this station. One scenario is used for training and the other two for the end of year summative OSCE. Marks are allocated according to a structured mark sheet which scores the content and quality of documentation.

Summary of Results: This pilot indicates this is a valid and appropriate way to assess medical record keeping. We will present the performance data for this OSCE which is set for spring 2014. We will also provide analysis of student and examiner feedback for this station.

Discussion and Conclusions: Medical record keeping is a crucial skill that should be assessed. This method allows this to be tested in a controlled environment with consistent student experiences to allow for fair and valid comparison between candidates.

Take-home messages: The use of video-recordings in OSCEs can allow us to assess the higher order skills expected of our future doctors.
**4H1 (19523)**

**Time is of the essence: What do Internal Medicine Residents do while on duty?**

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**Background:** Long resident duty hours have been under scrutiny as a factor in patient safety. However the current system of resident workflow and education needs to be studied in order for teaching hospitals to effectively optimize the distribution of resident duty hours.

**Summary of Work:** Twenty Internal Medicine residents from two tertiary care sites were shadowed during six-hour blocks of time. All tasks and their durations were tracked using an iPad application. Tasks were categorized as Direct Patient Care, Indirect Patient Care, Transit, Education, Communication, Documentation, Administration, Non-physician tasks, or Personal.

**Summary of Results:** A total of 17,709 tasks (521 hours of observation) were recorded. The majority of resident tasks were in Direct Patient Care (27.5%), followed by Communication (22.7%), Personal tasks (14.6%), Documentation (13.2%), Education (11.5%), Transit (5.8%), Indirect care (3.8%), Administration (0.6%), and Non-physician tasks (0.4%).

**Discussion and Conclusions:** Findings of note were that while residents spent the majority of their time in direct patient care, actual time spent at the bedside was low (9.2%). Results also showed a need to increase the quantity of education residents received from attending staff. Successful use of a time-motion application enabled high-quality data collection for workflow analysis and future assessment of the impact of changes to resident duty hours. These results will be used to assist a review of the current medical resident education model and tasks, in the hopes of optimizing their learning, professional development and personal experiences.

**Take-home messages:** This time-motion study identified room for improvement in residents’ education and physician-patient interactions.

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**4H2 (21601)**

**The effect of the European Working Time Directive on Plastic Surgery training**

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*Max Murison*

**Background:** The European Working Time Directive (EWTD) was introduced in order to eliminate fatigue-related patient errors and improve wellbeing of junior doctors. This was achieved by a reduction in working hours of up to 50% and in several specialties this has resulted in reduced operative experience. This study examines the effect of EWTD on the surgical experience of Plastic Surgery trainees in one tertiary centre in Wales.

**Summary of Work:** A 10 year retrospective review of a surgical database was undertaken. The number of operative procedures undertaken by junior and senior trainees from 2003 to 2013 was analysed.

**Summary of Results:** The total number of cases performed annually for the whole department increased from 7188 to 12093. The number of cases performed by both junior and senior trainees remained constant over the 10 year period in spite of an increase in trainee numbers.

**Discussion and Conclusions:** The expected decrease in exposure to operative experience described by other specialties following the introduction of EWTD has not occurred in Plastic Surgery in Wales. Operative experience of trainees in Plastic Surgery has remained static. The reduction in hours and increase in the number of trainees has been compensated by an increase in the number of procedures undertaken in the surgical unit.

**Take-home messages:** EWTD has not adversely affected operative experience of Plastic surgery trainees in Wales.
4H3 (21158)
Beyond work-hour restrictions: A qualitative study of residents' “subjective” workload through the perspective of Bushido

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Background: Residents' workload is one of the most important contemporary themes in postgraduate medical education. Restrictions have been introduced in many countries to limit the number of hours residents work but the effect of limiting “objective” workload remains controversial. This study explored residents’ “subjective” workload, their personal experience of working. It did so from the perspective of Bushido, a code of personal conduct of the Samurai, which we have previously used to illuminate contemporary Japanese professionalism.

Summary of Work: Seven focus group discussions were conducted at three Japanese community teaching hospitals active in postgraduate training. All discussions were audio-recorded and transcribed verbatim. Data were read iteratively by the first author (HN) and analyzed by thematic analysis. The third author (HO) read the transcripts separately and discussed the identified themes with HN. Institutional Review Boards at all hospitals granted ethical approval for this study.

Summary of Results: Residents' subjective workload was influenced by the balance between eight factors, which could make what they had to do more or less onerous. “Inter-professional community” supported their work. They felt fulfillment by positive “feedback from patients”. Greater “autonomous” made the burden seem less and vice versa. Their “work ethic” strongly influenced their sense for work. Other factors included stamina, professional development, work-home interference, and personal interest.

Take-home messages: Beyond objective workload such as work-hour restrictions, medical educators, should also consider factors influencing residents' subjective workload when developing postgraduate trainings programs.

4H4 (22734)
Prevalence and impact of Moonlighting among Canadian Postgraduate Trainees

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Background: In 2013, a Canadian national steering committee on resident duty hours (RDH) surveyed trainees, program directors, and postgraduate deans with respect to prevalence of and reasons for moonlighting, and fatigue-related adverse events. Moonlighting was defined as residents providing clinical services for remuneration outside of a training program.

Summary of Work: The survey was distributed online to all active residents in Canada (N=12,672), all program directors (N = 766) and all postgraduate deans (N = 17). Data were analyzed using descriptive statistics in SPSS.

Summary of Results: 3,625 Canadian trainees (28.6%), 317 program directors (41.4%), and 13 postgraduate deans (76.5%) completed the survey. 91.5% of trainees reported working 0 hours of moonlighting in the last four week period. Among trainees who reported moonlighting (n = 230), a majority (63.9%) reported working fewer than 11 hours. Perceptions of trainee moonlighting differed among program directors and postgraduate deans, with 64% of program directors reporting that no trainees moonlighted, and 83.3% of postgraduate deans reporting at least 10% of trainees moonlight. Trainees' primary reasons for moonlighting differed among program directors and postgraduate deans, with 64% of program directors reporting that no trainees moonlighted, and 83.3% of postgraduate deans reporting at least 10% of trainees moonlight. Trainees' primary reasons for moonlighting included financial benefit (59.1%) and gaining additional clinical experience (50.9%). Moonlighting was not significantly associated with increased self-reported fatigue (p= 0.22), stress (p= 0.349), or adverse events (p= 0.043).

Discussion and Conclusions: In this study, trainee moonlighting was not associated with greater trainee fatigue, stress, or fatigue-related adverse events, and may present some benefits including additional clinical experience.

Take-home messages: Though moonlighting is frequently discussed as a factor in relation to RDH and fatigue, it appears uncommon, and may not have negative impacts on fatigue and medical error.
4H5 (22081)
“Sustainable doctoring “: Pilot of an intervention to improve work-life balance during residency

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Background: A recent national survey among all Dutch residents showed that at least 20% suffered from burn out; it also indicated a relationship with suboptimal quality of patient care. Authors suggested the need for interventions to help solving this problem, which is recognized in our institution too. We therefore decided to develop an intervention aiming to foster sustainable employability of residents.

Summary of Work: We developed a training based on the Job Demands-Resources Model about work engagement and vitality at work. An advisory committee of clinical teachers, residents, and occupational health specialists served to tailor the program to the specific needs and working situation of residents.

Summary of Results: The program was piloted twice, with a total of 22 residents participating on a voluntary basis. It comprises two half day workshops including theory and practical exercises. Between workshops participants attempt to change their behaviour in daily life by an individually designed homework assignment. Evaluation showed satisfaction of participants with the workshops and tools offered to adopt new habits and behavioral strategies. Sharing experiences with colleagues was highly appreciated.

Discussion and Conclusions: This program enables teaching hospitals to offer residents an intervention to enhance work-life balance as suggested in the literature.

Take-home messages: A training program to enhance personal effectiveness of residents regarding the combination of work, education and personal life seems to meet the needs of participants.

4H6 (22721)
Perceived Effects of Training-Related Sleep Deprivation: Results from a National Survey of Canadian Trainees

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Background: In 2013, a Canadian national steering committee on resident duty hours (RDH) surveyed trainees and other stakeholders with respect to self-reported work stress, medication use to combat fatigue, and fatigue-related adverse events. We describe the patterns reported by trainees in surgery, internal medicine, family medicine, and laboratory disciplines.

Summary of Work: The survey was distributed online to all active postgraduate trainees in Canada (N=12672). Data were analyzed using descriptive statistics in SPSS.

Summary of Results: 3,625 Canadian trainees completed the survey (28.6%), including 784 surgery trainees (21.6%), 1398 internal medicine trainees (38.6%), 705 family medicine trainees (19.4%), 83 laboratory trainees (2.3%). 25.2% did not identify their discipline. Trainees from all groups reported similar proportions of dissatisfaction with stress levels (47-52%, p>0.01). Fewer family medicine (57.9%) and laboratory (47.0%) trainees reported prolonged sleep deprivation (p<0.001).

Discussion and Conclusions: Prolonged sleep deprivation is more prevalent among surgery and medicine trainees, and has a potentially negative effect on trainee wellness. Fatigue-Risk Management should be a component of postgraduate medical education in Canada.

Take-home messages: The negative effects of prolonged sleep deprivation among trainees can be addressed by Fatigue-Risk Management plans, improving trainee wellness.
411 (21797)
Transforming Medical Education through Social Accountability: An international action research project in 15 francophone countries

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Background: In 2010, the Global Consensus for Social Accountability (GCSA) outlined 10 strategic directions for medical schools to become “socially accountable”. Since 2012, a sample of 31 Medical Schools (MS) from 15 francophone countries are participating in an action research project to investigate how to implement the GCSA recommendations in their institution and demonstrate the utility and the relevance of the Social Accountability (SA) concept as a strategy of choice to improve the impact of MS on people’s health status.

Summary of Work: 31 MS joined the project composed of three stages:
1, Exploration of the perception of SA by faculty stakeholders
2, Development of an evaluation framework with norms and indicators of SA and its experimentation in MS
3, Evaluation of the experiment

Summary of Results: During stage 1 from June 2012 to March 2013, 1293 responses to the questionnaire were received highlighting: the difficulty to understand the concept of SA. During stage 2 started in October 2013, inviting MS to identify norms and indicators in relation to special areas of interest, such as the relationship of a MS and a territory, primary health care, adaptation of medical education, speciality training, interdisciplinary, vulnerable populations. In addition, national meetings were conducted in Tunisia (on the MS and territory) and in Haiti (education reform).

Discussion and Conclusions: The francophone action research project aims to translate SA concepts into concrete policy and operational actions. It should provide useful information on best ways to implement SA in MS. Challenging issues ahead are the creation of a corpus of norms reflecting SA and the assessment of health benefits in implementing SA at short, medium and long term.

Take-home messages: The project contributes to raising the level of awareness within the francophone world of the importance of SA in shaping the future of MS. The project should provide a practical roadmap to MS assessing to SA.

412 (21847)
Social Accountability: An indigenous health curriculum case study

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Background: Within medical education there is a growing demand to identify how as institutions we can develop appropriate social accountability that meaningfully engages the community and enhances the curriculum. However, very little has been documented on social accountability between a medical school and the indigenous community.

Summary of Work: This research project employed a Kaupapa Maori methodology to ensure that indigenous beliefs, values and experiences were validated throughout the research process. Qualitative interviews and a quantitative survey were conducted with indigenous health curriculum convenors/teaching teams from across six medical schools (from four different countries). Inductive analysis (using structural and descriptive analysis were used in the first cycle of coding and then theoretical coding was used in the second cycle of coding). Descriptive analysis was used to interpret the quantitative survey.

Summary of Results: The research identified a framework that highlighted the process by which indigenous health curriculum teaching teams had engaged with indigenous stakeholders through usual indigenous networking processes. Such networking/engagement had promoted a model of social accountability between the indigenous health teaching teams and the indigenous community. This then influenced and initiated a comprehensive social accountability model between the medical school and the indigenous community.

Discussion and Conclusions: This research found that an indigenous health medical curriculum can be a vehicle to promote positive health experiences as indigenous community members are re-positioned as key health stakeholders and experts in indigenous health, as opposed to solely ‘recipients’ of health care.

Take-home messages: This model of social accountability already used within the indigenous health curriculum should act as a model for other areas of medical education.
A validated questionnaire to determine medical students' perceptions of the essential attributes of a socially accountable doctor

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Background: Several education strategies have been implemented with the intention of producing socially accountable health professionals. The impact of these initiatives on medical students' perceptions of the qualities of a socially accountable doctor is not known. This study set out to develop and validate a questionnaire to longitudinally track the impact of training on medical students' perceptions of the key attributes of a socially accountable doctor.

Summary of Work: A questionnaire was developed using the CanMEDS roles as categories consisting of five items each. These items were adopted as theoretical measures of the values and attributes of a socially accountable doctor. Students were asked to rate the importance of the listed behaviors and values using a 5-point Likert scale. The study included medical students in first (n=175, 80%), third (n=193, 92%) fourth (n=170, 83%) and sixth year (n=114, 63%) at a South African medical school. Factor analysis was performed to explore relations between variables and to identify the factor structure.

Summary of Results: Factor analysis produced seven factors with a total of 27 items retained. Items which did not load suitably on any one, loaded on two factors, or whose intra-scale reliability was low or negative were dropped. Items were found to cluster meaningfully and could be themed according to six of the seven CanMEDS roles. The overall Cronbach’s alpha consistency estimate was 0.91.

Discussion and Conclusions: There may be great value in tracking the impact of educational endeavours on the development of students' perceptions of the attributes of a socially accountable doctor. This instrument may offer a means of doing so.

Take-home messages: A questionnaire to track the development of students' perceptions of the attributes of a socially accountable doctor has been developed and validated.

The pedagogical projects of medical courses stimulate actions to implement accountability in medical courses in Brazil

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Background: National Curriculum Guidelines-DCN point to instruments to implement social accountability. The concept of Social Accountability is referred to as a process of monitoring, responsiveness, leadership, exchanges, partnership, co-management and transparency with the community where the setting for medical practice is used by the school.

Summary of Work: A reflexive report about Social Accountability related to the contents of five curricula of medical courses from different regions in Brazil, accessible by internet, aiming to recognize evidence of actions and tools that demonstrated the process of accountability of medical schools.

Summary of Results: In all curricula we detected some accountability actions, mainly at the end of undergraduation and only three tools were used in assessment strategies. All projects proposed use active methodologies for questioning social problems, according to DCNS, revealed accountability process: as mentor reports, collective and environmental community health for accountability meeting reports, case studies and experiences inside the community. We couldn't find reports of proposed actions as councils and public audience involving exchanges with the community where it belongs.

Discussion and Conclusions: The pedagogical projects studied were limited to some actions aiming at accountability. Medical courses failed to implement accountability. They couldn't demonstrate effective community participation in decision-making instances specially with community where the course and its practice are included.

Take-home messages: It is necessary to rethink the role of institutions and their curricula in the health care system. What actions should be included in medical curricula to induce greater effectiveness in the implementation of social accountability in Brazil?
**4J SHORT COMMUNICATIONS:**

**Multi Mini Interviews (MMI)**

**Location:** Amber 3, Level +2, MiCo

**4J1 (21185)**

**Does Multiple Mini Interview (MMI) measure non-cognitive attributes in student selection?**

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**Background:** The MMI is increasingly used as a tool to assess the non-cognitive attributes such as interpersonal skills, motivation, and problem exploration in student selection. This paper reports on the MMI performance of applicants into an undergraduate medical programme.

**Summary of Work:** An MMI of ten stations, each of six minutes, measured a specific non-cognitive attribute assessed by one interviewer, was administered to applicants. Scores at each station were standardised to a maximum score of ten. Each station required the interviewer to state if there is any concern about the applicants. Information on gender, race and academic performance were also collected. Students' academic performance was grouped into Band 1 (the best) to Band 5 (the worst).

**Summary of Results:** Overall mean MMI score was 72.5 (95% CI 70.8-74.1). Thirty one applicants had at least one concern. There were no statistically significant differences in mean total MMI scores by gender, race and academic performance. Analysis of individual stations showed mean score for decision-making station was higher in male students ($p=0.018$). Significan highest mean score for summarizing station was found in “others” race (9.00±1.85), and lowest in Malay (5.9±2.02) ($p=0.007$).

**Discussion and Conclusions:** We found no significant association between pre-university academic performance and MMI performance. MMI is a valid tool to assess non-cognitive attributes of applicants into an undergraduate medical program in Malaysia.

**Take-home messages:** MMI is a valid tool to measure non-cognitive attributes.

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**4J2 (21521)**

**A MUS MMI (Multiple University Site MMI): Does performance improve with the multiple occurrence?**

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**Background:** MMI are used since 2006 as a selection tool for applicants in many medical schools around the world. This method offers an objective evaluation however the examiners' and standardised patients' homogeneity is a real challenge.

**Summary of Work:** Since 2009 in the province of Quebec in Canada, the three-francophone medical schools, situated in three different cities, have implemented the same MMI during the same two days with twelve identical stations (six discussion and six role playing) on each day. About 1500 candidates are seen during the same weekend, distributed on the four sites. Each year candidates not accepted in the past years present to take the MMI again. According to current literature, their performance should not improve each year, as the interview stations of the MMI are different and one year has elapsed between the evaluations.

**Summary of Results:** We have compared the performance of multiple year applicants of the last five years to verify if their performances improved with time, knowing that they prepare themselves, sharing information on social sites or other information sharing strategies.

**Discussion and Conclusions:** According to Griffin (2008), been coached before entry selection tests did not assist and may have even hindered students’ performance on the MMI. However, practicing similar MMI did improve overall scores. Is it so for our MMI?

**Take-home messages:** • MMI should be extremely well prepared with extensive scenarios for role playing stations and varying mandatory questions in discussion stations.  
  • The theme of the station are fundamental in a MMI setting  
  • Standardization of the examiners is essential to assure quality
4J3 (21013)
Reliability of a six-station multiple mini-interview for student selection in Faculty of Medicine Universitas Indonesia

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Background: The multiple mini-interview (MMI) has been reported to be acceptable, fair, transparent, free from gender, socio-cultural-economic bias, did not favor applicants with previous coaching, and is also the best predictor for OSCE performance in medical schools. Faculty of Medicine Universitas Indonesia (FMUI) started to implement MMI as one of its student selection method for the International class in 2013.

Summary of Work: The MMIs were held in May (term 1, n=38) and July 2013 (term 2, n=78). Due to limited number of interviewers, 6 MMI stations were prepared, assessing effective communication (oral and written), critical thinking, ethical decision, knowledge of the healthcare system, and standard interview. The interviewers were FMUI teaching staff and trained prior to the MMI. Candidates were also briefed beforehand. The score from each station were assessed for reliability and compared between genders using Mann-Whitney U test.

Summary of Results: The average score received by all 116 candidates across 6 stations ranged from 57.27 (SD 22.191) to 78.92 (SD 17.014). The cronbach’s alpha for term 1 and term 2 were 0.567 and 0.685. There was no statistically significance difference in performance between males and females except on the critical thinking station term 1 (p 0.007).

Discussion and Conclusions: The reliability of a six-station MMI held by Universitas Indonesia is acceptable. Further study is needed to assess its predictive validity for OSCE performance.

Take-home messages: MMI should be held as one of the methods of student selection in medical schools, with proper training of interviewers to minimize interviewer’s subjectivity.

4J4 (21311)
Pilot testing multiple mini-interview station in two pilot medical schools

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Background: According to the Concept of Medical Education of the Republic of Kazakhstan for 2011-2015 to achieve efficiency and quality of the medical personnel training is important to implement new approaches to the selection and admissions to medical schools.

Summary of Work: We carried out piloting Multiple mini-interview (MMI) stations in two pilot medical schools. We evaluated noncognitive characteristics in 24 students of the first course, specialty "General Medicine". MMI consisted of six stations, each of which lasted 10 minutes and was assessed by one interviewer. Interviewers evaluated students on the following criteria: ability in identifying key issues, communication skills, critical thinking ability, student's conformity to career in their chosen field.

Summary of Results: Analysis of the results of piloting station found the following: 10 minutes allotted for each station MMI passage is sufficient; MMI station passage for 12 candidates need 2 hours; MMI results don’t depend on the form of training and from the arrival of the candidate (village, town); the procedure for MMI passing and tasks in the station did not cause difficulty for the students; comparison of the results between the candidates revealed absence of the significant difference between the results of the winter session, unified national testing and the results obtained on the MMI stations.

Discussion and Conclusions: The process of piloting MMI station provided a positive experience for both students involved as candidates and for the teachers involved as interviewers and examiners.

Take-home messages: Further comparative monitoring study of the MMI procedure will allow us to trace not only the educational achievements of students, but also changes the development of their personal qualities.
Entry to medical school in Singapore: Evidence from a Multiple Mini Interview to assess non-academic attributes

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Background: Until 2013, the National University of Singapore (NUS)’s Yong Loo Lin School of Medicine had employed a two-part traditional panel interview as part of their selection process for medical students. Targeting issues around context specificity (Eva et al., 2004), a locally relevant Multiple Mini Interview (MMI) is being developed and will be implemented in April 2014 to assess important non-academic attributes in order to enhance the reliability and validity of the interview process.

Summary of Work: The NUS MMI targets five domains: integrity and ethical responsibility, empathy, communication, resilience, and motivation and passion. Contextualisation interviews and local expert reviews are conducted to develop and contextualise 100 MMI stations that are relevant to the local context. Detailed station-specific scoring indicators and assessor training are designed and implemented in order to improve inter-rater reliability.

Summary of Results: Evaluation of the live implementation of the MMI is due to take place in April 2014. Evaluation will be conducted to look at the MMI’s reliability in addition to its criterion validity with the Situational Judgement Test (SJT) that is also being used as part of the NUS selection process. Possible group differences and candidates’ reaction towards the MMI in relation to relevance and fairness will also be evaluated.

Discussion and Conclusions: The MMI will undergo psychometric analyses and candidate evaluation to determine its reliability and validity in the selection of medical students in Singapore. Assessment development is an iterative process, detailed evaluation and analysis will help to identify areas that can be refined to enable year on year implementation.

Take-home messages: A contextualised FSA is expected to be a reliable and valid selection methodology for testing important non-academic attributes for entry to medical school in Singapore.
Innovation in medical education: The importance of students’ perceptions

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Background: At the Catholic University of Leuven, medicine students specializing in general practice are trained with the assistance of a blended learning environment focusing on whole-tasks. However, implementing a whole-task learning environment requires students to change their learning strategies towards whole-task learning. This change requires positive perceptions towards the new learning environment, resulting in a willingness to invest more mental effort in completing the learning tasks (Um & Plass, 2012). In this research we focused on the impact of students’ perceptions of functionality (PF), usefulness (PU) and ease of use (PEOU) on how they experienced the learning environment.

Summary of Work: For every element in the learning environment, all students from the first year general practice (7th year medical school) were asked to rate statements about the perceived functionality. In addition, students rated the overall PF, PU en PEOU and indicated their experience with the learning environment. Also, they were asked to indicate how much effort they had spent in order to complete the tasks and in order to navigate through the learning environment.

Summary of Results: (1) Based on the PF of every element in the learning environment, it is possible to identify the element(s) that contribute(s) most to overall ratings of the learning environment. (2) Students having positive perceptions about the learning environment report higher invested effort in task completion.

Discussion and Conclusions: This research identifies that in order to get an innovation successfully implemented, it is also necessary to keep students’ perceptions in mind.

Take-home messages: Students’ perceptions may define their interaction with the learning environment.

Activating Innovation In Medical Education

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Background: New strategies are needed to activate innovation and foster collaboration across the medical education continuum. Traditionally, changes to educational content and processes are top down, an approach that overlooks potential recommendations from medical students, residents, faculty and staff who experience the curriculum and systems day to day.

Summary of Work: The University of Minnesota Medical School sponsored a contest explicitly designed to give learners, educators and staff a forum for elevating ideas for educational improvements. Through the competition, we sought to foster a culture of innovation and increased collaboration across silos of faculty, staff and students. The web-based Innovations Contest included four phases: launch, idea submission, voting, and a follow up survey.

Summary of Results: A total of 76 ideas were submitted, spanning themes of educational continuum, curricular integration, the learning environment, interprofessional and team-based education, or administrative improvement. Many ideas (40 out of 76; 53%) generated additional comments and online dialogue about the idea. A total of 902 people voted for their favorite ideas. When asked in a follow-up survey whether the respondent would have developed their idea without this contest, 27% reported no and 18% reported maybe. 75% of respondents stated the contest stimulated networking and collaboration. The contest generated thoughtful recommendations for enhancements to curriculum and processes that we are now implementing.

Discussion and Conclusions: The Innovations Contest successfully generated new ideas across the continuum of medical education and encouraged networking and collaboration.

Take-home messages: An innovations contest is a mechanism for generating ideas, activating collaboration, and fostering a culture of innovation in medical education.
4K3 (22996)
Small institutional grants: A means to enable young institutional leaders to shape the curriculum of future health professionals

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Background: The University of Southampton and International Malnutrition Task Force (IMTF) developed a high quality eLearning course, Malnutrition eLearning, and made it freely available to meet the global demands for malnutrition management capacity building among future and existing health professionals. After failing to achieve a large-scale uptake of the course, a social media campaign began in October 2012. This resulted in over 5,000 people from 121 countries, including doctors, nutritionists, academics, government staff and students, enrolling on the course. Although student numbers increased gradually, much needed institutional uptake of the course as part of their curriculum, was low, inhibiting sustainable capacity building.

Summary of Work: To enable young institutional leaders in developing countries to integrate the Malnutrition eLearning course to their medical and allied-health science curricula, a small institutional grant was set up by the University of Southampton and IMTF. The proposals from Makerere University Uganda and Catholic University College of Ghana were selected. The 18 month projects were initiated in May 2013 and 6 month reports submitted in October.

Summary of Results: 635 Ghanaian and 418 Ugandan students enrolled on the course in the first year. The 6 month project reports showed very positive feedback on students’ learning experience and the course design (www.som.soton.ac.uk/learn/test/nutrition/grants/winners/).

Discussion and Conclusions: By enabling young leaders through creating a formal link with institutions in low resource countries, it is possible to help implement new capacity building opportunities for long term benefit.

Take-home messages: Formal collaborative links established through small grants can help implement global institutional capacity building.

4K4 (22815)
Patient and Public Involvement in Medical Education

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Sally Hanks*

Background: The presenters of this session are medical education researchers conducting ongoing work on PPI in medical practice that is informing current policy in the UK. Our findings, in terms of the character, purpose and value added by PPI, are directly translatable to the education of doctors.

Summary of Work: The research used a combination of interview and online survey. The resulting data was analysed using Cultural Historical Activity Theory.

Summary of Results: Specifically we have identified the emergence of three distinct PPI roles: the public, the patient and the lay, each of which are tied to specific modus operandi and differing contexts.

Discussion and Conclusions: Patients and public are terms used interchangeably, but we have discovered that they are very different. Patient refers to the small local relationship between individuals or small medical or educational teams, whereas the public encapsulates the collective of patients as a stakeholder group. In conceptual terms, although various literatures assimilate public and patients, they are two distinct ontological groups and offer different learning opportunities. Lay representation provides a further layer to PPI and is more concerned with governance.

Take-home messages: Clarity of terminology is imperative: it has potential implications for fit for purpose application of PPI in practice, not to mention operational effectiveness.

This presentation outlines the emergence of a detailed framework of PPI fit for educational practice, and provides illustration of how this is being fed into the structures of our medical school, the challenges it has engendered and the benefits it has brought to medical staff, students and to patients themselves.
4K5 (20407)
Pay it Forward

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Background: MedEdWorld provides services to develop medical educators’ knowledge. One of these services is its webinar program. For some years, academics at the University of Notre Dame medical education unit have attempted to engage medical educators in the webinar program, with limited success. The Pay it Forward initiative provides an alternative approach to real time webinars.

Summary of Work: Pay it Forward examines upcoming webinars, connecting targeted leaders with key themes. A dialogue begins which is aimed at interpreting webinars for the local context, where appropriate suggesting policy responses. A captured webinar is then given to leaders with resources and support to assist in developing deep understandings of the issues involved. Finally, leaders are encouraged to think creatively about how to share their interpretations with the wider university community.

Summary of Results: This paper discusses initial outcomes from Pay it Forward, from perspectives of knowledge/skills development and educational change. Pay it Forward has been shown to present a fresh approach to educational professional development. First, it provides educational leaders with the support needed to engage with contemporary issues at a deep intellectual level; secondly, by encouraging leaders to contribute to policy development, medical educators can develop their capacity as educational change agents; finally, developing educational professional development for time-poor health professionals promotes succinct and creative approaches.

Discussion and Conclusions: Pay it Forward could be an important educational intervention that changes the way in which professional development is conducted in time-scarce environments.

Take-home messages: Pay it Forward leverages knowledge generated through a global community for a local context, supporting both leaders and novices on their own learning trajectories, whilst at the same time sustaining a culture of continuous improvement.

4K6 (20437)
Free range teaching, an open, networked, digital learning environment

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Background: With every new year, fresh education technologies provide opportunities for teachers to invigorate their practise. In our school students are widely distributed geographically, so we blend education technologies to support local site needs and to keep a sense of cohesion as part of a whole. Our clinician teachers ably adopt any as they perceive may aide their role.

Summary of Work: The Rural Clinical School of Western Australia (RCSWA) trains a cohort of 85 medical students in their penultimate clinical year as small groups of 3 to 11 students dispersed over Western Australia's 2.5 million square kilometres. This design maximises students' learning by embedding them for the academic year in a genuine remote / rural context.

Summary of Results: The 14 sites are connected in a private wider area network on a modest 1.5Mb symmetrical service with QOS applied, optimised for video traffic and out to the internet through the institutional backbone. This technology design mimics the organisational structure, enabling a "level playing field" for communication and daily business.

Discussion and Conclusions: The contrasting learning environment drove the need for contrasting education technologies. The simple network enabled custom development and rapid adoption of teaching and learning innovations into everyday use. eLogging, virtual patients, group videolearning sessions with eClicker participation were key elements. Conceptually centred on thinking out loud, reflection, building and revisiting a personal portfolio of clinical experience, the students using these tools have had excellent outcomes. Their clinician mentors, new to teaching rapidly gained personal mastery.

Take-home messages: Network design should reflect organisation structure. Outcome focus should determine tools used.
4L SHORT COMMUNICATIONS:
International Education 1
Location: Amber 5, Level +2, MiCo

4L1 (23027)
Delivering an undergraduate medical curriculum across Europe: Aiming towards excellence in clinical placements through education research and staff development

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Background: In 2013/14, University of Southampton started a new undergraduate programme, the BM(EU), in cooperation with a German healthcare provider. Students spend two years in Southampton alongside the British-based cohort and then undertake clinical placements in Germany.

Summary of Work: To appreciate the context in which BM(EU) students will be taught, we interviewed clinicians at our partner institution (n=13). Semi-structured interviews explored clinicians' own experiences of placements as this is likely to impact on their teaching approaches and expectations of students. All interviews were transcribed and analysed using the constant comparison method.

Summary of Results: According to the literature, the German and UK medical education systems differ significantly in approaches to regulation and quality assurance. Initial analysis of interview data indicated that the preliminary nursing placement and the final 'practical year' were the most memorable learning experiences. It also highlighted students' autonomy in organising 3-of-4 placements. Without university involvement or pre-defined learning outcomes interviewees relied on personal motivation for successful placements.

Discussion and Conclusions: The BM(EU) is regulated by the General Medical Council and we must recognise that for our German partners, this regulatory involvement and emphasis on competencies and learning outcomes may be novel. The research process and findings are already facilitating better communication and will inform staff development.

Take-home messages: The research process and the findings of this project were and are intended to facilitate a dialogue about what constitutes meaningful placement learning. It will also help inform staff development approaches and ultimately ensure that students' placement experiences reflect the best of both worlds.

4L2 (19604)
Reliability and validity for assessing the competence and practice readiness of international medical graduates

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Nancy Allan, University of Saskatchewan, Saskatoon, Canada

Background: There is currently no standardized assessment of the competence and practice readiness of IMGs. Our purpose was to study the psychometrics of such a system.

Summary of Work: 157 IMGs from 20 countries (56 women – 35.7%; 101 men – 64.3%) participated in a Canadian assessment. The mean age was 38.7 years (SD = 8.0) and the mean years in practice was 11.3 (SD = 7.5). Candidates took the following: (1) English language exams (TOEFL or IELTS), (2) Knowledge Exam, Therapeutics Exam, the Medical Council of Canada QE1, (3) a 12 station OSCE, and (4) workplace-based assessments during 12 weeks of supervised practice (mini-CEX, Multisource Feedback, In Training Evaluation Reports, and Assessment of Spoken English).

Summary of Results: Ep2 ≥ 0.80 were found for the OSCEs, mini-CEX and MSF. The written examinations had α ≥ 0.85. There were significant differences on the OSCEs, MCCEQ1 (p < 0.05) and Knowledge scores (p < 0.01) by country of medical degrees but not for other demographics. Multiple regression analyses resulted in MCCQE1 as the best single predictor of OSCE performance as well as workplace-based assessment on the mini-CEX. Factor analyses (principal components, Varimax rotation) resulted in: 1) Information Sharing and Counseling, 2) Communication Skills, 3) Medical Knowledge, 4) Risk Assessment, and 5) Risk Management accounting for 73.6% of the total variance.

Discussion and Conclusions: There is evidence for reliability and generalizability as well as construct validity of the assessment system, with theoretically meaningful and coherent factors.

Take-home messages: Practice readiness of IMGs can be reliably and validly assessed with multiple assessments.
**4L3 (19940)**  
The Relationship between Performance on the International Foundations of Medicine® (IFOM®) Clinical Science Examination and the United States Medical Licensing Examination® (USMLE®) Step 2 CK  

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John Phebus, National Board of Medical Examiners, International Programs, Philadelphia, PA, United States  
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**Background:** The NBME® International Foundations of Medicine® (IFOM®) program provides medical schools internationally with tools for measuring examinees' understanding of the medical sciences. The IFOM Clinical Science Examination (CSE) assesses the medical knowledge and understanding of clinical science considered essential for the provision of safe and effective patient care. The IFOM CSE is intended to determine an examinee's relative areas of strength and weakness in general areas of clinical science. Because there is substantial overlap in content coverage and many IFOM items were previously used on USMLE® Step 2 Clinical Knowledge (CK), performance on the two examinations is likely to be related.

**Summary of Work:** This study used linear and logistic regression to investigate the relationship between performance on IFOM CSE and Step CK based on students from international (IMGs) and US (USMGs) medical schools to see if the relationship differs for the two groups.

**Summary of Results:** Results of the analyses confirmed performance on IFOM CSE and USMLE Step 2 CK is related; however, the strength of the relationship is stronger for USMGs than for IMGs (R² = 0.60 vs. 0.23, respectively) but also depends on the stakes of the examination.

**Discussion and Conclusions:** IMGs are a diverse group and they take IFOM CSE for various purposes and the stakes vary depending on the purpose. This explains why the relationship between the two examinations was not as strong overall for this group.

**Take-home messages:** IFOM CSE and USMLE Step 2 CK measure similar content and performance on the two examinations is related to varying degrees depending on group and stakes.

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**4L4 (21939)**  
Med-MOTION Project: implementing mobility by 5 pilot projects  

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**Presenter:** FI Wolf*, Università Cattolica del Sacro Cuore, Rome, Italy

**Background:** The MED-Motion, a 3 years LLP project linking 7 Medical Schools around Europe, envisages removing barriers and implementing workable student and staff mobility strategies for medical/health care sector in Europe and beyond.

**Summary of Work:** Strategic Plan for Mobility consisted in 5 pilot projects to promote mobility and internationalization at three levels: Students, Teachers and Staff: Common course units, Summer school, Center of excellence for clinical clerkships, Students' research project, Staff week. Clearly defined guidelines have been identified to delineate modality and objectives of pilot projects.

**Summary of Results:** Common course unit on Infectious diseases was developed between Paris, Rome and Edinburgh, and issued in each Institution (action: teacher exchange, local internationalization). Summer school organized with the collaboration of international teachers and students (topic: serious games in the field of critical care), will be issued in rotation (Paris 2013, Berlin 2014). Centers of excellence for clinical clerkships with clearly defined objectives and outcomes, were offered to international students in several Universities. Student research projects were shared by inviting international students to attend Students' Scientific Conferences (Semmelweis 2014). Staff weeks were organized to optimize collaboration among International Officers (Berlin 2013, Stockholm 2014).

**Discussion and Conclusions:** Involvement of the Faculty Leadership, Teachers' collaboration and active participation of student representatives turned out to be the key issues to a successful implementation of internationalization and harmonization of medical education in Europe. Efficient and standardized procedures are needed to organize international activities.

**Take-home messages:** European projects as Med-MOTION are important tools to promote internationalization of medical education. Sustainability beyond EU projects is an important issue.
4L5 (21514)  
A pilot study to explore the challenges of European health professionals working outside their country: The example of Italian doctors in the UK

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Background: European health systems depend increasingly on the services of health professionals who obtained their primary qualification from other countries in the European Union (EU). In the UK, for example, they represent 10% of the NHS workforce (GMC, 2013). But crossing borders in healthcare raises numerous challenges (Slowther et al. 2012). We aimed to explore the experience of junior Italian doctors arriving in the NHS to take up clinical employment.

1. How do junior Italian doctors experience the process of acculturation in the NHS?
2) What are the challenges they face?
3) How do they engage with formal or informal induction support?
4. How did they reconfigure their professional identities to learn to feel safe in the new contexts?

Summary of Work: 1. Online questionnaire based on themes in the literature was sent to an opportunistic sample of 30 junior Italian doctors who had worked for at least 3 months in intensive care units or surgical theatres in NHS London between 2013-2014.
2. Two 1-hour focus groups to explore Italian doctors' experiences of acclimatization in the NHS.

Summary of Results: Themes from data analysis included: lack of knowledge of ethical and regulatory frameworks; how people communicate in teams; feelings of professional inadequacy; safety culture differences.

Discussion and Conclusions: New doctors need specific 'in-practice' support from home staff to make integration into the NHS less stressful and more effective. Need for greater awareness among local healthcare providers and institutions regarding the legal responsibility to ensure closer supervision.

Take-home messages: New educational programmes and specific "in practice" support for new doctors are needed.

4L6 (20686)  
International faculty development programs with focus on developing countries: How to successfully support medical faculties in rapidly growing economies

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Martin Fischer, Ludwig Maximilians Universität, Surgery, Munich, Germany
Matthias Siebeck, CIH, Ludwig Maximilians Universität, Munich, Germany

Background: For years the globalization in all parts of life has been rapidly accelerating. International networks are becoming more and more important to stay competitive in the modern world. Globally, there is an unmet need for well-trained doctors and health professionals, and this is particularly true for the region of sub-Saharan Africa and Southeast Asia. Capacity building for the health professions is a major challenge for all countries, particularly those with weak economies.

Summary of Work: This project is embedded in the CIH, Center for International Health. Its main objective is to contribute to achieve the millennium development goals 4, 5, 6 formulated by WHO. CIH has conducted multiple faculty development workshops from one week to four weeks duration in Munich, Africa, Asia and Latin America. The overall goal is to train scientists to become excellent teachers, researchers, multipliers and change agents in the field of medical education and to enable medical teachers to develop locally applicable medical teaching methods.

Summary of Results: By Academic Teacher Trainings at LMU Munich as well as at the partner institutions more than 100 key staff members from all participating partner institutions of the Center for International Health have been taught following a train-the-trainer approach. The course offers various modules related to teaching and students’ assessment including problem based learning as well as participants are asked to design their own clinical case scenarios. Surveys among all participants demonstrated the relevance and outcomes of the courses.

Discussion and Conclusions: In summary, fostering individual capabilities of academic teachers from partner institutions was evident. At the institutional levels this was verified as well as the multiplier role of course graduates in their universities.

Take-home messages: Academic Teacher Training conducted at partner institutions allow the possibility of local and regional dissemination of knowledge through South-South collaboration.
4M SHORT COMMUNICATIONS:  
Curriculum Subjects 1  
Location: Amber 6, Level +2, MiCo

4M1 (20866)  
A Hybrid Course for Neuroscience  
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Susan Albright, Tufts University School of Medicine, Department of Technology for Learning in the Health Sciences and TUSK: Enterprise Educational System, Boston, United States  
Mark Bailey, Tufts University School of Medicine, Department of Technology for Learning in the Health Sciences and TUSK: Enterprise Educational System, Boston, United States

Background: After a career spent teaching Neuroscience with only in-class lectures and a brain laboratory, we have developed a Neuroscience Course which we believe better engages the student and develops more completely their understanding of the functions of the central nervous system by introducing active learning techniques.

Summary of Work: The course runs on a weekly basis and the student begins the week by reviewing online a short prerecorded Power Point presentation or video that introduces the student to the topic of the week. Each week there are two 75 minute, in-class presentations on Tuesday and Thursday. The in-class presentation is a combination of a Power point lecture, black board discussion, or a review of a case history that demonstrate a major disease seen in the CNS. The student takes a weekly online quiz which covers the topic of the week in several formats including multiple choice, fill in, or label the photograph. This weekly quiz is only given for self-assessment and is due prior to our Tuesday in-class meeting. We still conduct a laboratory exercise in which they examine brains from cadavers. There is an online midterm and final exam that consists of case histories and general questions.

Summary of Results: The combination of prerecorded and in-class presentations with the weekly self-assessment quizzes has encouraged the student to more readily study the course materials and lead to a better understanding of the central nervous system.

Discussion and Conclusions: In our review of the student comments on this course we note they like the course very much. They find it engaging, and they say it makes the learning of Neuroscience with all of its terminology less intimidating and much easier to undertake.

Take-home messages: An active learning approach to studying Neuroscience takes much effort to develop, but the positive results are very rewarding for the student and the faculty.

4M2 (22659)  
Developing Forensic Medicine Internship Programme and Logbook  
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Aysun Balseven Odabasi, Hacettepe University, Medical Education and Informatics, Ankara, Turkey  
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Background: Regardless of area of expertise, each physician is confronted with forensic cases during their medical practice. Therefore, teaching basic application of forensic medicine is of high importance for undergraduate medical students. This study aims to share the process of developing forensic medicine internship programme and logbook and to evaluate the obtained feedback during the implementation of the program in the fall semester.

Summary of Work: Forensic Medicine Internship programme, as an elective training, was started in 2013-2014 academic year in the scope of phase V programme of Hacettepe University Medical Faculty. The internship program was developed by academicians working in the related field based on previously implemented training programs. The programme involves training about forensically qualified cases using case-based learning applications. A total of 41 students participated to forensic medicine internship in the fall semester. Feedback of students was obtained with a questionnaire consisting of 12 questions, at the end of each internship term. These feedbacks are presented in frequencies and percentages.

Summary of Results: Out of all 80.5% of students stated that they were very satisfied with the internship program. Introduction of the internship, training duration and physical facilities were among satisfying features of the training for the majority of students (80% or above). However, program compliance, assessment, course content and clinical practice were noticed to be less satisfying, and almost two third of students (68% or less) were fully satisfied with these titles.

Discussion and Conclusions: Implementation of forensic medicine internship is important for medical students to gain proficiency and students gave positive feedback for the presented application.

Take-home messages: Sharing of experiences and student feedback provide important contributions to the development of internship programs.
4M3 (22693)
Psychiatric education in the context of problem-based medical education

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Background: In Sweden medical education lasts 5.5 years; then the physicians are required to undertake a residency before getting a full license to practice medicine. Residency consists of at least 9 month of medicine and surgery, six month of general medicine and three month of psychiatry. Under their practice in psychiatry, young doctors are experiencing their competence as inadequate, in contrast to e.g. medicine.

Summary of Work: Örebro university got the right to educate doctors 2011; the psychiatric education consists of two parts, of which the first is placed in the fifth academic term, the other in the ninth. Under the first period, students study pathophysiology and psychopathology, while learning about diagnostic and treatment under the second. Clinical aspects are introduced early and students meet their first psychiatric patients under their 5th academic term. Theoretic education is given as a combination of small-student-group-learning and lectures.

Summary of Results: Two groups of students have passed their fifth terms. The first contact with psychiatric patients and psychiatry was experienced as new and difficult; these feelings were changed to a feeling of better understanding and a more positive attitude towards psychiatric patients.

Discussion and Conclusions: The program is under construction; no students have passed their final examinations yet. Our preliminary conclusion is, that early introduction of psychiatric problems may make it easier for students to approach the topic.

Take-home messages: Early introduction of psychiatry may help students to review their prejudices towards psychiatric patients.

4M4 (20814)
Psychology in Saudi Arabia's Medical schools: In which department does it belong?

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Background: Despite the fact that teaching clinical psychology is an integral component in contemporary medical education, homing of such specialty in a specific department is a controversial issue. Conversely, establishing new departments may be incompatible with the philosophy of integration in modern medical education.

Summary of Work: With the ultimate goal of identifying the appropriate academic department for housing clinical psychology, the websites of 265 medical schools were searched to identify the most common trend in this regard.

Summary of Results: Web search revealed that only three out of 23 medical schools in Saudi Arabia (SA) are having a distinct discipline as well as a specialized staff in clinical psychology. At the national, regional and international levels, there are 5%, 5.6%, 91.6% respectively of all medical schools lay clinical psychology under the umbrella of clinical departments namely: Department of Psychiatry in 35 % of cases, Department of Family Medicine in 20% of cases, and Department of Psychiatry and Behavioral Sciences in 15% of cases.

Discussion and Conclusions: In order of priority, homing clinical psychology is best done under the umbrella of the Psychiatry Department then Family Medicine Department.

Take-home messages: Homing of clinical psychology under the umbrella of a certain department is controversial worldwide. The most common trend is to lat this specialty under the umbrella of either the psychiatry or Family Medicine departments.
4M5 (21853)
Education in personalised medicine, new topics, new links, new methods

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Judita Kinčorová, Technology Centre AS CR, Prague, Czech Republic

Background: The concept of personalised medicine has not been well understood yet in the Czech Republic. There is a lack of a methodical educational scheme concerning individualised care, prediction and prevention of diseases.

Summary of Work: Our goals were:
- to evaluate the knowledge of healthcare professionals as well as general public as regards personalised medicine;
- to insert specialised lectures into existing educational schemes and to propose independent courses focused on personalised medicine at universities;
- to introduce modern laboratory technologies to students.

Summary of Results: The investigation on the awareness concerning personalised medicine was performed on different population groups (university student, healthcare professionals, undergraduate students). Series of lectures concerning personalised medicine and molecular biology methods were organised for students at the Faculty of Medicine in Pilsen and the University of West Bohemia in Pilsen. Several new optional courses were prepared and realised and had a very good attendance. The students have the opportunity to see modern laboratory technologies on personalised medicine at universities; to introduce modern laboratory technologies to students.

Take-home messages: In order to change the way of thinking of professionals and general public, a well-driven and methodical education is a necessity.

4M6 (21109)
Initiating End-of-Life Discussion With Medical Students: Perspective and Awareness of Dealing with the “Elephant in the Room”

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Marco Antônio de Carvalho Filho, UNICAMP, Emergency Department, Campinas, Brazil
Marcelo Schweller, UNICAMP, Emergency Department, Campinas, Brazil
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Background: Considering that junior doctors are often required to care for dying patients, palliative care is a key topic in modern medical education. However, besides the difficulties in performing and teaching palliative care, the students’ perceptions and emotions related to this theme may pose another obstacle to an effective learning process.

Summary of Work: Sixth-year medical students participated in three palliative care meetings structured on “attitudes towards death through history”, “death and dying process” and “legal, ethical and practical issues at the end-of-life”. The students filled out a 7-point Likert scale with 17 statements about palliative care before and after the activity. At the end, they also completed a questionnaire about the learning outcomes and their satisfaction with the course.

Summary of Results: Before the course, most students believed palliative care starts “only when there is no more chance of cure”, but this concept changed in post-intervention questionnaire. A pronounced anxiety in dealing with end-of-life issues was noticed during the meetings. However, they felt comfortable in the course of the activity mainly due to a “safe environment for sharing experiences”. Throughout the meetings and the hospital daily practice we observed that students were increasingly aware of the need to deal with palliative care.

Discussion and Conclusions: Medical students feel uncomfortable with end-of-life issues, but they appreciate a safe environment to learn and share their experiences on the theme.

Take-home messages: End-of-life discussions may have a positive impact in students’ personal and professional lives, and should be inserted early in the medical curriculum.
4N1 (22587)
Coaching Surgeons: Culture Eats Strategy for Breakfast

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Priyanka Patel, University of Toronto, Wilson Centre, Toronto, Canada
Nathan Zilbert, University of Toronto, Wilson Centre, Toronto, Canada
Natasha Seemann, University of Toronto, Wilson Centre, Toronto, Canada
Lucas Munroghan, Hospital for Sick Children, Surgery, Toronto, Canada
Carol-anne Moulton, University of Toronto, Wilson Centre, Toronto, Canada

Background: Evidence suggests that coaching might be an effective strategy to facilitate the ongoing development of expertise after formal surgical training. For this to be successful, surgeons’ cultural beliefs and attitudes towards coaching need to be more completely understood.

Summary of Work: A constructivist grounded theory study was conducted to explore cultural beliefs and attitudes toward coaching. Semi-structured interviews were conducted with 16 surgeons from the University of Toronto purposively sampled for different experience levels. Data were coded into categories in an iterative fashion until emerging theoretical constructs were saturated.

Summary of Results: Broad categories of expertise, assessment, and surgeon image emerged. Participating surgeons believed that expertise is developed individually through self-assessment. External assessment was perceived as unusual and implying need for remediation. Surgeons expressed interest in having a coach if it becomes widespread practice, but were concerned that requesting coaching at present would be misperceived as admitting incompetence.

Discussion and Conclusions: Although most participant surgeons could see the benefit of coaching, they anticipated that coaching would not be accepted in the current surgical culture. The cultural practices of independent development and self-assessment conflict with the collaborative development and external assessment proposed by coaching. Seeking coaching is seen as inconsistent with a surgeon identity that emphasizes competence and confidence.

Take-home messages: Current cultural beliefs about the development of expertise, assessment, and surgeon identity may make the successful application of coaching in surgery a challenge.

4N2 (20117)
Continuous professional development: The main drivers and the major obstacles

Abdulkader Al-Juhani*, Royal Commission Medical Center, Training and Development, Yanbu, Saudi Arabia

Background: Continuous professional development (CPD) is the way professionals continue to learn and develop throughout their careers so they keep their skills and knowledge up to date and are able to work safely, legally and effectively (Health & Care Professions Council). CPD certificate is required for renewal of professional practices license in most of the countries all over the world.

Summary of Work: A questionnaire was developed to try to find out what are the main drivers for attending CPD activities and what could be the major obstacles; it was sent by E-mail to all the hospital health care staff and the same form was printed and distributed in 3 other hospitals.

Summary of Results: 49% of the participants choose gaining knowledge as their main driver for CPD, while 32% considered accredited hours necessary for their professional license renewal as their reason for attending CPD activities, 17% thought networking with colleagues in the field is a good reason to attend CPD activities. For the obstacles: Lack of time was the main obstacle for 62% of the participants, second came financial constraints for 14%, same like lack of Supervisor/Administration support, while 9% lack the interest.

Discussion and Conclusions: Administrators should support all the staff to attend CPD activities and a special time to be allocated for this in addition to financial support when necessary.

Take-home messages: CPD is an integral part of the Health Care Professional system and a full support is necessary for all the staff to help them to deliver safe, up-to-date, high quality care.
ABSTRACT BOOK: SESSION 4
MONDAY 1 SEPTEMBER: 1400-1530

4N3 (22250)
Developing an instrument for measuring general practitioners’ intention to use e-Learning in continuing medical education

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Nahidosadat Mirshahzadeh, Isfahan University of Medical Sciences, Continuing Medical Education Office, Isfahan, Iran
Nabil Zary, Karolinska Institute, Department of Learning, Informatics, Management and Ethics, Stockholm, Sweden
Presenter: Arash Hadadgar*, Karolinska Institute, Department of Learning, Informatics, Management and Ethics, Stockholm, Sweden

Background: E-learning becomes an important way of delivery in continuing medical education (CME); but still some general practitioners (GP) don’t use it.

Summary of Work: In this study, we developed a tool for measuring intention to use e-learning in CME for general practitioners based on Theory of planned behavior. The “elicitation study” in which an open ended six item questionnaire was distributed, to generate items of the instrument based on the TPB format. The content validity checked by experts and then we done a pilot study among GPs for face validity and feasibility of the tool.

Summary of Results: 25 GPs participated in the elicitation study. Their main concerns which affect intention to use e-learning in CME, in three areas of the Theory of planned behavior, are: time and cost effectiveness of the electronic CME (attitude), encouragement by colleagues and CME office personnel to use electronic CME (subjective norms) and technology access and skills (perceived behavioral control).

Discussion and Conclusions: Theory of planned behavior could explain and predict different aspects of human behaviors and by this framework we can describe important relevant factors in e-learning usage in the context of CME. In the next step, we will do a survey among GPs who participated in electronic CMEs and check the validity of the instrument in real situation.

Take-home messages: By knowing GPs’ intention to use e-Learning in CME context, CME managers and content providers could adjust their technology enhanced competency development strategies.

4N4 (21682)
A Physician Reviewer’s Perspective on Accrediting Continuing Medical Education (CME) Programs: Best Practices & Lessons Learned

Pamela Snow*, Memorial University, Discipline of Family Medicine, St. John’s, Canada

Background: The College of Family Physicians of Canada (CFPC) has a well-defined accreditation process which ensures accredited CME programs adhere to defined standards, are evidence-based, and unbiased. Practicing CFPC members review a program’s development process and content as part of this quality assurance process. With the proliferation of diverse delivery formats and rapid advances in clinical evidence, never before has this process been more challenging.

Summary of Work: A physician reviewer’s perspective on the accreditation process; challenges, best practices, and lessons learned.

Summary of Results: The presenter has been a physician reviewer for five years. Annually, she reviews and accredits approximately 20 programs. Although the content development process is standard, the diversity of delivery platforms being utilized for CME (i.e. live, online, mobile, etc.) means that developed content must be reviewed with presentation in mind.

Challenges encountered by the reviewer include inadequate needs assessment, biased content, privacy breeches, subject matter experts/planning committee members with conflicts of interest, and late content submission. Such challenges and how they can be addressed will be provided and discussed.

Discussion and Conclusions: Physician reviewers need to be well-versed on the accreditation standards and the most recent evidence to ensure programs will provide physicians with evidence-based learning experiences.

Take-home messages: Being a physician reviewer of CME programs is not without its challenges. You will encounter late submissions and biased content among other issues. However, the process can also be rewarding in that it ensures CME which will provide physicians with lifelong learning that addresses their needs and can potentially impact on patient care.
The GMC’s Tests of Competence: Unfair to long standing doctors?

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A Sturrock*, University College London, London, United Kingdom
J Dacre, University College London, London, United Kingdom

Background: In the UK, a GMC Fitness to Practise (FtP) investigation may involve a Test of Competence (ToC) for doctors with performance concerns. Concern has been raised about the suitability of the ToC for doctors who qualified before the introduction of single best answer (SBA) and OSCE assessments.

Summary of Work: A retrospective cohort design was used to determine an association between year of primary medical qualification (PMQ) and doctors’ ToC performance. Performance of 95 general practitioners under FtP investigation was compared with that of 376 controls. We analysed performance on knowledge test, OSCE overall, and three individual OSCE stations using Pearson’s correlation and regression models.

Summary of Results: On average, FtP doctors performed worse on all ToC outcomes compared to control doctors. The earlier they qualified the less well they performed, except for physical examination skills. The control group remained mostly consistent irrespective of PMQ year. PMQ year predicted exam performance more strongly in FtP doctors than controls, even when controlling for gender, ethnicity and qualification region. Further analysis showed that controls who qualified before the introduction of SBA and OSCE assessments still outperform their peers under investigation.

Discussion and Conclusions: Results suggest that ToC format does not disadvantage long standing doctors. We discuss findings in relation to the FtP procedures and recent controversy regarding underperformance in ethnic minority doctors taking UK postgraduate exams. Further study using a matched case-control design is needed to extend the present findings.

Take-home messages: ToC format does not appear to be an unfair assessment of long standing doctors undergoing FtP investigation in the UK.
40 SHORT COMMUNICATIONS: Student in Difficulty

Location: Amber 8, Level +2, MiCo

401 (21630)
Diagnosing Failure

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Sophie Gladding, University of Minnesota Medical School, Internal Medicine, Minneapolis, United States
Briar Duffy, University of Minnesota Medical School, Internal Medicine, Minneapolis, United States

Background: To maintain public trust, the medical profession must adequately assess future members' readiness to enter the profession. Failure of the internal medicine clerkship is rare, with US clerkship directors indicating nationally that 0.9% of students fail. Yet, one-third of these directors also acknowledge passing students who should have failed. It is, therefore, critical to identify students who are failing to meet minimum standards.

Summary of Work: To better understand reasons for failure, we conducted a content analysis of letters summarizing the circumstances leading to a student's failure of the Medicine clerkship at the University of Minnesota.

Summary of Results: We analyzed 43 letters of students who failed the Medicine clerkship from 2002-2012. The most frequently cited deficiencies were coded to Accreditation Council for Graduate Medical Education competency domains: Patient Care: Gathers and synthesizes essential and accurate information (91% of letters), Develops and achieves comprehensive management plan (60%); Medical Knowledge: Clinical knowledge (88%); Communication: Appropriate utilization and completion of health records (47%); Professionalism: Exhibits integrity and ethical behavior (49%); Accepts responsibility and follows through on tasks (37%); Has professional and respectful interactions with patients, caregivers and interprofessional teams (35%); Practice-based Learning and Improvement: Monitors practice with goal for improvement (42%). Most letters described deficiencies in multiple competencies with 98% documenting deficiencies in two or more competencies and 88% in three or more.

Discussion and Conclusions: Students' failure is most often multi-factorial with deficiencies identified in multiple competencies.

Take-home messages: Identifying a deficiency in one competency should trigger an immediate, in-depth assessment in all competencies to more quickly identify students at risk of failure.

402 (22442)
Young physicians' response to medical students' unprofessional behavior in clinical rotations--- The prospects from Eastern culture

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Jing-Feng Linng, National Yang-Ming University, Radiology, Taipei, Taiwan
William Huang, National Yang-Ming University, Urology, Taipei, Taiwan

Background: In the study, we tried to know how young physicians in Eastern culture respond to the medical students' unprofessional behavior in clinical rotations and what factors influence their responses and who should be accountable to adjust medical students' unprofessional behavior.

Summary of Work: Focus group of young physicians (< 5 years from their residency) were interviewed with semi-structured checklist. A questionnaire was also offered on-line for young physicians to answer. The results were then analyzed to identify view points on giving feedback and the determinant factors to report or suggesting punishment.

Summary of Results: Ten young physicians of different disciplines were interviewed and another 198 responded to the on-line questionnaire. They tended to give non-verbal response to students' unprofessional behavior. They worried about the students' career development if the students were marked unprofessional. Female doctors from department of internal medicine were less active in handling the situation than male doctors from surgical department. Most of them expected the chief or the manager to do the difficult jobs. They showed willingness to give feedback, but they chose not to punish the students.

Discussion and Conclusions: Young physicians felt stressed in facing medical students' unprofessional behavior. In Eastern country, clinical teachers tend to use non-verbal or indirect feedback to students. Take-home messages: Medical students' behavior should be carefully monitored. We also need to pay attention to the stress of young physicians when managing difficult situations, especially the female doctors from department of internal medicine.
403 (20067)
Negative emotions triggered in students by medical school routine situations

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Alvaro Madeiro Leite, Ceará Federal University, Department of Pediatrics, Fortaleza, Brazil
Henk Schmidt, Erasmus University Rotterdam, Department of Psychology, Rotterdam, Netherlands

Background: Research has shown that students experience medical school as emotionally challenging, which might influence learning. These studies aimed at (1) identifying emotions-triggering situations frequently faced by medical students and their prevalence across training; (2) investigating whether they actually arouse students’ emotions.

Summary of Work: Study-1. 60 medical students from Brazil, wrote reports of emotionally difficult experiences. Six types of emotions-triggering situations emerged from analysis. Study-2. 188 medical students evaluated six student’s diaries reporting the six situations. Each student evaluated 3 diaries in a neutral and 3 in an emotional version, rating how frequently similar situations were encountered and emotions triggered. Data were analyzed using Chi-square tests, t-tests and ANOVA.

Summary of Results: The frequency of experiences increased between beginners and intermediate students in 4 situations: staff’s negligence, health services’ flaws, disgusting patients’ conditions, discrimination against patients (all p-values frequent). A diversity of situations involving inappropriate doctor-patient relationships, medical failures and suboptimal conditions for care trigger emotional reactions in students. Intermediate students seem particularly vulnerable to these situations.

Take-home messages: Medical educators might be aware that a variety of situations may be emotionally difficult for students and aim at preventing them and/or developing interventions that emotionally support students.

404 (21527)
"It's not what you say, its what they see and hear": The value of video feedback for medical students undergoing remediation

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Robyn Goodier*, University of Leicester, Department of Medical and Social Care Education, Leicester, United Kingdom
Robert Jay, University of Leicester, Department of Clinical Education, Leicester, United Kingdom
Jannet Yates, University of Leicester, Department of Medical and Social Care Education, Leicester, United Kingdom
Mark Fores, University Hospitals of Leicester NHS Trust, Department of Clinical Education, Leicester, United Kingdom
Rakesh Patel, University of Leicester, Department of Medical and Social Care Education, Leicester, United Kingdom

Background: Feedback approaches such as the "feedback sandwich" are atheoretical and lack an empirical basis. Conversely conceptual models may be difficult to use pragmatically at the bedside. This study explores the value of video for medical students in remediation when receiving feedback from clinical teachers.

Summary of Work: Students were invited to undertake two clinical tasks at the start and end of their remediation period. Participants were observed and videoed as they completed a procedural skill and managed an acutely unwell patient. A standardised protocol was used to structure debrief sessions and participants were invited to return at a future event to evaluate their retention of the feedback. Participants undertook the two tasks again 6 months later to evaluate changes in competence.

Summary of Results: The change in competence data will be available by the time of the conference. Feedback from participants about the experience following the first remediation session suggested:
1. Participants wanted feedback about their performance on the task.
2. Participants were ambivalent about watching themselves back on video.
3. Participants recognized the value of video for facilitating reflection.

Discussion and Conclusions: Participants perceived feedback using video review helped to better identify areas for improvement. The use of video for giving feedback has implications on what students may come to expect from teachers during remediation.

Take-home messages: Video feedback has the potential to improve the experience of students undergoing remediation, allowing them to reflect on their competence and better prepare for making change. Video assisted feedback may also alter the dynamics between students and teachers in favor of improved academic outcomes.
Can students’ learning objectives for professional behaviour predict success of remediation?

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Franciska Galindo Garré, VUmc School of Medical Sciences, Institute for Education and Training, Research in Education, Amsterdam, Netherlands
Gerda Croiset, VUmc School of Medical Sciences, Institute for Education and Training, Research in Education, Amsterdam, Netherlands
Rashmi Kusurkar, VUmc School of Medical Sciences, Institute for Education and Training, Research in Education, Amsterdam, Netherlands

Background: Unprofessional behaviour requires remediation, but which behaviours can be successfully remediated is unknown. The research question of this study was: Can learning objectives for professional behaviour predict remediation success?

Summary of Work: At VUmc School of Medical Sciences, remediation of unprofessional behaviour starts with the formulation of learning objectives by the student. Seventy learning objectives from students with two (n=26) or one (n=26, randomly selected) unprofessional behaviour judgements were divided into six categories. Latent partition analysis yielded three profiles of students mentioning learning objectives from similar categories. Subsequently it was determined whether belonging to a certain student profile was predictive for a student to obtain a second unprofessional behaviour judgment.

Summary of Results: In profile 1 (49%) learning objectives came from the categories "increase discipline" and "take more responsibility", in profile 2 (43%) learning objectives came from the categories "active participation", "better communication" and "improve study skills", in profile 3 (8%) learning objectives came from the categories "increase discipline" and "improve study skills". The outcome of the remediation did not differ significantly between the student profiles. Out of the students belonging to profile 3 75% received a second unprofessional behaviour judgment.

Discussion and Conclusions: Students’ learning objectives did not predict the outcome of remediation, probably due to small sample size. Use of other information, like teachers’ feedback and students’ own explanations for their unprofessional behaviour, along with learning objectives, could help to predict the success of remediation.

Take-home messages: It seems that students who do not address underlying causes for their unprofessional behaviour are more likely to be repeatedly judged as unprofessional.

Using Learning Management Systems (LMS) Analytics For Early Detection of Students Underachievement in Blended Courses, An Evidence Based Study

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Habiba Kamal, Qassim College of Medicine, Buraydah, Saudi Arabia
Presenter: Abdullah AlGhasham*, Qassim College of Medicine, Buraydah, Saudi Arabia

Background: The aim of this study was to analyse students’ online activities by means of learning analytics techniques and measure the effects of these indicators on the final outcome.

Summary of Work: We used LMS data of 214 students in three blended courses (Uses e-learning and face-to-face), students were free to use the LMS and there was no incentive or punishment apart from students’ self-perceived benefit. Data were collected using engagement analytics module, Moodle raw logs, Attendance Register module, and Ad-hoc database queries. The data analysis was done in two stages: 1st Stage: The relationship between usage of individual e-learning modules on the College Moodle LMS (lecture materials, forum discussions, logins, time spent online, Assessments and assignments ) and students’ final outcome.

2nd Stage: Using information derived from the previous work (1st Stage) we were able to customize a monitoring tool built into the LMS with evidence based weighted indicators.

Summary of Results: We found a positive correlation between combined usage parameters and students final grade (r=0.32, P<0.01). online assessments was also positively correlated (r=0.27, P<0.01); so is number of logins (r=0.32, P<0.01), total time spent online (r=0.18, P=0.03), total hits (r=0.24, P<0.01), forums weren't significant (r=0.13, P=0.11). overall index (contains weighted sum of all indicators was calculated, students who passed had a higher overall index (t=3.6, p=0.001). These parameters were used to customize an engagement real-time analytics module, that shows green, yellow, red lights to the teacher in the LMS, the color depends upon safety levels derived from the overall index as well as detailed reports when needed. Teachers were able to pick students at risk and alert them to their performance.

Discussion and Conclusions: Interactive e-learning programs are highly acceptable and practical methods to enhance knowledge on paediatric obesity management.
4P SHORT COMMUNICATIONS:
Teaching and Learning – The Lecture
Location: Theatre Room 13, Level 0, MiCo

4P1 (21659)
Repurposing Lectures towards Active Learning: A Successful Model in a Medical School
Anju Relan*, David Geffen School of Medicine, UCLA, Los Angeles, United States
Michael Zucker, David Geffen School of Medicine, UCLA, Los Angeles, United States
LuAnn Wilkerson, David Geffen School of Medicine, UCLA, Los Angeles, United States

Background: The value of “active learning” in promoting deeper levels of engagement and performance improvement has been theoretically well-established1. In this study we evaluated a model for repurposing a traditional lecture designed to teach radiology imaging concepts to medical students into an active learning environment. We determined the efficacy of this model by comparing student perceptions of the active learning intervention with a traditional lecture delivered by the same faculty.

Summary of Work: We repurposed a 90-minute traditional lecture delivered to 150 second year students into an active learning format with the help of successfully implemented, evidence-based interventions. These included advance review and preparation outside the lab session, student investigations of imaging embedded in clinical cases via small group discussions, use of computers and multiple projection screens, presentation of findings by designated group leaders, and questions and clarifications facilitated by faculty.

Summary of Results: Students in both groups were asked to rate instructor helpfulness in facilitating learning on a likert scale (1=Strongly disagree to 5=Strongly agree). An independent sample t-test showed a statistically significant difference between groups (t = 3.73, p = .05), with perceptions of active learning group (N=140, Mean=4.52, S.D=.64) significantly higher than those in the traditional lecture group (N=147, Mean=4.10, S.D=.98).

Discussion and Conclusions: Students value and respond positively to active learning environments. Repurposing of the lecture was enabled by selecting evidence-supported interventions, employing technology, careful planning, and judicious use of existing resources.

Take-home messages: Restructuring traditional lectures towards active learning is a worthwhile experience to improve student engagement. Prudent selection of resources and interventions can enable this transition efficaciously.

4P2 (21772)
Alternating large group seminars using the white board with small group discussions helps students be active and reflective
Anna Hofsten*, University of Gävle, Faculty of Health and Occupational Studies, Gävle, Sweden
Elisabeth Häggström, University of Gävle, Faculty of Health and Occupational Studies, Gävle, Sweden

Background: Discussion and reflection are important in university education, and in healthcare education patient cases are commonly used for this purpose. Learning in case seminars has recently been the topic of a systematic BEME review, which called for more qualitative research on how students learn and how much structure is required.

Summary of Work: The number of students in healthcare education is increasing, and case seminars can involve as many as twenty students. How can we increase students’ opportunities for reflection? To address this question, we alternated large group with small group (three students) discussion approximately four times during a case. Large group discussion including white board notes was unaltered. To understand more about how students learn, we asked them to describe their learning in these kinds of seminars. Written data were collected in September 2013 from 68/80 students in a Swedish nursing program with case seminars. The narratives were analyzed using manifest qualitative content analysis.

Summary of Results: Three categories describing how students learn were identified in the analysis: Being active, Being part of a discussion and Seeing new problems and solutions. The analysis with categories, sub-categories and examples of quotations will be presented at the conference.

Discussion and Conclusions: In the small group, students were able to test ideas and build self-confidence, allowing them to act as problem-solvers in the large group discussion. Alternating large group seminars using the white board with small group discussions helps students be active and reflective and allows larger numbers of students per seminar.
**4P3 (19319)**

Can mobile technology replace lectures before student simulation?

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Sarah Wood, University of Manchester, Department of Paediatric Surgery, Manchester, United Kingdom
Jackie Hanson, Royal Preston Hospital, Undergraduate Education, Preston, United Kingdom
Lucie Byrne-Davies, University of Manchester, Faculty of Medical and Health Sciences, Preston, United Kingdom
Mark Pimblett, Royal Preston Hospital, Undergraduate Education, Preston, United Kingdom
Mike Davis, Freelance Consultant in Continuing Medical Education, Faculty of Medical Health Sciences, Blackpool, United Kingdom

**Background:** E-learning with blended learning has become the norm (Ellaway et al., 2008). Incorporating mobile technology (mlearning: Clay 2011) increases flexibility, enabling learners to control the time and place in which learning occurs. We explored the impact of mobile learning within medical simulation.

**Summary of Work:** We recruited 5th year medical students to a quasi-experimental cross over trial, comparing mlearning technologies with a didactic lecture prior to simulation-based teaching. M-learning content, with pre and post session MCQs, were delivered through an Apple app (Nearpod). An anonymous email linked survey explored participant perceptions. Nominal and ordinal data were analysed descriptively, and text responses with content analysis.

**Summary of Results:** Forty-one students were enrolled, 37 completed questionnaires, 11 completed MCQs. MCQ scores improved from 68% to 81%. 94% of students were comfortable with Nearpod learning. 97% felt materials were presented at the correct level and 88% perceived that embedded quizzes contributed toward learning. Ordinal data and text responses agreed, that whilst students generally preferred face to face lectures, they wished to access the content on multiple occasions if access problems were corrected.

**Discussion and Conclusions:** Students had a preference for face to face teaching methods, despite valuing the mobile platform. Pre simulation preparation can enhance time spent practicing and debriefing simulation episodes. Despite clarification of knowledge prior to simulation, students felt they ‘missed’ the personal experiences of the tutor through the mobile platform.

**4P4 (19262)**

Situation analysis of large group teaching sessions in the medical colleges of Dhaka city

Shegufta Mohammad*, Update Dental College and Hospital, Medical Education, Dhaka, Bangladesh

**Background:** This study was carried out to analyze the situation of the large group teaching scenario in the medical colleges in Dhaka city. Large group teaching method has its wide variety of usefulness as well as numerous shortcomings. This study was conducted with the objective to study quality of current practices of large group teaching in selected medical colleges.

**Summary of Work:** This cross sectional study was conducted at different government and non-government medical colleges adopting the convenient sampling using a checklist filled up by participatory observation of 36 lecture classes.

**Summary of Results:** The study revealed that the characteristics of the effective lecture are not visible in the present lecture classes in the medical colleges. More than thirty percent of the teachers did not attend any teaching methodology course. The medical colleges are lack in instructional media. More than twenty seven percent teachers did not mention objectives at the beginning of the teaching session. More than eleven percent teachers did not use any visual aid and more than half of the teachers used visuals that could not be read from the last bench. Fifty percent of the medical teachers do not summarize their lecture at the end. About seventeen percent lecture classes the students only opened their mouth to respond to the attendance call.

**Discussion and Conclusions:** The study recommended that all the medical teachers should attend the teaching methodology course as a must. Students’ evaluation, lecturers’ self rating may really trigger the teachers to identify their deficiencies, and can make a real difference. The Institute should ensure that teachers are given the support necessary for them to function effectively.

**Take-home messages:** Teachers of Medical and Dental colleges should have training on teaching methodology as a pre-requisite for applying for a lecturer post. We were unable to fully explore impact on learning outcomes with the MCQ response rate.

**Take-home messages:** Most students value face to face teaching despite acknowledging the benefits of a mobile platform.
Lecture video capture: Student friend or staff foe?

Julie Struthers*, University of St Andrews, School of Medicine, St Andrews, United Kingdom
Ian Gordon, University of St Andrews, School of Medicine, St Andrews, United Kingdom
Jim Aiton, University of St Andrews, School of Medicine, St Andrews, United Kingdom

Background: The introduction of lecture video capture (Lecture Echo) and subsequent release to students proved controversial with some staff. Initially some staff opted out because of concerns that lecture recordings would be made freely available on the internet; errors and style in presentation would become internet sensations and have an adverse effect on attendance.

Summary of Work: All 3 years of phase 1 students at St Andrews Medical School and their lecture staff were asked to identify perceived benefits for students and concerns for staff. Data was collected by student questionnaire; from viewing figures of individual lectures; from opt in and out VLE records and from a qualitative staff questionnaire.

Summary of Results: 242 from 456 students responded to the questionnaire. The main findings were that students used the recording to clarify content, focused on areas of difficulty and enhanced their note taking. Knowing that a lecture was being recorded made no difference to their decision to attend. The majority, but not all, of the staff opted to have their lectures recorded and the reasons for opting out will be reported at the conference.

Discussion and Conclusions: Students are overwhelmingly in favour of the lecture capture system and find it a useful tool to support their learning. There is no evidence of an adverse change in student attitude or lecture attendance. Staff are more at ease with the technology as their initial fears have proved unfounded.

Take-home messages: The positive response from students and the educational benefits of Lecture Echo far outweighs staff fears about the consequences of its deployment.
4Q  CONFERENCE WORKSHOP:
“A Gentle Introduction to Psychometrics for the Medical Educator: Key Concepts and How to Apply them to your Assessment” (18622)
Location: Workshop Room 1, Level 0, MiCo

Andre De Champlain*, Medical Council of Canada, Research & Development, Ottawa, Canada

Background: The routine use of psychometrics to enhance the quality of examinations and to provide useful accounts of performance attests to its importance both for the development of assessments as well as the analysis of test data in medical education. Psychometric models can be used to analyze the quality of test items and stations, to assess how accurately or reliably we are measuring our candidates’ competence in a number of prescribed domains, as well as to support valid interpretations of scores and/or pass/fail decision. The purpose of this workshop is to demystify psychometrics by providing an introduction to item analysis statistics, as well as reliability and validity frameworks. A strong emphasis will be placed on the application and interpretation of these concepts with medical education assessments via a number of practical exercises.

Intended Outcomes: The primary outcome of this workshop is to demystify psychometrics and provide the attendee with a better understanding of the issues that need to be considered with all assessments, whether MCQs, OSCEs or workplace-based assessments.

Structure: (1) Overview of key vocabulary in assessment.
(2) A summary of reliability and what it means for your test scores and decisions.
(3) Validity: How do I gather evidence to support the use of my test scores and decisions?

All sections of the workshop will entail practical exercises to further improve understanding.

Who should attend: Those medical educators with little to no background in psychometrics who may be involved in examination programs at their home institution and who may wish to improve their knowledge of the science underlying assessment.

Level: Introductory

4R  CONFERENCE WORKSHOP:
Best Practices for Orienting New Medical School Faculty (22412)
Location: Workshop Room 2, Level 0, MiCo

Elza Mylona*, Eastern Virginia Medical School, Faculty Affairs and Professional Development, Norfolk, VA, United States
William A. Anderson*, College of Human Medicine Michigan State University, Office of Medical Education and Faculty Affairs, East Lansing, Michigan, United States

Background: The early years of a faculty appointment are often associated with high levels of stress as new faculty need to unravel the values and culture of the institution and understand the expectations for performance and career advancement. The ability of new faculty to overcome these challenges becomes critical to their satisfaction, retention and academic success. New Faculty Orientation programs offer a solution to these challenges when properly designed. There are many approaches to New Faculty Orientation programs. The challenge for those responsible for their development is to identify which approach works best for their faculty, organizational culture and setting.

Intended Outcomes: At the end of the session, participants will be able to
1. Explain findings from the medical and higher education literature
2. Using a case, analyze a new faculty orientation program’s activities against “best practices.”
3. Discuss various ways in designing or modifying a New Faculty Orientation program based on the participants needs.

Participants will learn how to design, develop, implement and evaluate a new faculty orientation program.

Structure: Participants will be engaged throughout the session. First, they will analyze an institution’s new faculty orientation (NFO) practices against findings from the literature using a case. Second, they will brainstorm possible revisions to their institution’s NFO efforts by incorporating “best practices” from the literature and survey results. Finally, participants will share different models, approaches, and strategies for orienting new faculty with the entire group.

Methods used in this session will be brief presentations, small and large group discussion, literature review results, survey results, and two participant activities. Participants will receive detailed session notes, literature review and survey results, and the product of the large group discussion of “best practices”.

Who should attend: Medical educators responsible for professional and faculty development

Level: Intermediate
4S  CONFERENCE WORKSHOP:
Creating Competency Frameworks: 12 Steps to Elegant Results (23018)
Location: Workshop Room 3, Level 0, MiCo

Jason R. Frank*, Royal College of Physicians & Surgeons of Canada, Specialty Education, Ottawa, Canada

Background: Educators around the world are using "competency frameworks"—a method of organizing the desired abilities of graduates of curricula. However, many still struggle with how to create logical, defensible, needs-based, competency frameworks to guide teaching, learning, and assessment. This session will show you 12 steps to your own elegant competency framework.

Intended Outcomes: By the end of this session, each participant will be able to begin the development of their own competency framework and describe the 12-step process to others in their own program.

Structure: This session will be highly interactive. In 12 steps, we will walk through the core considerations in designing an effective framework. For each step, we will discuss considerations, techniques, and pitfalls, then apply them to your own context. With 20 years of experience in this area, I will use many examples of various approaches to defining these frameworks.

Who should attend: Any educator interested in using competencies to design curricula or assessment blueprints.

Level: Introductory

4T  CONFERENCE WORKSHOP:
Exploring clinical reasoning: Making thinking visible (19789)
Location: Suite 9, Level Mezzanine, MiCo

Clare Delany*, University of Melbourne, Medical School, Melbourne, Australia
Jayne Lysk*, University of Melbourne, School of Health Sciences, Melbourne, Australia
Clinton Golding, University of Otago, Higher Education Development Centre, Dunedin, New Zealand
Barbara Kameniar*, University of Melbourne, Melbourne Institute for Indigenous Development, Melbourne, Australia

Background: Clinical reasoning or clinical decision-making is at the heart of health care practice. However, it can be difficult to teach because it is tacit and invisible. It occurs inside a clinician’s head and often at considerable speed. Studies have identified how experts clinically reason in medical practice. However, less is known about how medical educators can best teach these types of expert clinical reasoning steps to their students. Delany and Golding’s research (2013, 2014) highlights one approach for teaching clinical reasoning, based on identifying and then making visible and concrete, expert clinicians’ reasoning and then framing this thinking for medical students to access and use.

Intended Outcomes: Participants will learn to examine their own clinical thinking processes and then develop teaching strategies to explicitly scaffold clinical reasoning for their students.

Structure: This workshop will begin by asking participants to work in small groups to identify a common clinical reasoning problems in their field. This will be followed by a brief overview of the theory and literature in the field of clinical reasoning, and links will be drawn between the participants’ experiences and current research. Participants will then work in small groups to 'make visible' the clinical reasoning processes they use in determining a diagnosis and intervention before developing a thinking routine that can be used by their students to develop their clinical reasoning skills.

Who should attend: Beginning and intermediate clinical educators/teachers who teach clinical reasoning.

Level: Intermediate
4U CONFERENCE WORKSHOP:
Milestones and EPAs – Frameworks for CBME and Assessment (20879)
Location: Suite 8, Level Mezzanine, MiCo

Eric Holmboe*, ACGME, On Behalf of the ICBME Collaborators, Chicago, United States
Jamiu Busari*, Maastricht University, Netherlands
Nicholas Glasgow*, ANU, Australia
Steve Lieberman*, UMTB, United States
Shelley Ross*, University of Alberta, Canada
Peter Harris*, UNSW, Australia

Background: Across the globe competency-based medical education has taken strong root, but implementation has been difficult for many. One reason has been the lack of a developmental blueprint and roadmap, especially for newer competencies. Milestones and entrustable professional activities (EPAs) have been developed in several countries to provide more descriptive frameworks that address this gap and better guide and integrate curriculum and assessment. This workshop will first provide an interactive overview of the theory and concepts of Milestones and EPAs for use in a CBME system. The initial experience from several countries, notably Canada, The Netherlands and the United States will be shared and a bibliography provided. Participants will then work in small groups to explore how Milestones and EPAs could be used in their local context to guide and improve curriculum and assessment. Examples of Milestones and EPAs in use from the three countries will be provided as examples.

Intended Outcomes:
1. Ability to describe the theory, concepts and use of Milestones and EPAs
2. Demonstration of steps to develop and implement Milestones and EPAs. Real examples from several countries provided as resource
3. Personal action plan on how Milestones and EPAs could be used in participants’ local program.

Structure:
1. Introduction (15 minutes)
2. Small group exercise – implementing/mapping Milestones/EPAs to curriculum (30 minutes)
3. Large group report discussion (30 minutes)
4. Conclusions (15 minutes)

Who should attend: Any educational leader or faculty currently implementing CBME.

Level: Intermediate

4V CONFERENCE WORKSHOP
Best Practices in Residency Applications and Selection: File Review (19975)
Location: Suite 7, Level Mezzanine, MiCo

Susan Glover Takahashi, University of Toronto, PGME, Toronto, Canada
Linda Probyn, University of Toronto, PGME, Toronto, Canada
Caroline Abrahams, University of Toronto, PGME, Toronto, Canada
Mariela Ruetalo, University of Toronto, PGME, Toronto, Canada
Glen Bandiera*, University of Toronto, PGME, Toronto, Canada

Background: Initiatives such as the Future of Medical Education in Canada projects (MD and PC) and the Ontario Thomson Report on International Medical Graduate Access to Postgraduate Medical Education (PGME) Programs have directed attention and a call to action around resident application, selection and admissions practices. There is a mandate to ensure that selection practices result in physicians who will meet population healthcare needs. In response, the University of Toronto (U of T) struck the Best Practices in Application and Selection (BPAS) Working Group to develop recommendations and an implementation strategy for selection. The BPAS group developed 13 principles and 24 best practices to address issues of transparency, fairness, selection criteria, committees, processes and instruments. The recommendations had high face validity, relevance, and timeliness across all local and national stakeholder groups. The UofT PGME Office developed tools and resources to support application review and resident selection. In light of the timing of North American resident selection cycles and the timing of AMEE 2014, this workshop will focus on tools and practices for file review. Particular attention will be placed on competency-based approaches, social accountability mandates and institutional due process as they relate to resident selection.

Intended Outcomes: Participants will be able to identify best practices in resident applications and selection; evaluate whether their own file review assessment tools and processes are consistent with identified best practices; and create a best practices implementation strategy for their particular environments.

Structure: A brief presentation of the recommended principles and best practices. Then, small groups on exercises focused on the file review and scoring. Then a general discussion of best practices and strategies within participants’ local environment.

Who should attend: Program directors, residents, program administrators, PG deans

Level: Intermediate
4W  CONFERENCE WORKSHOP:
Fostering Collaboration Among Young
Medical Educators to Improve
Innovation and Research (19791)
Location: Suite 6, Level Mezzanine, MiCo

Matthew Stull*, University of Cincinnati College of Medicine, Department of Emergency Medicine, Cincinnati, United States
Emily Bate*, University of Aberdeen, Department of Emergency Medicine, Aberdeen, United Kingdom
Robbert Duvivier*, FAIMER, Philadelphia, United States

Background: Medical education as an academic specialty can feel isolating and frustrating. Finding the sources of support for medical education research or innovation can be challenging. Collaboration provides the stamina needed to hurdle many barriers that stand in the way of researchers and teachers. A collaborator brings new perspectives and skill sets which can invigorate and take your work to the next level. The ability to collaborate is invaluable for young (by age or experience) researchers in medical education. Collaborating across disciplines, departments, institutions, and nations has its challenges but is rewarding both personally and professionally, especially if you are aware of strategies to mitigate these challenges.

Intended Outcomes: By the end of this session, participants will:
1. Recognize instances when collaboration in medical education will benefit you and your work.
2. Identify opportunities to find collaborators and ways to engage these collaborators effectively.
3. Demonstrate strategies to avoid and navigate conflict among collaborators.

Structure: This workshop will review the pearls and pitfalls of establishing and maintaining collaborations by scholarly productive medical educators who met through attending past AMEE conferences. Workshop facilitators will review the evidence through interactive cases to demonstrate effective collaborations that can improve the medical education work being done locally. Participants will discover connections that can lead to collaboration, share their experiences, and work toward understanding best practices in small groups.

Who should attend: Young medical educators (in age or experience) seeking the opportunity to collaborate to build more robust research programs and innovations at their institutions.

Level: Introductory

4X  CONFERENCE WORKSHOP:
Making pass-fail decisions fairly (20436)
Location: Suite 4, Level +2, MiCo

Dwight Harley*, University of Alberta, Department of Dentistry, Edmonton, Canada
Margaret Dennett*, Vancouver Community College, Certified Dental Assisting, Vancouver, Canada
Ron Damant*, University of Alberta, Medicine, Edmonton, Canada

Background: Setting a defensible standard for academic success is a critical and challenging component of the assessment process. Difficulties arise in understanding, selecting and applying standard setting procedures as well as, explaining the process to the academic staff, convincing them of the value of the process and enticing the adoption of the process. In this workshop we will discuss these problems and possible solutions. A modification of Angoff’s methods of standard setting will be addressed using realistic examples.

Intended Outcomes: At the conclusion of this workshop the attendees will be better able to: (1) describe the principles and operation of standard-setting procedures to assist in the decision of the passing score (2) apply a modified Angoff method to examinations in their own institution (3) understand the importance of the minimally competent candidate

Structure: Following an introduction of the necessity of standard setting the speakers will review various concepts utilizing realistic examples. Sample items will be used to illustrate the problems associated with the decisions that have to be made, and a common modification to Angoff’s standard setting technique will be discussed and applied to model examination. A further discussion will then be facilitated about the advantages and disadvantages of the introduction of a formal standard-setting approach and the challenges faced. Time will be reserved for audience question and answer.

Who should attend: This session is for everyone interested in fair assessment.

Level: Introductory
4Y CONFERENCE WORKSHOP:
Developing the educational culture of a healthcare organisation (20241)
Location: Suite 3, Level +2, MiCo

Peter W Johnston*, NHS Education for Scotland, The Scottish Deanery, Aberdeen, United Kingdom
Jennifer Cleland*, University of Aberdeen, Division of Medical and Dental Education, Aberdeen, United Kingdom

Background: Scrutiny by the GMC as the regulator and by UK quality management processes produce evidence of concerns across the breadth of the four nations, depth of specialties and spectrum of medical careers about the priority ascribed to education in workplaces in the NHS. In the face of this are the problems highlighted by prominent high-profile reports focusing on service failures and indicating education as a way to improving the quality of service provided and the experience of patients with the NHS.

Intended Outcomes: To clarify ideas on how to change for the better the value given to education in the workplace relative to other requirements of the system; and how, practically, to move ensure progress in enhancing the perception of value and in resourcing change.

Structure: A short introductory talk will define educational environment noting that the value placed on education is a cultural concept. Educational culture is defined as a system of values and common expectations of behaviours within an organisation whilst educational climate which relates to individuals’ own perceptions of the environment within an organisation or locality. The aims of the session are: identifying pressures and tensions on education and learning in healthcare; sharing experiences of attempts to improve learning environments; exploring sources of information relevant to educational quality improvement, including consideration of government/regional policy and influences on medical education; discussing how to develop systems towards educational goals.

Who should attend: People who deliver and receive education in the healthcare workplace; service and educational managers.
Level: Advanced

4Z CONFERENCE WORKSHOP:
Teaching and assessing reflective writing in the medical sciences (22194)
Location: Suite 2, Level +2, MiCo

Elizabeth Armitage-Chan*, Royal Veterinary College, LIVE Centre, Hatfield, United Kingdom
Ayona Silva-Fletcher*, Royal Veterinary College, LIVE Centre, Hatfield, United Kingdom
Carrie Roder*, Royal Veterinary College, LIVE Centre, Hatfield, United Kingdom

Background: Reflection is invaluable for the lifelong experiential learning that is necessary for healthcare practitioners working in modern complex systems and an ever-changing work environment. The ability to critically reflect on one’s performance, and generate plans for improvement, provides the basis for ongoing development. Reflective writing provides a focus for reflection, and a means of documenting that reflection has taken place. Health science students and professionals frequently struggle to appropriately conceptualise reflection in their writing, generating work that is descriptive, literature-heavy or overly opinion-based, thus failing to benefit maximally from the process.

Intended Outcomes: Following the workshop participants will be able to:
- Define reflection according to frameworks that support its contribution to experiential learning
- Formatively assess reflective writing, and generate feedback to promote critical reflection in a way that is valid, reliable and effective.

Structure: The workshop will have three phases:
1. Developing reflective writing (using Hatton and Smith 1995 criteria)
2. Analysing and assessing reflective writing (based on level descriptors)
3. Offering formative feedback to foster reflective writing.

The facilitators will lead the workshop by giving the theoretical background followed by facilitated group activities. Examples of reflective writing at undergraduate and postgraduate levels will be used in the group activities for analysis.

Who should attend: Educators in the healthcare sciences involved in developing and assessing reflective writing, or those considering implementing reflective writing into their teaching.
Level: Intermediate

4AA  CONFERENCE WORKSHOP: A beginner’s guide to peer reviewing health education systematic review: A Best Evidence Medical Education (BEME) collaboration workshop (23198)
Location: Suite 1, Level +2, MiCo

Antonio Vaz Carneiro*, University of Lisbon, School of Medicine, Lisbon, Portugal
Madalena Patricio*, University of Lisbon, Faculty of Medicine, Lisbon, Portugal
Morris Gordon*, University of Central Lancashire, School of Medicine and Dentistry, Preston, United Kingdom

Background: BEME is playing an important role in supporting synthesis of evidence to inform teaching with BEME reviews frequently cited after publication. Collaboration in peer-reviewing is taken as an indicator of scholarship in medical education. Many health education systematic review reports are limited by a lack of clarity in stated goals or a mismatch between the actual aims and outcomes. Often the issues at hand are related to limitations of writing and can be addressed through thorough peer review with appropriate feedback. BEME has built a scholarly process to support this crucial and early stage of systematic review in education. In this workshop, we will support participants in developing skills in peer review and offer the chance to join the BEME peer review panel.

Intended Outcomes: To develop skills in peer reviewing health education systematic review, particularly in focussing reports to best support impact and transference to the educational environment.

Structure: Preliminary information will be sent to participants in advance to the workshop. The workshop will start by a short introduction to the stages of the BEME review process. Participants will review a sample of backgrounds and conclusions from actual BEME reviews, with a whole group debrief to identify key areas of focus when reviewing such works (with tools introduced to support this process). Small groups will then work on a review in detail to confirm either a) appropriate research questions are asked b) conclusions are based on initial questions. After a final discussion, participants will be offered the chance to join the BEME peer review panel.

Who should attend: All those interested in peer reviewing systematic review and evidence synthesis in all fields of healthcare.

Level: Introductory

4BB  MEET THE EXPERT: Lawrence Sherman
Location: Suite 4, Level +2, MiCo

Following his plenary "Disruption, Distraction, Diversion or Delight: The Love/Hate Tug of War Between Technology and Medical Education", Lawrence Sherman will be available to meet participants to discuss aspects of his presentation.
4CC1 (20643)
Does the feedback provided by tutors to medical students during formative assessment sessions differ according to their clinical profile?

N Junod Perron*, University of Geneva Faculty of Medicine and Geneva University Hospitals, Geneva, Switzerland
M Louis-Simonet
E Pfarrwaller
B Cerutti
J. Nendaz

Background: Medical students are given the opportunity to practice clinical skills with simulated patients during pre-clinical years. During these “formative assessment sessions (FAS)”, tutors give feedback on students’ history taking, physical exam and communication skills. The aim of the study was to evaluate whether the content and process of feedback varied according to the tutors’ profile.

Summary of Work: During 2013, all 2nd and 3rd year medical students and tutors involved in three FAS were asked to take part into the study. Tutors were divided into two groups: 1) primary care, general internist and educationalist physicians 2) content experts such as cardiologists, neurologists and gastroenterologists. Outcome measures were students’ self-perception of the feedback received and objective analysis of the content and process of the feedback.

Summary of Results: 251 medical students and 38 tutors took part. Students self-reported that feedback was useful to improve history taking (mean 4.35±0.84), physical exam (4.26±0.94) and communication skills (4.20±0.93). Linear regression analyses showed that students felt that tutors from group 1 used more learner-centred feedback skills than tutors from group 2 (stimulating student’ self-assessment (p=.0002); making the student active in finding solutions (p=.0077)); independently from the tutors’ age, gender, clinical and teaching experience, or the type of FAS. They also taught communication skills more effectively than tutors from group 2. Objective analysis of the feedbacks is still ongoing.

Discussion and Conclusions: These preliminary findings suggest that content expert physicians are less learner-centred and pay less attention to communication issues during feedback than more “generalist” physicians.

4CC2 (23003)
Feedback in Medical Education: Students’ Perspective vs Faculty Perspective

Cagri Orkun Kilic*, Marmara University Faculty of Medicine, Istanbul, Turkey
Mert Can Rador, Istanbul University Cerrahpasa Faculty of Medicine, Istanbul, Turkey
Alper Yarimbasi, Sakarya University Faculty of Medicine, Sakarya, Turkey
Busra Oner, Sakarya University Faculty of Medicine, Sakarya, Turkey
Ilayda Ekin Cetinkaya, Kocaeli University Faculty of Medicine, Kocaeli, Turkey
Eda Dayan, Istanbul University Istanbul Faculty of Medicine, Istanbul, Turkey

Background: Feedback is an important source of improvement for medical schools. It serves as a tool for assessment as well as a guide to improve medical curricula and teaching methods. It is an insider opinion by students who are the most important shareholders of medical education. In this study, we gathered information and analysed different feedback systems.

Summary of Work: We conducted a thirteen questions questionnaire to collect information about the feedback systems of medical schools, by the help of a network of student leaders (TurkMSIC) from 25 different schools. In each school, information was taken from 2 students (1 medical education leader, 1 student representative) and 1 faculty member (who has a role in program coordination). The questionnaire was developed by a group of medical students and a resident.

Summary of Results: Feedback mostly received for evaluating a single lecture. There is no relation between percentage of students involved and years of study. In general, feedback is taken by printed questionnaires and includes less than %20 open-ended inquiries. Web based systems has not been developed enough. Also, very little concern is given to group feedback. The feedback format is the same for all students not taking specific needs into account. There is considerable difference between the perceptions of faculty and of students.

Discussion and Conclusions: There are differences between how students and faculty members approach feedback and there are many areas to improve feedback mechanisms.

Take-home messages: Faculty members and students must work together to improve feedback mechanisms within medical faculties for the best benefit of medical education.
Differences in given feedback in different clinical settings

Eveline Bruneel*, Vrije Universiteit Brussel, Study Guidance Center, Brussels, Belgium
Nicole Pouliart, Vrije Universiteit Brussel, Clinical Clerkships, Brussels, Belgium

Background: Receiving feedback is considered widely important, especially in clinical situations, when students interact with real-life patients for the first time. Since July 2011 the VUB (Brussels, Belgium) uses BruCe, an enquiry with which Master students in Medicine score the quality of several aspects of their internships. Three questions are specifically concerned with the evaluation of received feedback during the internship.

Summary of Work: Since July 2011 204 students completed an evaluation in BruCe, after each internship, for a total of 2167 enquiries.

Summary of Results: The average scores concerning feedback range from 3.30 to 3.74 on a scale of 5 (compared to a medium score of 4.08 for all questions). A differentiated view can however be noticed in different clinical settings (academic hospitals, peripheral hospitals, GPs). For GP internships (191 enquiries) scores range from 4.23 to 4.47. For the academic hospitals in Brussels, including the academic hospital affiliated with the VUB (1421 enquiries), the scores range from 2.97 to 3.55. Peripheral hospitals’ (555 enquiries) scores range from 3.77 to 4.05. Possible explanations may be the number of students allocated to a single clinical supervisor or a greater proportion of insufficiently trained clinical teachers in academic hospitals, whereas students in a GP internship are in a one-on-one situation which may facilitate feedback.

Discussion and Conclusions: Although academic hospitals are considered teaching hospitals, giving feedback seems to be a weakness. This emphasizes the need for teach-the-teacher programs.

Take-home messages: Differences exist in the quantity and quality of feedback given to students in different clinical settings.

Learning outcome-based feedback on multiple choice examinations helps students identify areas of weakness

David Kennedy*, Newcastle University, School of Medical Science Education Development, Newcastle upon Tyne, United Kingdom

Background: Provision of meaningful feedback following examinations is a challenge. Feedback on multiple choice examination papers consisted of results (percentage score and grade) and a breakdown of scores by theme. A method of feedback that directly links questions in the exam to specific learning on the course was designed to assist students in identifying their developmental needs.

Summary of Work: On average, each teaching session in Phase I MBBS has 4 associated learning outcomes. Each exam question was tagged with the specific learning outcome it was assessing. Learning outcomes associated with the questions answered incorrectly were fed back to students within an individualised feedback sheet.

Summary of Results: An evaluation of the learning outcome-based feedback was conducted following the first diet of examinations in Stage 1. Of the 149 students responding to the questionnaire, 109 (73%) agreed or strongly agreed that feeding back learning outcomes of questions answered incorrectly helped them to identify areas of relative weakness. Only 15 (10%) students stated that they did not find this form of feedback helpful.

Discussion and Conclusions: Learning outcome feedback is not intended to replace other forms of feedback, or be the only solution. However, our students find that being fed back learning outcomes associated with the questions they answered incorrectly helpful to them in identifying areas of relative weakness. To improve this system yet further we are aiming to create a direct link between the outcomes fed back and the relevant teaching resources via the student’s virtual learning environment.

Take-home messages: Feedback that specifically links assessment questions to taught content is useful in guiding student learning.
**4CC5 (21839)**

**Development of a new end-of-year appraisal format for medical students**

*Clare Guilding*, Newcastle University, Newcastle Upon Tyne, United Kingdom  
David Kennedy, Newcastle University, Newcastle Upon Tyne, United Kingdom  
Richard Price, Newcastle University, Newcastle Upon Tyne, United Kingdom

**Background:** When appraisals are performed effectively they are highly valued by students. They provide opportunities for feedback on student progress and for reflection and planning for change by the individual. However, Newcastle Medical School’s appraisal format was not well received, so we set out to evaluate and redesign it.

**Summary of Work:** We conducted an extensive questionnaire survey of all medical students and involved staff. Students were asked what they felt the appraisal should be used for and to rank the importance of various options.

**Summary of Results:** The key points to come from the study were:

1. Students both welcome, and expect, the opportunity for one-on-one formative discussion with a senior staff member;
2. The appraisal discussion should be a two-way discussion focussing on the academic progress of the student. This should involve a reflection by the student on their academic progress so far, feedback from the academic staff on aspects of their performance so far, and agreement of academic goals to take forward.

Based on this data we designed a new, reflective appraisal format to reflect the needs of the students. We lengthened the time of the appraisal to 30mins, and provided training to both staff and students. We are currently piloting this format for Phase 1 students and will present the evaluation data.

**Discussion and Conclusions:** The new appraisal format aims to provide feedback in a supportive environment and assist in the development of the abilities of each individual student.

**Take-home messages:** Students value a one-on-one appraisal with an academic member of staff, but to be beneficial this must be conducted effectively.

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**4CC6 (19881)**

**Subject-based review test followed by feedback: Its impact on summative performance of medical students under an integrated medical curriculum**

*Sarmishtha Ghosh*, MAHSA University, Physiology, Kuala Lumpur, Malaysia  
Aung Ko Ko Min, MAHSA University, Community Medicine, Kuala Lumpur, Malaysia

**Background:** In a hybrid integrated curriculum, end of semester summative assessment scores do not reflect subject knowledge in physiology. The aim of the study was to introduce an intervention to take care of the poor subject performance in the summative tests.

**Summary of Work:** A subject based review in the form of quiz with and without video presentation was introduced by the department of physiology for the preclinical phase medical students. Integrated summative tests at the end of the block and at the end of the semester were conducted as scheduled. Feedback was given to the students just after the review was conducted. A structured questionnaire was used to study the perception of the students. Scores of physiology in the review quiz, Block Tests [BT] and End semesters tests [ESX] were analyzed by SPSS version 19.0.

**Summary of Results:** 70% of the students perceived the review activity in the form of a quiz as interesting and beneficial for understanding and improvement of performance. 85% of the students considered the review done with a video presentation to be more effective. 20% students failed in the review test [32.5 +/- 2.5] while only 5% failed in the physiology component in BT [43.5 +/- 1.6] . However, 32.6% failed in the overall score of integrated test in the BT of which only 5.4% failed in physiology [40.0 +/- 2.3].

**Discussion and Conclusions:** The study brought to focus that a subject based graded review need to be conducted by active learning methods and a feedback should be given as early as possible after completion of the review to enable the students to understand how to improve.

**Take-home messages:** A subject based review test with multiple question pattern should be introduced followed by a timely feedback to ensure proper subject knowledge and enhanced performance in pre-clinical medical students.
4CC7 (22261)
Systematic feedback exchange between teachers and students: A tool to enhance undergraduate medical students’ clinical education

Mats Leijman*, Helsingborg Hospital, Department of Paediatrics, Helsingborg, Sweden
Anne Jung, Helsingborg Hospital, Department of Paediatrics, Helsingborg, Sweden
Claes Ignell, Helsingborg Hospital, Department of Obstetrics and Gynaecology, Helsingborg, Sweden

Background: Feedback has a documented powerful influence on teaching and learning. However, we found a paucity of structured feedback on a regular basis between medical students, teachers, and faculty during the course of a clinical placement. Thus, as faculty members responsible for the students’ placement, we were interested to see whether a systematic exchange of feedback between these groups would a) stimulate stakeholders to act on the feedback and b) influence our possibility to improve the placement.

Summary of Work: We used several methods for feedback exchange during a five-week placement at a department of paediatrics. Students got structured feedback through sit-ins and weekly feedback from a clinical teacher documented in the student’s portfolio. Various methods were used to give teachers regular individual feedback after lectures, seminars and supervision. Teachers summarized their feedback focusing on strengths and possible improvements and shared this with colleagues and faculty.

Summary of Results: According to students, the standardized feedback enabled them to follow their progress during the placement. They also felt that it prepared them for the final clinical exam as the same form is used. Teachers reported how the feedback led to changes of teaching behaviours. As faculty responsible for the placement, the systematic feedback exchange positively influenced the possibility of regular improvements of the placement.

Discussion and Conclusions: The regular exchange of feedback enabled students to follow progression within a clinical rotation. Faculty and clinical teachers were inspired to make instant changes of structure and teaching behaviours.

Take-home messages: Universal constructive feedback can be a motivator for improvement in clinical education.

4CC8 (21321)
Medical students in the feedback process again

Renata Pecova*, Comenius University in Bratislava, Jessenius Faculty of Medicine in Martin, Department of Pathophysiology, Martin, Slovakia
Oto Osina, Comenius University in Bratislava, Jessenius Faculty of Medicine in Martin, Clinic of Occupational Medicine and Toxicology, Martin, Slovakia
Michaela Simkova, Comenius University in Bratislava, Jessenius Faculty of Medicine in Martin, Department of Quality Management, Martin, Slovakia
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Background: Each of us would like to have feedback that is critical, yet helpful and useful to improving the subject design, subject quality and students’ learning experience.

Summary of Work: We have done a student evaluation of subjects and the educational process in general medicine study program in academic year 2012/2013 (summer and winter semesters). Students had the opportunity to evaluate 7 areas: subject generally, teaching conditions, organization of the subject, knowledge and preparation of teachers teaching the subject, teaching skills of teachers teaching the subject, relationship of teachers to students, insights and opinions. The scale A – FX, with the possibility to mark with X (I do not know, I have no information) was used.

Summary of Results: 918 students participated in the evaluation of the winter semester and 774 in the evaluation of the summer semester. Total response rate was 70%. Questionnaire conclusions are processed after years of the study, subjects ranking evaluation according to the grades, each subject is processed in detail according to the structure of questions, open questions are at the end of the questionnaire (positive/negative/proposed changes and other comments on the passed subjects).

Discussion and Conclusions: The feedback medical students provide about our teaching on their end-of-semester subject evaluations can be valuable in helping us improve and refine our teaching.

Take-home messages: It’s the constructive feedback we dissect to determine how we can improve our subjects.
**Summary of Results:**

Mean scores were calculated.

**Discussion and Conclusions:**

Themselves and enjoyed immediate feedback. They achieved in the end. They had a tool to self-assess from the beginning what they should be able to achieve in the end. They had a tool to self-assess themselves and enjoyed immediate feedback. They also enjoyed teachers' before and after perceptions about students' abilities. The tool differentiated strengths and weaknesses, can inform evidence-based teaching/learning policy.

**4CC10 (20279)**

**Exploring experienced feedback facilitators' approach to the MSF dialogue**

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*Gitte Bjerg*, PeoplePartner, Department of Human Resources, Aarhus University Hospital, Egå, Denmark

*Hans Ehlert*, Ehlert, Business Psychology, Department of Human Resources, Aarhus University Hospital, Knebel, Denmark

*Bente Malling*, Center of Medical Education, Aarhus University, Aarhus, Denmark

**Background:** A multi-source feedback (MSF) process should include a dialogue with a skilled feedback facilitator (FF). A previous study showed that FF's in general acquire a more coaching style by experience. In this study the FF's perception on own development and approach to the MSF dialogue was explored.

**Summary of Work:** Semi-structured interviews with 18 experienced FFs were performed. The interview guide was developed from the criteria list for best practice in FF-performance. A qualitative descriptive analysis was performed.

**Summary of Results:** The FFs reported an increase in self-evaluated performance concerning analysis of data, formulation of development plans and use of language and means by experience. However, the interviews divided FFs into one group describing a reflective/formative perspective of MSF with the trainee as an active participant and another group with a linear/technical perspective with minor focus on learning potentials with the trainee placed just as receiver of a message. The outcome of MSF has mainly been related on psychometric properties. It seems that outcome improvement should include focus on the FF's coaching and facilitating skills. It would be interesting to investigate how the FFs approach to the dialogue correlates with FF performance and outcome.

**Discussion and Conclusions:** The inclusion of a dialogue in MSF processes makes the awareness of relations between the trainee and the FF an important issue in relation to outcome. The ability to create a reflective dialogue probably increases outcome, however, further studies are needed.

**Take-home messages:** The FF's approach to the MSF dialogue probably influence trainees' outcome of the MSF process.
**4CC11 (22771)**

Is there a relationship between surgeons’ self-efficacy, listening skills and self-reported feedback skills?

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**Background:** Not all faculty and residents are perceived as good feedback providers (FP’s). Explanations are FP’s lack of feedback training, time constraints in the workplace, and variations in FP’s self-efficacy and communication skills. This study explores the relationship between surgeon’s SE, their listening skills and their self-reported feedback skills.

**Summary of Work:** 207 surgeons and residents received a 10-item questionnaire exploring perceptions regarding their feedback skills. The New General Self-Efficacy (NGSE) scale and the Active Empathic Listening (AEL) scale were used to measure self-efficacy and listening skills (Chen 2001, Drollinger 2006). Correlations between the AEL and NGSE were determined. Descriptive statistics (M, SD) and qualitative descriptions were used to describe the outcomes on the feedback.

**Summary of Results:** The response was 74% (n=153; 79/74). Internal consistencies of the NGSE and AEL scales ranged from Cronbach’s alpha 0.7-0.9. According to self-reports surgeons provide at least twice a week feedback, consisting of 2-4 points of attention, most often on the role Medical Expert and least on the role Health Advocate. On a ten point scale (1 low-10 high) they rate their feedback skills as M=6.9 (SD=0.9) and importance of feedback as M=6.1 (SD=0.8). Self-efficacy has significantly positive correlation with listening skills and with self-reported feedback skills (p<0.05).

**Discussion and Conclusions:** According to surgeons' self-perceptions, SE and listening skills contribute to the quality of their feedback skills. In future research should be determined whether or not it also influences the effectiveness of the provided feedback.

**4CC12 (22488)**

Evaluating the impact of structured verbal feedback on residents’ performance

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John Boulet, Foundation for Advancement of International Medical Education and Research (FAIMER), Internal Medicine, Dallas, United States

Afaq Motiwala, University of Texas, Medicine, United States

Nizar Bhulani, Aga Khan University, Medicine, Karachi, Pakistan

**Background:** It is imperative for every resident to develop interpersonal and communication skills. It is also important for faculty and staff to provide a thorough and constructive feedback to the residents to improve on these skills.

**Summary of Work:** We studied the impact of intervention of training faculty through workshops on how to provide structured verbal feedback. The results of pre and post intervention survey are compared to assess any difference in performance of the residents after the introduction of structured verbal feedback. Every resident was evaluated by eight raters, including a self-evaluation. Once the pre-intervention data was collected, the faculty was trained to deliver direct and structured verbal feedback on the performance of the residents. Faculty was trained by conducting several workshops where current feedback practices and challenges were discussed followed by a hands-on role play based training. The faculty then delivered structured and direct feedback to residents for a year after which another 360 degree evaluation was conducted to gauge any change in the interpersonal skills of Internal Medical Residents. To gather evidence to support validity, residents were grouped together based on their year of training, analysis of Variance (ANOVA) was employed to test for differences in mean scores, both for rater type and residency year.

**Summary of Results:** The results of pre intervention and post intervention surveys are currently under review and analysis.

**Discussion and Conclusions:** The preliminary analysis has shown that 360-degree evaluation technique is reasonably effective for measuring the communication skills of trainees. Health care providers and staff who interact with trainees on a regular basis can, on average, provide meaningful judgments.

**Take-home messages:** Regular direct and structured feedback can have an effect on a resident’s interpersonal and communication skills.
4CC13 (19493)
Content and Conceptual Frameworks of Junior and Senior Preceptors Revisited

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Georges Bordage, University of Illinois at Chicago, Medical Education, Chicago, United States

Background: In 2012, Côté & Bordage conducted a qualitative and correlational study in order to investigate the content and underlying conceptual frameworks of preceptor feedback to residents during case presentations. The purpose of the present study was to further confirm the results obtained with a broader sample.

Summary of Work: We conducted a mixed-method study to capture the preceptors’ responses to residents’ educational needs as portrayed in six written, case-based vignettes used in a previous study. Preceptors came from three faculty of medicine in Québec, Canada and from three primary care specialties.

Summary of Results: The 40 preceptors expressed 126 distinct responses and referred to 32 distinct underlying conceptual frameworks. There was no difference between junior and senior preceptors regarding the number and diversity of CFs. Senior preceptors asked more clarification questions and reflected more than juniors during their responses to residents’ needs. Preceptor specialty and prior training in medical education did not influence the number and diversity of responses and CFs however, preceptors with prior training generated more responses per vignette and were more reflective. Seniors had a stronger positive correlation between the number of total and distinct CFs and the number of responses than the juniors.

Discussion and Conclusions: The positive relationship between CFs and responses calls for more research to better understand the contribution of CFs on feedback. The results also suggest that junior preceptors would benefit from seniors preceptors’ experiences during faculty development activities, especially regarding reflective strategies.

Take-home messages: Having a variety of frameworks in mind when giving feedback to residents can help preceptors gain a deeper understanding of underlying factors and provide a broader range of possible responses and interventions.

4CC14 (19677)
Clinical Skills Confidence enhanced by OSCEs with real-time clinician feedback

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Background: Self-confidence is another attribute often considered desirable for physicians. If self-confidence is assumed to be a desirable quality, questions can be asked. What teaching activities contribute to students’ self-confidence? Based on students’ comments following OSCEs, especially with real-time feedback, we have felt that our OSCE enhances students’ confidence in their clinical skills. This study was to answer questions related to medical students’ confidence, “Is confidence in clinical skills enhanced during OSCEs?”

Summary of Work: At the end of rotation in Medicine and OB&GYN department, students perform an Objective Structured Clinical Examination (Department’s OSCE) for evaluation. Another OSCE by RHMEC (RHMEC’s OSCE) is administered at the end of the sequence of clinical medicine courses. This RHMEC’s OSCE serves as not only checkpoints to assess student learning, but also an opportunity to teach and provide real-time feedback. 15 students were asked to complete a brief survey about their confidence in clinical skills. Levels of confidence are compared between pre-OSCE, post-Department’s OSCE and post-RHMEC’s OSCE.

Summary of Results: The students’ confidence levels in their clinical skills, before and after taking the Department’s OSCEs are shown. However, there is no significance difference in clinical confidence between pre-OSCE and post- Department’s OSCE. The students’ confidence levels increased markedly after post-RHMEC’s OSCE. All of these increased in clinical confidence are statistical significant between pre-OSCE and post-RHMEC’s OSCE.

Discussion and Conclusions: Our results demonstrate that participation in an OSCE that provided immediate feedback enhanced medical students’ confidence in their clinical skills.

Take-home messages: While many programs seek to protect clinician time, our findings suggest that ... As teacher, it is worthwhile to sacrifice your time for your student’s confidence.
**4DD POSTERS: Teaching and Learning Anatomy**

**Location:** South Hall, Level 0, MiCo

**4DD1 (22207)**

If you want them to learn, ask them how

*Alexandra Webb*, Australian National University, Medical School, Canberra, Australia  
*Krisztina Valter*, Australian National University, Medical School, Canberra, Australia

**Background:** Students often utilise rote learning to study musculoskeletal (MSK) anatomy, with little understanding of its functional relevance. Students may benefit from teaching and learning MSK anatomy in context. The aim of this project was to explore the use of assignments to contextualise MSK anatomy and create an educational environment, which encourages active applied learning.

**Summary of Work:** The focus of the assignment was a randomly selected picture of an activity (e.g. skier in mid-jump). Students were required to identify the major muscles contracting to produce the movements occurring in the activity. Different assignment methods explored included: wooden mannequins to demonstrate the structure and function of the important muscles used in the depicted activity with an accompanying study guide; and the creation of a novel activity to facilitate learning MSK anatomy. A questionnaire, focus group and assessment results were used to evaluate the assignment process.

**Summary of Results:** Of the 53 students that completed the questionnaire, 43% enjoyed doing the assignment. Students reported the assignment improved their knowledge (81%) and application (79%) of anatomy and provided an opportunity to experience different ways of learning anatomy (74%).

**Discussion and Conclusions:** Most students appreciated the opportunity to gain deeper knowledge of anatomy, and skills and proficiencies beyond the discipline (e.g. team work, communication, problem-solving) using a different learning approach whilst some students viewed the assignment as a hurdle to course completion.

**Take-home messages:** Assignments can be used as a vehicle to create fun learning opportunities that consolidate and contextualise the study of anatomy.

**4DD2 (21082)**

Medical imaging and ultrasound in integrated clinical anatomy curriculum

*Michele Moscova*, University of Wollongong, School of Medicine, Wollongong, Australia  
*Deborah Bryce*, University of Sydney, Anatomy and Histology, Sydney, Australia  
*Noel Young*, Westmead Hospital, Department of Radiology, Westmead, Australia  
*Doungkamol Sindhusake*, University of Western Sydney, Faculty of Medicine, Sydney, Australia

**Background:** The University of Sydney Medical Program is a four-year graduate program. Students have face-to-face instruction in a range of biomedical and clinical subjects during the first two years and spend the last two years at their hospital placements. In 2008, a new clinical anatomy curriculum was introduced into the Medical Program in response to a government review of Australian medical education and internal curriculum review. Integration of medical imaging and ultrasound was a feature of the new anatomy curriculum.

**Summary of Work:** Normal radiography, MRI, CT scans and specialist cross-sectional radiology and ultrasound imaging were incorporated into anatomy teaching over the first two years of the program. Experience of 2009-2010, 2010-2011 and 2011-2012 student cohorts was evaluated using surveys. Surveys combined 5-point Likert scale and open response questions.

**Summary of Results:** Over 90% of respondents (response rate 40%-98%) were satisfied with the overall quality of anatomy teaching. 71%-84% of respondents thought that cross-sectional radiology sessions helped them understand spatial relationship between anatomical structures, 76%-80% thought that sessions on ultrasound were helpful in understanding its use in abdominal imaging; 72%-77% felt the program gave them a better understanding of imaging modalities.

**Discussion and Conclusions:** Results suggest that the new curriculum is achieving its aims of improving students’ confidence, ability to understand and interpret medical images and to understand spatial relationships between anatomical structures.

**Take-home messages:** Introducing basic interpretation of medical images early into medical curriculum may benefit students by making them more familiar with different imaging techniques used in clinical practice.
**4DD3 (21249)**

**VU student anatomy project (VUsap): A student initiative**

Thomas Koedam, VUmc School of Medical Sciences, Anatomy and Neurosciences, Amsterdam, Netherlands
Christianne van Lieshout*, VUmc School of Medical Sciences, Anatomy and Neurosciences, Amsterdam, Netherlands
Koen Dudink, VUmc School of Medical Sciences, Anatomy and Neurosciences, Amsterdam, Netherlands
Nick Zondervan, VUmc School of Medical Sciences, Anatomy and Neurosciences, Amsterdam, Netherlands
Michael van Emden, VUmc School of Medical Sciences, Anatomy and Neurosciences, Amsterdam, Netherlands
Henk Groenewegen, VUmc School of Medical Sciences, Anatomy and Neurosciences, Amsterdam, Netherlands

**Background:** As most current medical curricula, the curriculum VUmc-compas (competent and with compassion) is paying attention to the CanMeds roles. Compared to traditional curricula, less time is devoted to subjects as anatomy. A group of highly motivated medical students, with support of the department of Anatomy and Neurosciences VUmc, took the initiative in 2009 to organize an elective, extracurricular course in human anatomy to provide better knowledge and skills for interested students. Can such a student initiative be successful?

**Summary of Work:** VUsap is based on the teacher-teacher-principle. Bachelor students have the opportunity to join a 12-week class in one region: head and neck, extremities, abdomen or thorax. Students are given the opportunity to dissect and learn the regional anatomy in small groups of four students guided by one trained student-teacher. The class of four groups is supervised by two student-tutors.

**Summary of Results:** VUsap started in 2010. During each year 64 students, 16 student-teachers and 8 student-tutors were involved. Each class invited clinicians to endorse the clinical relevance of anatomy. At the end, students had to pass a theoretical and practical exam to receive a certificate.

**Discussion and Conclusions:** A safe situation and receiving feedback are important aspects of a learning environment. VUsap provides such an environment for students to learn anatomy. Furthermore, by developing VUsap, the organizing students acquired didactical and organizational skills.

**Take-home messages:** Allowing students to organize, supervise and teach an anatomy course can be very successful.

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**4DD4 (19808)**

**Extracurricular anatomy: A multidisciplinary approach**

Petra Hanson*, University Hospital of Coventry and Warwickshire, Coventry, United Kingdom
James Masters, University Hospital of Coventry and Warwickshire, Warwick, United Kingdom
Brian Burnett, University Hospital of Coventry and Warwickshire, United Kingdom
Richard Tunstall, Warwick Medical School, United Kingdom
Joy Radtschenko*, University Hospital of Coventry and Warwickshire, Coventry, United Kingdom

**Background:** Both medical students and nurses do not feel confident in applying anatomy to clinical practice. Our aim was to create multidisciplinary evening clinical anatomy course that would be sustainable, low-cost and educationally beneficial to all participants involved.

**Summary of Work:** We created a novel course for final year medical students, nurses and nursing students. A group of junior doctors taught regularly for eight weeks. Each demonstrator had a guide, in order to standardise the teaching delivered and ensure all objectives were covered. Each week started with the pre-course quiz and had five twenty-minute stations. Demonstrators received structured feedback on their teaching. We collected information at the beginning and the end of the course from both students and demonstrators.

**Summary of Results:** We surveyed 9 demonstrators and 28 students. Interest in anatomy and teaching were the main reasons for demonstrators to get involved. The course fulfilled expectations of 88.8% of demonstrators and all of them would recommend it to their colleagues. Students enrolled to improve their clinical anatomy knowledge (82%), and prepare for their examinations or other assessments (32%). This course fulfilled expectations in 94% of students and 94% of students felt the educational value of the course was high. All students would recommend the course to their colleagues.

**Discussion and Conclusions:** Teaching clinical anatomy in multidisciplinary setting is challenging, but very rewarding and enables networking in a non-clinical environment.

**Take-home messages:** Anatomical teaching can be delivered in a multidisciplinary environment reflecting modern healthcare practice.
ABSTRACT BOOK: SESSION 4  
MONDAY 1 SEPTEMBER: 1400-1530

4DD5 (21556)
A Delphi consensus study to identify current clinically most valuable orthopaedic anatomy components for teaching medical students

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John McLachlan, Durham University, School of Medicine, Pharmacy and Health, Stockton on Tees, United Kingdom

**Background:** Medical curricula have undergone significant changes in recent years. Concerns have been raised over the decline in anatomical knowledge among graduating doctors. The aim was to identify clinically most valuable orthopaedic anatomy components that are relevant to current clinical practice.

**Summary of Work:** Modified Delphi technique with three rounds involving twenty currently practicing orthopaedic consultants & senior registrars was conducted. Anatomical components applied in corresponding clinical situations were generated in the first round and their clinical importance was rated with a four point Likert scale in the subsequent two rounds to generate consensus. Percentage agreement was utilised as outcome measure for components rated as considerably/very important with consensus of more than 94%.

**Summary of Results:** Response rates were 90% (Round 1) & 100% (Round 2/3). After three Delphi rounds, thirty four anatomy components applied in general/specific clinical conditions and clinical assessments were identified as clinically most valuable.

**Discussion and Conclusions:** This study has helped to benchmark anatomical knowledge requirements that are most relevant to current orthopaedic clinical practice, and essential in teaching medical students. It provides clinicians' opinions regarding the current required essential anatomical knowledge for a graduating medical student to apply during their orthopaedic clinical encounters. The content can be recommended to inform clinical anatomy curricula in the future.

**Take-home messages:** Similar studies in other specialities can help students to acquire anatomical knowledge for safe and competent clinical practice in the given time constraints. It can enable students to gain a better understanding of how anatomy knowledge is applied in clinical practice from early years & render anatomy teaching and learning useful for future clinical practice.

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4DD6 (21811)
Differential impact of learning from static versus dynamic microscopic images when studying medical histology

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Martin Valcke, Ghent University, Educational Sciences, Gent, Belgium  
Maria Cornelissen, Ghent University, Basic Medical Sciences, Histology, Gent, Belgium

**Background:** Histology is a morphological (bio)medical discipline wherein practical training is based on the microscopic study of normal tissue sections. Today, microscopic learning material can be digitized thanks to computer technologies. Subsequently, digital microscopic images can be presented in a static or dynamic mode. The present study investigates whether in histology education dynamic pictures are superior to static images to acquire microscopic recognition skills.

**Summary of Work:** Test results of two cohorts of 2nd year Bachelor students in Medicine at Ghent University were analyzed in 2 consecutive academic years: Cohort 1 in 2007-2008 (n=253) and Cohort 2 in 2008-2009 (n=228). Students in Year 1 worked with static images whereas students in Year 2 were presented with dynamic slides. ANCOVA was applied to study differences in microscopy performance scores between the 2 student cohorts, taking into account initial differences in prior knowledge.

**Summary of Results:** The results of the investigation showed that practical histology performance on the base of dynamic digital pictures is significantly higher as compared to learning from static digital images. Several acceptable reasons for this finding are explained according to the Cognitive Theory of Multimedia Learning (CTML).

**Discussion and Conclusions:** Because knowledge construction with dynamic pictures is stronger as compared to static images, dynamic images are definitely introduced in a virtual microscopy setting for histology education. Further implementation within a larger electronic learning management system needs to be explored in future research. A well organized instructional design is necessary to restrict the impact of computer-based learning environments on both cognitive load and motivation in medical morphological education.

**Take-home messages:** Learning histology with dynamic slides during handling a (virtual) microscope yields better results than viewing static microscopic photographs.
4DD7 (22856)
Developing education for teaching assistants in anatomy

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Magnus Braide, University of Gothenburg, Institute of Biomedicine, Department of Medical Biochemistry and Cell Biology, Gothenburg, Sweden

Background: In Gothenburg, education in clinical anatomy is given in the second year of medical education. Many senior medical students work as teaching assistants with responsibility for small group teaching of surface anatomy. Some years ago the assistants received no extra anatomy training nor training in teaching. Course evaluations showed that anatomy students were left with an uneven quality of surface anatomy education. Teaching assistants expressed that they wanted more support and training.

Summary of Work: A continuation course in anatomy was developed with the aim to provide extended anatomy training and good guidance for teaching assistants. Pedagogical experts were consulted and some students already working as assistants were involved in discussions about the curriculum and the structure of the course.

Summary of Results: Today, teaching assistants are offered to participate in a Continuation Course of Anatomy, 7.5 higher education credits. The course is given at quarter speed and covers the musculoskeletal system, basic didactics and some Latin. Students receive special training in dissections and surface anatomy. Evaluation of the continuation course shows that after taking the course, teaching assistants know more anatomy, are better prepared for teaching and feel that they have closer support from senior teachers. Since the start of the continuation, the quality of small group teaching held by teaching assistants has improved, according to students’ course evaluations.

Discussion and Conclusions: Educated teaching assistants perform better teaching. Organizing the education as a formalized course is advantageous. Continued support for assistants and regular follow-up is important.

Take-home messages: Continued education for teaching assistants improves quality of anatomy teaching.

4DD8 (20614)
“Detached concern” of medical students in the cadaver dissection course: A phenomenological study

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Ya-Ping Lin, Chang Gung University, Department of Medical Humanities and Social Sciences, Taoyuan, Taiwan

Background: As a time-honored tradition of medical education, cadaver dissection is important in attitude aspect of physician cultivation. It was documented that medical students developed detached concern as the attitude toward cadaver during a dissection course.

Summary of Work: Utilizing interpretative phenomenological methods to do data analysis based on data obtained from semi-structured focus-group interviews with third-year medical students in Taiwan, our interest has been to disclose medical students’ learning experience about cadaver dissection. This study aimed to ascertain the students’ posture characterized as “detached concern,” and furthermore to clarify the latent meanings of "detached concern" in the overall process of medical training.

Summary of Results: Among all the students, we identified two basic groups that differed in the following four experience themes — (1) initial emotional impacts, (2) human referents, (3) coping strategies, and (4) ways of perceiving cadaver.

Discussion and Conclusions: We propose a theory about two different models of detached concern. Some students (Group 1) developed an overt detachment and latent concern. They also sought to learn a “perspective switch” between their ambimnervative expectations. Other students (Group 2), with a notion that cadaver dissection was a great thing with love, kept the concern consistently without any need to detach.

Take-home messages: We propose a theory about two different models of detached concern medical students developed in cadaver dissection course, as a model of overt detachment with latent concern or a model of consistent concern without detachment.
4DD9 (20617)
Integrated Multitouch Screen System as a New Strategy for Teaching Anatomy in Veterinary Medicine

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Rodrigo Loyola, Universidad Andres Bello, Dirección General de Tecnologías de la Información, Santiago, Chile
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Diana Bermejo, Universidad Andres Bello, Escuela de Medicina Veterinaria, Facultad de Ecología y Recursos Naturales, Santiago, Chile

Background: Anatomy as a discipline is necessary throughout the veterinary curriculum as part of preclinical and clinical courses. However, in Veterinary Schools it is considered only as a first year undergraduate course and the students instruction is based mostly in laboratory work with fresh or preserved anatomical body parts. In order to meet the needs of new veterinary student generations new teaching strategies are necessary.

Summary of Work: The School of Veterinary Medicine of the Universidad Andrés Bello, implemented a system of six LCD multitouch screens provided with SMART Notebook™ software to improve the teaching of anatomy, and to promote active, collaborative and interactive learning for the Veterinary Anatomy course. This system uses digital screens to display anatomy images and clinical multimedia material that form part of a new Anatomy software. This will allow students to learn Veterinary Anatomy in the context of their future professional clinical practice. The use of other didactic tools such as body projection and body painting are also considered.

Summary of Results: In 2013 75 students used this collaborative system where 84% of them partly or totally agreed and only 4% rejected this technology. 94% of the students think that multitouch screens facilitated their learning process.

Discussion and Conclusions: The Integrated Multitouch Screen System generated an environment that enabled a better interaction with other students and teachers, thus promoting active and meaningful learning.

Grant from FIAC UAB1102

4DD10 (21658)
A new approach to neuroanatomical education using computer-based interactive e-learning resources

Lauren Allen, University of Western Ontario, Anatomy and Cell Biology, London, Canada
Roy Eagleson, University of Western Ontario, Electrical and Software Engineering, London, Canada
Presenter: Sandrine de Ribaupierre*, University of Western Ontario, Clinical Neurological Sciences, London, Canada

Background: Neuroanatomy is one of the most challenging subjects in anatomy, as students often experience difficulty grasping the 3D spatial relationships when interpreting 2D images. 3D models often provide educational benefits depending on the spatial ability of the learner. Unlike traditional teaching methods, e-learning should allow the development of learner-centered educational tools, delivering information suited to each student’s unique educational needs; however this yet to be fully explored in the literature.

Summary of Work: This study focused on the development of a novel mixed-modality presentation scheme for a neuroanatomy-based curriculum, which presents a traditional text-centered mode, a 2D image mode, and a novel interactive 3D module. Development of the 3D module utilized data from the Visible Human Project. This interactive tool allows students to label anatomical structures, manipulate the model to view structures from any desired angle, and receive additional information for selected structures. A curriculum was developed on a web-based platform, to permit the recording of a logfile of each user’s interactions with the curriculum.

Summary of Results: The interactive 3D module was utilized by undergraduate medical students at the Schulich School of Medicine, Western University. Assessment of the interactive module, both quantitative and qualitative aspects, will be presented on the poster.

Discussion and Conclusions: Students demonstrated enthusiasm for the interactivity and the presentation modalities. Results of this study may be used to help develop e-learning resources and curricula.

Take-home messages: E-learning provides an opportunity to provide a learner-centric approach rather than a stringent and rigid delivery modality for all.
## 4DD11 (20933)

**Can the formative exams be the tool for preclinical students improving their scores in neuroanatomy?**

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Praphaporn Stewart, University of Sunshine Coast, Faculty of Science Education and Engineering, Sunshine Coast, Australia

**Background:** A large proportion of medical assessment is delivered via MCQ exams. The purpose of this study is to determine the correlation with formative exams which reflects MCQ, CRQ, and summative (MCQ + CRQ) exams in neuroanatomy.

**Summary of Work:** The student satisfaction was evaluated through a five point Likert scale (1 being lowest rating and 5 highest) questionnaires and completed by students at the end of class. The other data including formative, MCQ, CRQ and summative (MCQ + CRQ) scores was analyzed by linear regression method to determine the correlation with formative exams which reflects the students’ overall scores.

**Summary of Results:** The mean value of questionnaire results indicated the most students expressed strong positive attitude and the formative scores show moderate correlation with the final scores ($R^2=0.4$) and significant with MCQ, CRQ and summative (MCQ + CRQ) scores ($p$-value < 0.01). Interestingly, the most significant were the middle and the poor scores students ($p$-value < 0.01). While insignificant difference was detected in the top score students.

**Discussion and Conclusions:** The study showed the potential of formative exams can be improving student scores in the middle and the poor scores groups.

**Take-home messages:** Developing formative exams is important to improve student scores and that should be continued in the future.

## 4DD12 (22210)

**Radiology: An underutilized resource for the teaching of anatomy in Angolan medical schools**

*N'Denga Tomás*, Faculty Medicine University Agostinho Neto, Anatomy, Luanda, Angola  
Esmael Tomás, Faculty Medicine University Agostinho Neto, Anatomy, Luanda, Angola  
Brent Burbridge, University of Saskatchewan, Medical Imaging, College of Medicine, Saskatoon, Canada  
Maria Amélia Ferreira, Faculty Medicine University Porto, Department Medical Education and Simulation, Porto, Portugal

**Background:** Teaching gross anatomy has changed due to curriculum reform. The role of radiology in teaching anatomy has steadily increased, contributing to the skills needed to practice medicine. We will discuss the role of radiology for teaching anatomy in the Angolan undergraduate medical curricula.

**Summary of Work:** A cross-sectional, exploratory, and observational study was deployed in the Anatomy departments of all eight Angolan Faculties of Medicine. The objectives were achieved through the use of a questionnaire (Burbridge, 2012) and a review of the Anatomy curriculum. The Anatomy department head at each school was contacted and asked to complete a questionnaire evaluating the involvement of radiology in anatomy teaching.

**Summary of Results:** Using imaging material was considered important to the teaching of anatomy. The shortage of radiologists did not allow for their integration as faculty in the Anatomy departments. Departments used radiology in lectures, and 50% also used radiology images in practical laboratory classes. Six departments (87.5%) reported using conventional radiographs and 14.3% computed tomography. Ultrasound, magnetic resonance imaging and angiography were rarely used.

**Discussion and Conclusions:** Angolan Anatomy departments agreed that diagnostic imaging has an important role to play in anatomy teaching. However, the lack of radiologists makes it difficult to fully integrate radiology into the undergraduate medical curriculum. Efforts should be made to systematically introduce these materials into the curriculum of gross anatomy.

**Take-home messages:** There is a need to incorporate radiology into the anatomy teaching of Angolan Medical Schools.
Acquisition of clinical anatomical knowledge by foundation doctors during four-month anatomy demonstrator rotations

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Background: A working knowledge of anatomical features and concepts is crucial for developing diagnostic skills in practicing clinicians. Foundation Year 2 doctors on four-month demonstrator rotations teach medical students anatomy at Newcastle University. We aimed to investigate the anatomical knowledge acquired by demonstrators during their rotations and to compare that with the knowledge acquired by graduate-entry medical students, who lack clinical exposure and do not partake in teaching. We hypothesise that, despite not receiving formal anatomy teaching, demonstrators will show equivalent knowledge to that of graduate-entry pre-clinical taught students.

Summary of Work: A mixed-method cohort study approach involved testing demonstrator participants (n=24) with 83 multiple choice questions (MCQ) of assessment standard on numerous topics across various anatomical regions before and after their rotations. The same MCQs were used to assess graduate-entry students (n=22) at the end of their pre-clinical year.

Summary of Results: We present generated quantitative and semi-quantitative data to identify acquired anatomical knowledge of demonstrators and to compare it to that of graduate-entry medical students.

Discussion and Conclusions: Differences in teaching responsibilities and clinical experience may account for comparable knowledge in demonstrators to graduate-entry students, despite the difference in length of their periods of learning. Based on our findings, we will encourage clinicians to pursue demonstrator rotations. We will investigate if acquisition and retention of anatomical knowledge and concepts of graduate-entry students improves with ability to consolidate learning by introducing peer-teaching.

Take-home messages: Anatomy demonstrator rotations are valuable for knowledge and perceptions of clinical anatomy knowledge of foundation doctors and are equivalent to one year of graduate-entry taught anatomy.

How do students best learn anatomy? Exploring student responses to the resources available

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Background: Recommendations by the GMC have modified medical curricula in the UK that have led to a major reduction in the importance of anatomy teaching. By understanding ways in which students learn anatomy, the study seeks to inform curriculum design and teaching methods in order to improve the quality and effectiveness of learning in this subject matter.

Summary of Work: Two medical schools, one employing cadaver dissection and another with modern methods only were used. First and second year students were invited to attend focus groups. Participants were obtained through random selection, based on gender and examination scores, representing a wide variety of students’ preferred ways of learning anatomy. The data collected extracted statements about the nature of studying and were clustered into qualitatively different ways of apprehending anatomy learning.

Summary of Results: Qualitative analysis suggests that students learn anatomy in greater understanding, depth and explicit detail during dissection, leading to deeper learning, leading to long term memory retrieval. Students learn anatomy better in context and in small, well organised and controlled groups within the presence of relevant demonstrators. They gain more from a learning session if they have utilised relevant study guides prior to learning activities.

Discussion and Conclusions: This study emphasises the need for exposure to dissection during the undergraduate curriculum. Its utilization and learning outcomes is supported by educational theories and literature. The development of an undergraduate anatomy syllabus would also be highly beneficial in alleviating student anxieties whilst guiding students’ anatomy knowledge.

Take-home messages: Cadaveric dissection needs to be re-introduced into modern day Anatomy teaching.
4DD15 (19296)
Near-Peer Generated Anatomy Prosection Videos Created Using an iPad

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Background: The current generation of students is partial to digital technology. Strategies to enhance anatomy education have been investigated including utilizing videos. However, these are often prohibitively expensive, time-consuming and require technical knowledge. The use of tablets, like the iPad, has modernized educational instruction and is in line with the instructional goals of Mayo Clinic’s anatomy course.

Summary of Work: Third-year medical students participating in a medical school gross anatomy course as teaching-assistants created 27 short prosection videos explaining the relevant anatomy and dissection techniques for a laboratory learning session. This required little time commitment and budget utilizing the teaching-assistants’ personal iPads to create videos. Students accessed videos from a secure intranet server. Video usage, examination performance, and satisfaction with the technology were analyzed at the conclusion of the course with a survey.

Summary of Results: During the course, 98% of the class accessed the videos an average of 23 times. 89% agreed they were satisfied with the video quality. 84% of the class agreed the videos helped them learn gross anatomy through preparation and study. There wasn’t a significant correlation between the reported number of times videos were accessed and evaluation outcomes.

Discussion and Conclusions: The creation of simple dissection videos, using iPads, demonstrates an effective use of technology that promotes anatomy learning in the dissection laboratory. There is no direct cost associated with its use and it provides opportunity for TAs to generate near-peer course content that facilitates learning.

Take-home messages: The creation of supplemental videos using an iPad can facilitate anatomy learning and is not necessarily time or cost-prohibitive.

4DD16 (22770)
Small Group Teaching of Clinical Skills and the Use of Tablets in the Preclinical Curricular Course “Anatomy and Imaging”

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Background: Small group teaching, training in clinical skills units, technological developments like the use of tablets, horizontal and vertical integration of the curriculum and systematic evaluation have been identified as major curriculum trends in medical education in the 21st century.

Summary of Work: Since 2001, the interactive interdisciplinary tutor-based course “Anatomy and Imaging” has been implemented in preclinical education at the local medical faculty. From 2001 to 2012, the course was offered as an elective. Since 2013 the course is part of the preclinical curriculum for all second-year-students. During one week, 140 students rotate through 7 modules per day: anatomy of the living, radioanatomy, sonoanatomy and nuclear medicine. 20 student tutors in 20 course rooms teach small groups of 5 to 10 students simultaneously, supervised by preclinical and clinical lecturers. Tablets have been introduced to enable students to scroll through CTs. Evaluation has been performed continuously over the last 13 years. We compare the evaluation results for the two groups.

Summary of Results: From 2001 to 2012, 618 students chose the elective course. Evaluation return rate was 90%. The general approval rate was 1.3 (5-point Likert scale). Since 2013, about 400 students took part in the curricular course. Evaluation was compulsory. The general approval rate was 1.7. Among all curricular seminars held at the local Medical Faculty during the past 3 semesters "Anatomy and Imaging" was ranked as number 1.

Discussion and Conclusions: "Anatomy and Imaging" enables preclinical students to apply their previously acquired knowledge in anatomy, physiology and biochemistry on clinical skills such as clinical examination, ultrasound and medical imaging. The course is highly accepted.

Take-home messages: Effective small group teaching of clinical skills in preclinical education works. Tablets are helpful to visualize cross sectional anatomy.
4EE1 (19182)
Competency-based Education for Medical Educators: Implications and Implementation

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Background: The growing interest in advanced training in medical education provides an opportunity to implement competency-based education (CBE) without being tied to legacy programs and curricula. This project explores the implications and implementation of competency-based education in the context of an innovative Masters degree program in Health Professions Education.

Summary of Work: Entrustable Professional Activities (EPAs) serve as both the vehicles for learning, as program participants pursue these activities as part of their regular educational work, and as the means for assessing competence in 12 domains. Learning takes place in the context of daily work rather than formal courses, and is individualized and adapted to the circumstances, goals, and opportunities of the learner. Mentors guide individual learners through the program and link them to Subject Matter Experts in specific domains and skills.

Summary of Results: 12 key competencies for all Masters-level health professions educators were defined and linked to EPAs as a means for assembling evidence for competence. These competencies reflect a range of activities characteristic of health professions educators, such as leadership, curriculum development, and research, among others. Evidence for competence is provided by completion of relevant EPAs and review of this evidence by independent Assessment Panel.

Discussion and Conclusions: A competency-based educational framework carries with it significant implications. These can be very attractive to learners who value self-regulation and individualized learning, but it is clear that CBE is not for everyone.

Take-home messages: Staying true to the principles of competency-based education is difficult in the context of time-based curricula and faculty-learner expectations.
4EE3 (19294)
The JFI: Anchoring CanMEDS in Quebec

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Presenter: Patricia Wade*

Background: In 2005 the Royal College of Physicians and Surgeons of Canada conceived the CanMEDS framework: 6 physician roles, centered around the core role of medical expertise. However, no tools were provided to achieve these abilities.

In 2008, the Fédération des Médecins Spécialistes du Québec (FMSQ) engineered a novel educational tool: The Journée de Formation Interdisciplinaire (JFI), a one day multidisciplinary array of workshops gathering physicians from different specialties in an atmosphere of face to face exchange of knowledge.

Summary of Work: this is a retrospective study that compares the performances of the associations to those of the JFI (2008-2012) and identifies the best performing associations in terms of providing "CanMEDS competencies" conferences to their audience, and therefore reflecting the essence of the CanMEDS philosophy.

Summary of Results: The JFI provided more CanMEDS competencies-related CME credits than all other Quebec Specialist associations. This suggests inadequacy in addressing physician abilities. If this holds true, then QSA are neglecting, even unintentionally, the essential aptitudes that make a complete physician.

Discussion and Conclusions: This study would be useful in implementing and inspiring a change in the attitude towards physician roles among the medical community by embracing interdisciplinary teamwork and meta-competencies as qualities that every physician should master.

Take-home messages: Physician abilities are often neglected. Emphasizing on the adequate coverage of these topics in medical education enhances the holistic view of the patient as an entity. Interdisciplinary medicine is the way to the 21st century patient-centered care.

4EE4 (22326)
Is there any hierarchical representation of competencies?

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Background: The competency concept by teachers has a direct impact on their teaching and consequent learning. It is very likely that what the teacher judges to be most important, have a greater emphasis during his pedagogical activities. This study evaluated what was the concept of competency adopted by the teachers in a Medical Course in the southern Brazil and highlighted some competencies.

Summary of Work: 18 teachers were evaluated, being representative of major areas of Medicine and Basic Sciences, in the year 2011/2012. It included teachers with participation in practical and theoretical activities and distributed throughout the 12 semesters of the course. A semi-structured questionnaire was answered about competencies in the medical school. Qualitative analysis of the data was taken the method of the Discurso do Sujeito Coletivo (Collective Subject Discourse).

Summary of Results: The association between knowledge, skills, attitudes and know-how was highlighted by the teachers. Respect, listening, reflection, i.e., attitudinal competences and professional competences linked to specific medical skills were described as important. When the group ranked the skills, one pointed out more to the importance of attitudinal and another the professional competences, however, both emphasized the importance of ethics.

Discussion and Conclusions: Both linked to attitudes and skills, ethics was a very emphasized in the teacher’s narrative considering it a structuring competence for the entire course. Thus was unanimous that ethics is a crucial point of medical training.

Take-home messages: Medical schools need to invest in core competencies such as professionalism and invest in teacher training, introducing the matters of medical ethics thought every learning experience.
4EE5 (221191)
Opportunities for Learning (OFLs): A new educational tool to help implement competency-based medical education (CBME) at Université de Montréal (UdeM)

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Melanie Vincent, Université de Montréal, Vice-décanat aux études médicales de 1er cycle, Montréal, Canada
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Background: Based on CanMEDS 2005, UdeM adapted the framework reflecting its culture/context and published a competency development path for each role, from admission to certification in 2013. CBME is being implemented by educational tools provided to clerkship and residency directors (CRD).

Summary of Work: Common yet complex professional activities needed in a physician day-to-day practice were identified as « opportunities for learning » (OFLs). They require the integration of several competencies. Feedback is given through an observation grid. This allows the learner to position himself in the development path of the competency. The learner is expected to reflect on the task and share his point of view with the supervisor. When needed, a remedial plan is decided upon to help the learner progress. They are not “Entrustable Professional Activities” because they do aim at longitudinal learning and assessment rather than sanctioning.

Summary of Results: Twenty different OFLs have been created, for example: “Stating level of care”, “Informed discharge from the hospital”... CRD mapped the OFLs throughout their programs' rotations. OFL allows the learner to receive relevant feedback and reflect upon its ability to perform complex professional activities with well-determined expectations for their level.

Discussion and Conclusions: OFLs provide CRD a practical and easy-to-use tool to introduce CBME in clinical teaching. They stimulate critical thinking by allowing just in time and relevant feedback based on a competency development pathway. Take-home messages: Tools to implement CBME must be adapted by CRD to the training level of student and medical specialty.


4EE6 (221111)
Master Medical Education by Competency in Mexico

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Background: The Westhill University is a leader of high education in Mexico, which participates in training of medical students. The educational processes are provided by specialist physicians, who require not only domain of the field, but also development in teaching skills according to the new education tendencies.

Summary of Work: A Master medical education programme was designed based on competency incorporating new information and communication technologies (ICT) through an innovative course format in Mexico. It is given by mixed modality in 4 locations: the university and three hospitals. The skills to be developed are: conceptual bases, planning, teaching methods, evaluation, information handling skills, research, statistics, management skills, professionalism, ethics and communication.

Summary of Results: The programme lasts two years. An instrument was applied at the beginning and it will be applied at the middle and at the end of the course. Each competence development considers learning outcomes, content, teaching-learning strategies, resources and assessment. The sessions are given by videoconference with interactions of the attendees.

Discussion and Conclusions: The model is oriented to learning outcomes that are linked to the teacher’s real context. The usage of ICT has allowed the addition and participation of teachers located in different geographical areas synchronously. The programme promotes the development of cognitive, methodological and attitudinal skills among teachers and the best practices. Take-home messages: The institution promotes educational quality through an innovative model in Mexico by competency as a strategy to link health and educational needs.
4EE7 (22044)
Outcome based education after pediatric inpatient clerkship: Physicians and medical student opinions

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Background: The major goals of the pediatric inpatient clerkship are to provide the requisite knowledge and skills to medical students that are essential to pediatrics in a limited time frame.

Summary of Work: The aim of our study was to assess the outcome based education provided to third year medical students during their inpatient pediatric clerkship. Questionnaires were distributed to all general pediatric attending, fellows and residents as well as to medical students.

Summary of Results: Questionnaires were returned from all the 8 attending pediatricians and the 8 academic pediatric fellows, 36 pediatric residents (90% response rate) and 35 medical students (59% response rate). Around 85% of physicians agreed that medical students were given the opportunity to develop their history taking skills, compared to 65% of medical students. Physicians' beliefs were close to medical students (62.7% vs 51%) on the statement that students were able to improve their physical examination by end of their rotation. Moreover, medical students stated that they were given limited opportunity to practice procedures under supervision (75%). Finally, both physicians and students agreed (92% vs 88%) that students were able to acquire clinical reasoning skills by the end of their clerkship.

Discussion and Conclusions: In summary we demonstrate a lack of opportunity for medical students to practice physical examination and procedures under supervision.

Take-home messages: In order to enhance the quality of the students' educational experiences, we recommend that physicians in academic institutions have more protected time to provide adequate teaching in all aspects of pediatrics during the short duration clerkship.

4EE8 (21503)
What do Paediatricians and General Practitioners think should be included in the undergraduate paediatric curriculum?

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Background: First presentations of paediatric illnesses normally occur in Primary Care, yet recent research from New Zealand (Pinnock and Jones, 2008) has focused on hospital-based doctors' perspectives on what should be included in the undergraduate medical curriculum. Primary Care physicians may have different perspectives, which should also shape the education provided for medical students.

Summary of Work: This study seeks to replicate and extend the New Zealand (NZ) study in the UK. Pinnock and Jones identified 25 common paediatrics presentations that hospital physicians considered important in the undergraduate medical curriculum (e.g. a febrile infant/child, infant/child with vomiting and/or diarrhoea). This questionnaire-based study in the UK replicates the NZ study by asking hospital consultants in paediatrics to comment on the importance of these 25 paediatric presentations.

• Hypothesis: there will be no difference between the perspectives of hospital-based doctors in NZ and the UK.

This study extends the NZ study by including General Practitioners (GPs = family physicians):
• Hypothesis: in the UK the perspectives of hospital-based paediatricians and GPs will differ in respect of the importance of the 25 presentations identified in NZ.

It also extends the NZ study by eliciting opinions on the degrees of competence in 23 clinical skills that hospital paediatricians and GPs wish newly qualified doctors to possess at the end of their undergraduate medical education.

Summary of Results: The data collection continues until the end of March 2014 and this abstract can be updated before the end of April.

Discussion and Conclusions: To be updated in April.
Take-home messages: To be updated in April.
4EE9 (20808)
SWOT Analysis in the implementation of competencies in the first year of medical school at the National Autonomous University of Mexico UNAM

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Background: The implementation of a curriculum based on the teaching of medical skills involves the planning and application of instructional strategies focused on student learning. The emphasis on competencies has been in the clinical area and rarely in basic sciences.

Summary of Work: The objective is to describe and analyze the challenges, solutions, achievements, deficiencies and what we learned, when moving from a traditional methodology to one that includes the use of strategies and materials created specifically for the development of competencies in basic sciences. by an interdisciplinary team of teachers A qualitative research was developed using SWOT (Strengths, weaknesses, opportunities and threats) analysis in the evaluation of the implementation of these strategies and materials, in six groups of medical students.

Summary of Results: Various challenges were identified when faced with the implementation of competencies, such as: preference for traditional teaching in teachers and students; the selection of the different levels of complexity and duration of the strategies employed; the resistance of students to extra-curricular activities, and the need to design appropriate instruments to assess competencies in classes with numerous students.

Discussion and Conclusions: This required several changes, including: implementation of new competency teaching strategies, workshops for teachers and supervision by experts in their development.

Take-home messages: The implementation of competencies needs continuous practice.

4EE10 (20826)
Evaluation of basic medical education courses in terms of clinical presentation and competency-based learning outcomes

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Background: After 4 years of experience running integrated curricula of basic medical education in the Catholic University of Korea, College of Medicine, we were eager to know how good and efficient the BME curricula we provide was. By evaluating the whole set of the outcome-based goals in the BME curricula, we built a systemic approach to manage BME curricula.

Summary of Work: We categorized 2570 learning outcomes by 2 criteria: 109 clinical presentations and 9 procedural steps of patient care. By threading the learning outcomes by the 2 criteria, we evaluated the coverage and the evolution of the learning outcomes through 4 year BME education. We also evaluated 1453 learning outcomes recommended by the Korean Association of Medical Colleges (KAMC) and compared with ours.

Summary of Results: 9 clinical presentations were missing in the BME curricula of our school. 48 clinical presentations were covered at least 5 times with different outcome levels. 17 clinical presentations were covered only once in 4-year of education. The goals on background concepts were mainly concentrated in the first year of the curricula and the goals on diagnosis, clinical test and treatment were scattered through the curricula.

Discussion and Conclusions: With categorization of the learning goals by clinical presentations and procedural steps of patient care, we could evaluate the coverage, the frequency, and the step-wise enforcement of the goals. This approach facilitated the systemic comparison of our curricula with others’.

Take-home messages: Outcome-based goals in BME curricula keep changing. The systemic categorization of the goals will facilitate balancing and monitoring the goals of BME at a whole.
**ABSTRACT BOOK: SESSION 4**  
**MONDAY 1 SEPTEMBER: 1400-1530**

**4EE11 (21062)**  
**Medical students’ views about the roles of physicians: Implications for setting outcomes and curricula for undergraduate medical education**

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**Background:** Outcome-based medical education has been widely introduced into and accepted by various institutions, but data on the views of medical students about the roles of physicians are very limited. We could better meet medical students’ learning needs if we could identify their views on the roles of physicians in health care, and the discrepancies between these views and the desired outcome of the education.

**Summary of Work:** We conducted a quantitative and qualitative questionnaire survey for 440 1st-6th medical students attending Kagawa University, Japan. We asked them to describe, in as much detail as possible, the roles and attributes of physicians. These roles and attributes were then categorized into 8 groups, according to the outcomes set by Ministry of Education, Culture, Sports, Science and Technology, Japan.

**Summary of Results:** We obtained 1893 comments regarding the roles and attributes of physicians. These comments were categorized into 14 themes and 8 outcomes: general physician (628 comments), professional (535), patient-centered (319), communicator (276), collaborator (57), self-improvement (46), scholar (21), and community-based medicine (11).

**Discussion and Conclusions:** Medical students strongly feel that the physicians must be exceedingly competent in general practice and have considerable knowledge, skills and attitude. However, it was difficult for the students to imagine the other roles of physicians actually, such as collaborator, scholar and community-based medicine. These discrepancies should be helpful in establishing a new outcome-based curriculum.

**Take-home messages:** Students’ views on the roles of physicians are useful for establishing outcome-based curricula.

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**4EE12 (19484)**  
**Using essays for analyzing first year medical students’ opinions of a good doctor**

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**Background:** Medical students have an idea of the features of a good doctor when starting their education. Making these ideas conscious is a part of growing up to be a “good-enough” doctor. The aim of this study is to explore the ideas the 1st year medical students have about a good doctor in their reflective essays.

**Summary of Work:** This work is a qualitative study of 1031 first year medical students’ essays during their first day in medical school the university of Helsinki. The title of the essay was “What are the qualities of a good doctor?” Each essay contained 4 pages. We performed a systematic thematic analysis of the texts to find out emerging themes to describe the qualities of performance of a good doctor.

**Summary of Results:** Four themes emerged: features of a good doctor-patient relationship (41%), professionalism (32%), characteristics of a good doctor (22%) and collaboration with other colleagues (5%). The features of a good doctor-patient relationship were described by words: kindness, interest, empathy, respect. Dimensions of professionalism were formulated vocation, dedication, helping patients. Characteristics of a good doctor were narrated: self-confidence, good tolerance of stress, being well-balanced. Collaboration was also portrayed: good collaborative abilities with colleagues and other workers. It is of interest that medical knowledge and skills were not mentioned in the essays.

**Discussion and Conclusions:** When starting medical school students emphasize empathy, good doctor-patient relationship, vocation and psychological features when reflecting on their picture of a good doctor. Writing a reflective essay may be an effective tool for promoting deep learning, as well as for the evaluation of perceptions and goals for becoming a good doctor.

**Take-home messages:** A large proportion of first year medical students found good interpersonal skills to be the main feature for a good doctor.
Developing guidelines for designing competency assessment programmes: The initial move from focus on methods to programmatic approach

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Background: The results of two surveys conducted in Tehran University of Medical Sciences (TUMS) affiliated schools were used to put the development of an assessment system in process. Hence, in line with the approach of TUMS for programmatic assessment, our aim in this study is to develop guidelines for designing a programme of assessment aligned with conditions of all affiliated schools of TUMS.

Summary of Work: A participatory approach was applied. Following literature review, a series of meetings with assessment experts were held to generate the initial draft of guidelines. After reaching initial consensus, a document was distributed among assessment developers and decision makers in all schools and their comments elicited. Once guidelines were fine-tuned based on the recommendations, the document was approved by the university education council.

Summary of Results: In total 24 guidelines were developed. Two guidelines were considered as general and the remaining categorized in 3 domains: infrastructures, Design and implementation of the programme, and quality assurance of the programme. Some guidelines, i.e. those related to infrastructure, were generic to allow schools to adapt to their context. Some guidelines, such as those related to program implementation, were found to be straightforward to persuade schools to apply it exactly.

Discussion and Conclusions: Though we developed a set of comprehensive guidelines tailored to TUMS different context, examining its utility still remains in the order. Next step is to encourage schools to develop their specific procedures and subsequently design their assessment programme.

Take-home messages: Development of the guidelines for designing assessment programmes might facilitate systematic assessment.

Modernisation of Postgraduate Medical Training through a new assessment system. The model of Cruces University Hospital (Basque Country, Spain)

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Background: Competency-Based Training and Assessment (CBTA) Residency Programs (RP) in Spain are not implemented yet. However, in 2008, the Postgraduate Medical Education Unit of Cruces University Hospital (CrucesUH) introduced the CBTA in its RP: 40 specialities, 300 residents, 90 Teaching Supervisors (TS), that includes 7-Domains: Professionalism, Communication, Patient Care, Medical Knowledge, Practice-based in Health Systems, Practice-Based Learning and Improvement, and Management of Information. We show a Formative Assessment System (FAS) developed between 2008 to 2013, as a feasible way to introduce CBTA at CrucesUH.

Summary of Work: 1) New FAS based on 7-Domains: Global rating form to assess rotations, TS-Resident interview, self-assessment, Reflexive Portfolio and annual report of TS. 2) FAS implementation trough: a) Training in the principles of CBTA to TS and Residents, b) Setting-up of a CBTA Expert Committee, c) Commitment of Chiefs and TS.

Summary of Results: After three years of a pilot phase, the FAS has been widely accepted by Chiefs and TS. Reflexive Portfolios 2010–2013 have 88% considerations (958 of 1089) based on 7-Domains.

Discussion and Conclusions: A feasible FAS based on competencies has allowed us to spread out the principles of CBTA in our Hospital. Unlike the official Spanish system, our FAS has been widely accepted as it provides a more accurate and comprehensive assessment of the resident. One of the keys of success has been the leadership of a group TS-Residents.

Take-home messages: A multiple strategy supported by the commitment of Chiefs and effective leadership of TS and some residents, is required to transform the educational culture in a big hospital.
4EE15 (27744)
**iCAN!-Normal Child: Development and initial use of one self-accomplished, formative self-assessment tool for medical students**

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Ekaterini Siomou, University of Ioannina Medical School, Child Health Department, Ioannina, Greece

**Background:** Medical curricula gradually shift towards outcome-based education. After iCAN! development at school level for graduate self-assessment, we proceeded at course level, constructing iCAN!-Paediatrics, and now iCAN!-Normal-Child.

**Summary of Work:** Learning Outcomes (LO) in Normal Child, defined by the whole paediatric faculty, were transformed into the iCAN! questionnaire for students. The first and last day of each rotation group, students completed the iCAN! This is an ongoing survey.

**Summary of Results:** A double-edged tool was created with 158 items (e.g., I can correctly assess neonatal jaundice) grouped in 13 level one outcomes: history taking, neonatology, nutrition, infantile colics, children and adolescents vaccination, neuro-developmental growth, respiratory system, circulatory system, urinary system, fluids-electrolytes-blood pressure, hematopoietic system, vitamin D metabolism, child abuse. The initial application ran smoothly and was well accepted by students. The mean scores were 25% and 60% for the first and the last day respectively. Students assessed themselves best in the fundamental step for the medical school to be socially accountable.

**Discussion and Conclusions:** Students were enthusiastic about understanding the learning outcomes of the course from the beginning and enjoyed the immediate feedback. They did not inflate their competencies. iCAN!-Normal-Child self-assessment questionnaire can be implemented in medical schools to promote paediatric-specific LOs.

**Take-home messages:** Outcome-based assessment is the fundamental step for the medical school to be socially accountable.

4EE16 (22870)
**Development of the assessment system for outcome-based undergraduate medical curriculum**

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Ruangsak Lertkhachonsuk, Faculty of Medicine, Chulalongkorn University, Pharmacology and Medical Education Unit, Bangkok, Thailand

Pongsak Wanakrairot, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

**Background:** Medical schools employing outcome-based education are required to explicitly state their curriculum outcomes. They are also obligated to establish the evidence of their graduates' attainment of curriculum outcomes. Therefore, it is imperative for the assessment in the outcome-based curriculum to be systematic, thorough and socially accountable.

**Summary of Work:** The ‘Hand-Head-Heart’ model has been used to illustrate the twelve outcomes of Chulalongkorn medical curriculum from 2002. Since then, we have gradually improved methods/instruments to assess our medical graduates. These include the strengthening of examination invigilation and peer assessment; the development of 3 standardised performance assessment forms and; portfolios. In 2012, the working group was established to reevaluate the assessment methods and instruments used in all 72 core courses. Data obtained were utilised to improve our assessment system.

**Summary of Results:** The 12 curriculum outcomes are modified with the addition of subcategories in 7 outcomes. Our new assessment system is classified into 4 domains: knowledge assessment, competency assessment, performance assessment, and assessment of students' assignments with 15 methods available for every course. The grid matching the assessment methods with 3 levels of recommendation for each outcome is established. The guideline for criterion-based standard settings for the 15 assessment methods is provided. Potential use of technology-enhanced assessment is under scrutiny for future development to reduce administrative errors, facilitate formative assessment, and promote students' profiling.

**Discussion and Conclusions:** We have been enhancing our outcome-based assessment program steadily. The development is an on-going process. Hopefully, we can proudly say that we have produced qualified medical graduates for the society.

**Take-home messages:** Outcome-based assessment is the fundamental step for the medical school to be socially accountable.
4FF POSTERS: Junior Doctor as Teacher
Location: South Hall, Level 0, MiCo

4FF1 (22809)
How effective is 6-module resident-as-teacher curriculum in preparing emergency medicine residents for their teaching role?

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Background: Over the past 30 years, recognizing the need and importance of training residents in teaching skills has resulted in several resident-as-teacher (RAT) programs so that Residents are required to be trained in, and evaluated on, their teaching skills.

Summary of Work: This research was a quasi-experimental study. In this survey, it was selected all 1st- and 2nd-year residents of emergency medicine. Residents (n=32) participated in an 8-hour Workshop conducted by medical educators. Residents’ evaluation was performed in two aspects, including self-assessment and evaluating by learners. Learners were all interns who were trained by these residents. Paired sample t-test was used to analyze the effect of RAT curriculum and workshop in improvement of residents’ teaching skills based on their self-evaluation. Mann–Whitney U test were used to identify significant differences between learners’ evaluation.

Summary of Results: Residents’ attitude and self-assessments about different aspects of their teaching ability was improved significantly after participating in the workshop (P=0.03). There is no significant difference between before and after workshop in evaluating by learners (P=0.07).

Discussion and Conclusions: In general, the medical residents who took part in the workshop regarded it was useful as a whole and measurable positive changes in their self-assessments about teaching abilities. We evaluated participants to identify if there was any change in their (teaching) behavior. Adjusting curriculum based on the clinical setting and creating opportunities to use educational skills could be effective methods to improve the quality of teaching by medical residents.

4FF2 (20552)
Students’ perception on their learning through resident-student peer teaching in a university-affiliated hospital in Northeast Thailand

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Background: Resident-student peer teaching is important for medical students’ learning. We aimed to examine students’ perception on resident-student teaching in a university-affiliated hospital.

Summary of Work: 36 final year clinical students were questioned about their perception on the level that they learned from residents in different aspects (knowledge, procedural and communication skills, evidence-based medicine (EBM), role model and ethics and professionalism) from residents in different disciplines. We examined the perceived extent of resident-student learning across different aspects and disciplines. We also examined the association between student’s sex, GPA, scheme track of recruitment and the number of residents with the perceived level of learning using Chi- Square Tests.

Summary of Results: Most students perceived that they learned much about knowledge, procedural skills, ethics and leadership from residents (64%, 70%, 73% and 61%), while a small proportion of students reported they learned significantly from residents about EBM, communication skills and role model (33%, 49% and 38%). Most students reported learning considerably from residents in Medicine, Pediatrics and OB-GYN, while only a small proportion of students reporting them learning much from residents in Surgery and Orthopedic particularly on knowledge and skill acquisition. The number of residents appeared to be related to the level of student’s learning. However, there was no significant association between sex, GPA, scheme track and residents-students learning (p>0.05).

Discussion and Conclusions: There was a difference in the level that students learned from residents in different disciplines. Residents should be encouraged to teach students more on EBM and communication skills as well as to act as a good role model.
4FF3 (19266)
Geriatric Medicine Residents-as-Teachers
Karen A. D’Silva*, University of Toronto, Medicine, Toronto, Canada
Dov Gandell, University of Toronto, Medicine, Toronto, Canada

**Background:** With the aging population, there is a growing need for excellence in Geriatric Medicine training. Sub-specialty residents often need to teach junior trainees about the relevant content of their field. Although the literature supports many positive outcomes for teaching residents how to teach, trials of interventions to improve geriatric medicine sub-specialty residents' teaching are absent. This study aims to improve geriatric medicine sub-specialty residents' teaching.

**Summary of Work:** A geriatric medicine sub-specialty resident-as-teacher needs assessment was completed. Based on these results, an efficient three-hour interactive seminar was developed using the Stanford Faculty Development Program's educational framework. Evaluation of this intervention was done by independent, standardized assessment of each resident’s videotaped teaching session before and after the intervention. Residents also completed before and after surveys about their own teaching and satisfaction with the seminar. It was hypothesized that an efficient three-hour interactive seminar would produce significant improvements in teaching scores.

**Summary of Results:** Needs assessment survey response rates for residents and faculty were 68% (17/25) and 67% (18/27) respectively. Results identified a perceived need and interest in learning specific teaching skills. Eight residents participated in the teaching intervention seminar. Survey results revealed all participating residents found the seminar useful. Five residents completed the pre-intervention videotaping. All post-intervention videotaping will be completed in March, 2014.

**Discussion and Conclusions:** A three-hour seminar providing a framework of teaching skills can improve geriatric medicine residents' teaching effectiveness. Teaching residents how to teach should be a part of geriatric medicine sub-specialty training curriculums.

4FF4 (22969)
The impact of introducing an online tutorial booking website ‘TuteMate’ to facilitate near-peer teaching between junior doctors and medical students
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Alistair Brown, The Royal Devon and Exeter NHS Foundation Trust, Exeter, United Kingdom
Emma O’Hare, The Royal Devon and Exeter NHS Foundation Trust, Exeter, United Kingdom
Alexander Harding, Exeter Medical School, Exeter, United Kingdom

**Background:** As junior doctors in a UK teaching hospital we found opportunities to teach medical students were limited.

**Summary of Work:** A survey of junior doctors and students (n = 87) revealed a universal interest in teaching, however, this was not matched by the amount of teaching being offered. The main barriers to teaching identified by trainees were lack of time and difficulty finding students to teach. Barriers identified by students included minimal time attached to one firm and trainees being too busy. To improve interactions between junior doctors and students, we launched an online tutorial booking system ‘TuteMate’. ‘TuteMate’ is a website where doctors offer teaching and students sign up to attend. Trainees can download feedback and a certificate as evidence of teaching.

**Summary of Results:** Four months after launching there are 111 users (42 doctors and 69 medical students), with 67 tutorials delivered to date. However, student demand for teaching has not yet been matched by the number of tutorials being offered. Trainees identified barriers to using ‘TuteMate’ as lack of time and not knowing what to teach.

**Discussion and Conclusions:** ‘TuteMate’ has increased teaching for students and provided opportunities for trainees to develop teaching skills. We have built relationships with student societies to run a lecture series, with guided content, that trainees can sign up to deliver. To increase engagement and ensure sustainability we elected a student representative. Introducing an online tutorial booking website has increased junior doctor teaching for medical students. We hope ‘TuteMate’ will generate a self-sustaining culture of juniors doctors teaching medical students.
4FF5 (21518)
A study to investigate student perceptions of near-peer teaching and its advantages when compared to more traditional senior-led teaching

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Chrishan D Gunasekera, UCL Medical School, Academic Centre for Medical Education, London, United Kingdom
Jonathan M King, Whittington Hospital, London, United Kingdom
Alison Sturrock, UCL Medical School, Academic Centre for Medical Education, London, United Kingdom

Background: Near-peer teaching is a useful tool within medical education. It is widely used within UK medical schools and involves recently qualified doctors imparting knowledge to medical students undertaking hospital placements.

Summary of Work: A near-peer led non-compulsory clinical examinations course was implemented, by junior doctors, for clinical medical students at University College London Medical School. The course was attended by 163 students (46% total year group) and consisted of 21 hours of teaching over 14 weeks, which included both lectures and small group work.

Feedback was obtained 5 weeks after the conclusion of the course via questionnaire.

Summary of Results: Qualitative feedback was obtained anonymously from 106 students (65% attendees). All students rated their learning experience and the usefulness of the course to be good or excellent. Student feedback was broken into several key themes, which demonstrated improved student confidence and better interaction during sessions when compared with registrar or consultant-led teaching. Students found junior doctor tutors to be more approachable than their more senior peers and found the course useful in preparation for their summative examinations.

Discussion and Conclusions: Student feedback demonstrates that recently qualified medical graduates can provide an effective environment in which to learn clinical examination skills. This teaching was well received and students found teachers more approachable thus aiding interaction. This student cohort felt the benefit of this teaching in addition to their usual curricular activity.

Take-home messages: Near-peer teaching is a useful method of imparting clinical skills to students and creating an environment conducive to learning.

4FF6 (21999)
Near-peer teaching by junior doctors enhances medical student confidence in clinical skills: Implications for undergraduate medical education

Ben Coombs*, Queen Elizabeth Hospital, Birmingham, United Kingdom
Victoria Smith, Queen Elizabeth Hospital, Birmingham, United Kingdom
James Winchester, Queen Elizabeth Hospital, Birmingham, United Kingdom
Daniel Wilkins, Queen Elizabeth Hospital, Birmingham, United Kingdom

Background: Junior doctors in the UK are encouraged by the General Medical Council to take an active role in teaching medical students. Most of this teaching, however, takes place on an informal basis and therefore there is an insufficient evidence base to support the role of junior doctors as medical educators.

Summary of Work: A faculty of junior doctors was recruited to prepare and run a curriculum of 10 short stations covering important skills used on a daily basis in their clinical practice. Final year medical students from the University of Birmingham volunteered to take part in one of five teaching sessions, run over consecutive weeks. Each student was issued a questionnaire which asked them to rate their confidence at performing clinical skills before and after the teaching session. Data was analysed using the Chi-Squared test. Students were also asked if they felt the teaching was valuable. Responses were given on a balanced five-point scale from “strongly agree” to “strongly disagree”.

Summary of Results: Provisional results are from five teaching sessions. Feedback was obtained from 182 out of 192 students. Students’ confidence increased following teaching from 48.4% to 89.0% positive responses (P <0.0001). All students found the session to be valuable.

Discussion and Conclusions: Small group, near-peer teaching increases medical students’ subjective confidence in clinical skills and students overwhelmingly agreed they find such sessions valuable. Further work is needed to assess the long-term effect of near-peer teaching on student confidence.

Take-home messages: Junior doctors are effective at small group clinical skills teaching and should be actively included in undergraduate medical education programs.
Residents’ experiences, perceptions, and competencies of Resident-as-Learner and Teacher (RaLT) in postgraduate medical education

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Sun Woo Lee*, Chungnam National University Hospital, Neuropsychiatry, Daejeon, Republic of South Korea
In-Seok Jang, Gyeongsang National University Hospital, Thoracic Surgery, Jin-Ju, Republic of South Korea
Unjong Choi, Wonkwang University, General Surgery, Iksan, Republic of South Korea
Hye Won Jang, Sungkyunkwan University School of Medicine, Social and Preventive Medicine, Republic of South Korea

Background: The residents’ teaching skill is important, because residents spend numerous hours on teaching patients, junior residents, and students. We investigate the current residents’ experience and perception of RaLT and try to develop competencies of RaLT.

Summary of Work: A questionnaire survey for a total of 1,038 residents was conducted between October and December 2013. The data was analyzed in terms of learning or teaching methods and topics what residents experienced, self-awareness of being as RaLT. Competencies were figured out based on the survey.

Summary of Results: The most common learning content was the hospital infection management. Residents learned from the junior faculty and senior resident most often. The most common teaching topics were the medical knowledge on diseases for the patients and their families, and clinical knowledge and skills for the students in ways of individual guidance and small group teaching. The ACCESS (Active learner, Clinical teacher, Curriculum developer, Educational scholar, Social communicator, Supervisor and leader) were drawn as competencies.

Discussion and Conclusions: This study revealed that teaching solidified and updated residents’ knowledge better than lecture attendance or self-study, and also that residents felt teaching uncomfortable because it required additional time and residency programs did not provide any teaching skills for residents.

Take-home messages: This is the first research on RaLT in Korea, which suggests the necessity of RaLT curriculum in residency program to improve educational outcomes.

Single Centre Experiences of Establishing a Junior-Doctor Led Near-Peer Revision Programme for Final Year Medical Students

Christopher M Jones, University of Birmingham, Birmingham, United Kingdom
Lucy Nell*, Queen Elizabeth Hospital Birmingham, Birmingham, United Kingdom
Daniel Wilkins, Queen Elizabeth Hospital Birmingham, Birmingham, United Kingdom

Background: Junior doctors (JDs) are increasingly recognised to provide effective practical hospital-based small-group teaching but little is known about their capacity to organise and deliver a theory-based programme.

Summary of Work: We sought to establish a junior-doctor led series of thirty theoretical revision lectures to be delivered to final year students over 23 evenings within the University of Birmingham during the 2013-2014 academic year. Each lasted for between 60 and 120 minutes and lecturers were briefed on a single presenting complaint to form the basis for each lecture. All were asked to use PowerPoint facilities, after which both their slides and an audio recording of the lecture was made available online.

Summary of Results: Attendance fell from a peak of 140 students to a nadir of approximately 50, from a total cohort of 450. The variable quality of JDs as lecturers presented challenges to ensuring consistent numbers attending lectures, with many final year students electing not to return after a subjectively ‘poor’ lecture. Peer review of lectures prior to delivery, the inclusion of case histories in lectures and specific advice on JD-led management evoked the strongest positive feedback.

Discussion and Conclusions: JD-led theoretical revision programmes for medical students are effective and popular amongst medical students. Schemes should establish rigorous peer-review systems for lectures to be delivered and should link theory to JDs’ practical experience.

Take-home messages: JDs involved in establishing theoretical teaching programmes for medical students need to utilize their experience to give theoretical teaching added context.
**4FF9 (20774)**  
*Foundation doctors as teachers: A questionnaire based study of the impact of an interactive workshop*

Rosalind A Jones, Health Education Kent, Surrey & Sussex, Brighton, United Kingdom  
**Tom Paterson**, Health Education Kent, Surrey & Sussex, Brighton, United Kingdom  
Elizabeth Cross, Health Education Kent, Surrey & Sussex, Brighton, United Kingdom  
Anna Cave, Health Education Kent, Surrey & Sussex, Brighton, United Kingdom

**Background:** Medical students receive a significant proportion of their teaching whilst on the wards with junior doctors, foundation doctors are frequently on the 'front-line' of this type of teaching but we recognise that little time is devoted to this role during undergraduate teaching. Health Education KSS (HEKSS) was keen to develop foundation teaching in this area and with the introduction of the 'Developing the clinical teacher' structured learning exercise we felt there was a role for a teaching workshop for foundation doctors.

**Summary of Work:** In conjunction with HEKSS, we developed an interactive workshop for foundation doctors with the aim of improving the quality of teaching given to medical students. We designed and ran 2 pilot workshops, asking the participants to complete pre- and post-course 'white-space' questionnaires. We were interested in what the participants had gained from attending this workshop and how they felt this would alter their teaching of medical students.

**Summary of Results:** Participants all felt they had gained from attending the workshop. The pre-course questionnaire indicated that participants lacked knowledge and confidence in teaching. Post-course the most commonly quoted things learnt were increased awareness of teaching opportunities and increased confidence for future teaching.

**Discussion and Conclusions:** We believe that this work shows that the interactive workshop format provides an effective and well received method for preparing foundation doctors for their role in teaching medical students.

**Take-home messages:** Foundation doctors are frequently 'front-line' teachers and gain benefit from the opportunity to develop their skills as clinical teachers through interactive facilitated learning.

**4FF10 (19313)**  
*Teaching human rights with focus on the right to health*

Linn Persson*, Sahlgrenska University Hospital, Gothenburg, Sweden  
Jonna Bernmalm, Sahlgrenska University Hospital, Gothenburg, Sweden  
Ulla Strandman, Sahlgrenska University Hospital, Gothenburg, Sweden  
Paulin Andréll, Sahlgrenska University Hospital, Gothenburg, Sweden  
Caterina Finizia, Sahlgrenska University Hospital, Gothenburg, Sweden

**Background:** Junior doctors at Sahlgrenska University Hospital in Gothenburg Sweden have the opportunity to organize educational days on subjects that they find important and/or lacking in their medical education. A subject that is both important and that doctors need to learn more about is human rights with focus on the right to health.

**Summary of Work:** A small group of junior doctors took a course in human rights with focus on the right to health. The idea to arrange an educational day for junior doctors thereafter emerged. The goal was to create an informative day using different teaching techniques (lectures, movies, exercises and group work) to promote learning and to improve junior doctors' knowledge about human rights and the right to health.

**Summary of Results:** The pedagogical methods used worked well. The educational day received positive feedback from the 28 junior doctors who attended and filled out a survey. The big majority thought that the value of the educational day for their profession as doctors was high or very high.

**Discussion and Conclusions:** Junior doctors can organize informative and pedagogical educational days for their peers and at the same time gain more knowledge themselves both about the subject and about teaching.

**Take-home messages:** Junior doctors can organize informative and pedagogical educational days for their peers.
**4FF11 (21520)**

**Perceptions of a Novel Junior Doctor-led Near-Peer Teaching Programme for Clinical Medical Students**

*Christopher M Jones*, University of Birmingham, Birmingham, United Kingdom
Samer Al-Ali, Queen Elizabeth Hospital Birmingham, Birmingham, United Kingdom
Lorna Ward, Queen Elizabeth Hospital Birmingham, Birmingham, United Kingdom

**Background:** The importance of junior doctors (JDs) as educators has been emphasised, yet there are currently few opportunities for JDs to gain supervised teaching experience.

**Summary of Work:** A novel JD-led near-peer teaching programme for third year medical students was established within a large UK university teaching hospital over an eight week period between September and November 2013. Students were each week allocated two or three topics and advised to contact a specific named doctor to deliver their teaching session. JDs were provided with significant flexibility in designing the delivery of their teaching session and all sessions were voluntary.

**Summary of Results:** Responses were received from 62% of medical students and 63% of JDs. The majority of students (88%) attended at least 50% of sessions available to them. All students and doctors sampled reported that they considered the teaching programme to be useful and 91% of JDs believed it positively impacted on their teaching ability. A majority (96%) of students believed the teaching sessions improved their practical examination skills, whereas only 36% agreed that the scheme improved their ability to form differential diagnoses or defend examination findings.

**Discussion and Conclusions:** Student-directed JD-led teaching is effective, although JD’s relative lack of experience may limit their ability to teach students to consider the consequences of their examination findings.

**Take-home messages:** JDs can provide an effective source of undergraduate teaching but students require teaching from senior physicians in order to address more complex issues relating to patient assessment and management.

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**4FF12 (21558)**

**A 2 Year Near-Peer Teaching Programme in Kent, UK: The Impact on Final-year Medical Students Preparing for Practical Examinations, and Comparison Between Academic Years**

*Adam Dennis*, King’s College Hospital, London, United Kingdom
Dilip Abraham, William Harvey Hospital, Ashford, United Kingdom
Oliver Adebayo, Queen Elizabeth the Queen Mother Hospital, Margate, United Kingdom
Sohel Samad, Queen Elizabeth the Queen Mother Hospital, Margate, United Kingdom

**Background:** Over 2 academic years, weekly bedside teaching was delivered to rotating cohorts of final-year medical students at a district general hospital. The programme was created by two of the authors in 2012, and its running was handed over across academic years between two pairs of junior doctors.

**Summary of Work:** Teaching was provided by junior doctors, focusing on clinical examination and presentation skills in preparation for practical examinations. Pre- and post-course questionnaires were completed by the students, Year 1 (2012-2013) and Year 2 (2013-2014), and the results were compared.

**Summary of Results:** 33 students (Year 1 n=23, Year 2 n=10) completed questionnaires using likert scale responses. In both years students felt more prepared for finals post-course, Year 1 (post-course mean 3.00/5.00 vs pre-course mean 2.80/5.00) and Year 2 (3.20/5.00 vs 2.80/5.00). Rating the impact of the course, in Year 1 73% of students felt the programme had improved their clinical skills, compared to 100% in Year 2. In Year 1 78% reported improved confidence in their findings compared to 80% in Year 2. In Year 1 73% felt more confident with presentation skills and 80% in Year 2.

**Discussion and Conclusions:** This follow-up builds on our previous work, that bedside tutoring is an effective method for providing clinical teaching and exam preparation to students. The effect is comparable between academic years.

**Take-home messages:** Near-peer teaching has a positive impact on preparing students for practical exams. Following a formal handover, the running of local teaching programmes can be effectively handed over between rotating groups of junior doctors.
ABSTRACT BOOK: SESSION 4
MONDAY 1 SEPTEMBER: 1400-1530

4GG POSTERS: Postgraduate Training
1
Location: South Hall, Level 0, MiCo

4GG1 (20784)
Development of the Japanese version of checklist for the handoff between emergency physician and hospitalist

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Yumiko Okubo, Tokyo Women’s Medical University, Department of Medical Education, Tokyo, Japan
Kiyotsugu Takuma, Kawasaki Municipal Hospital, Emergency Department, Kanagawa, Japan
Yuichi Takakuwa, Tokyo Women's Medical University, Department of Biochemistry, Tokyo, Japan
Toshimasa Yoshioka, Tokyo Women’s Medical University, Tokyo, Japan

Background: Communication errors are one cause of accident in medical practice. Proper communications between emergency physicians and hospitalists has been poorly studied.

Summary of Work: The purpose of this study is to develop the Japanese version of assessment tool of handoff and evaluate the validity using a simulated case of patient transfers from emergency department to inpatient care. Methods: A handoff assessment checklist using handoff mnemonics, based on I PASS the BATON; provided by TeamSTEPPS of AHRQ/DoD. The checklist consists of 32 items with 25 additional points, 7 deduction points. The checklist was applied to simulated handoffs with real case occurred in Emergency Department written by residents and hospitalists at a community teaching hospital. Using discourse analysis, two evaluators reviewed the handoffs using the check list. We also compared handoffs by residents before and after attending workshops to study essential principals of TeamSTEPPS.

Summary of Results: The checklist of the handoff assessment showed good interrater reliability (κ=0.82 and 0.63). Twelve residents attended the workshops significantly improved the score assessed by the check list (pre 19.4±1.1 post 21±1.3, p=0.003). Among the check list, the points of the items "urgency" and "safety" improved.

Discussion and Conclusions: The checklist is an useful tool to educate standardized handoff communication between emergency room and hospital ward.

Take-home messages: To improve the handoff communication the checklist can be a good educational tool.

4GG2 (20901)
Improve airway management performance by using Directly Observed Procedural Skills (DOPS) with combination of video-assisted feedback in postgraduate year dental residents

Wei-Te Hung*, Chung Shan Medical University Hospital, Center of Faculty Development, Taichung, Taiwan

Background: We designed a DOPS evaluation with combination of video-assisted feedback program to improve learning effectiveness of airway management of postgraduate year (PGY) dental residents.

Summary of Work: Nine quantitative items were listed on the DOPS evaluation sheet, six of them (self-protection, mask selection, chin lift, airway maintenance, oral airway insertion and after care) were related to the skill. Every participant had to receive the evaluation for three times (day1, day 7 and 6 month). For each evaluation, we video-taped the performance and we replayed, gave feedback right after self-evaluation about the performance of the resident. Paired-t-test was used to analyze the progress of the resident's performance. We also collected the data of learning effectiveness (1: the least helpful to 5: very helpful) of the program after the second time evaluation.

Summary of Results: Among 34 participating PGY dental residents (male: female=15:19, age: 27.6 ± 1.4 years), thirty of them had received 3 times of DOPS evaluation. All items showed significant improvement between the first and the second time of evaluation. The residents showed highly positive feedback of the program (4.1±0.5), high learning effectiveness (4.4±0.7) of the airway management skill and thought the program was very helpful for their clinical practice (4.2±0.7).

Discussion and Conclusions: The program could significantly improve the airway management skill of postgraduate year (PGY) dental residents. The residents showed a high learning effectiveness of the airway management skill and thought the program was a very helpful program for their clinical practice.
4GG3 (21094)
Do Not Attempt to Resuscitate (DNAR): Knowledge and misconceptions amongst junior doctors and their dilemma when implementing an order. Can we identify these issues and alter misconceptions?

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Fiona Crichton, NHS Lothian, Postgraduate Medical Education, Edinburgh, United Kingdom
Ian Stewart, NHS Lothian, Postgraduate Medical Education, Edinburgh, United Kingdom
Simon Edgar, NHS Lothian, Postgraduate Medical Education, Edinburgh, United Kingdom

Background: ‘Patients who are approaching the end of their life need high-quality treatment and care that support them to live as well as possible until they die, and to die with dignity’ (GMC, 2010), so how much do foundation doctors know about DNAR regulations?

Summary of Work: By identifying the issues leading to confusion surrounding a ‘do not attempt resuscitation’ order, these can be simulated in a safe environment, allowing the determination of misconceptions, and the analysis of the junior doctors’ thought processes and reasoning. We analysed, using McNemar’s test before and after simulation, the decisions made by the group of doctors after the patient arrests soon after a decision of DNAR was clearly communicated.

Summary of Results: 125 Foundation one doctors (FY1s) attended simulation teaching since the start of their career as doctors. The doctors are divided into 18 random groups (numbers varied between 4 and 12 doctors per group). After simulation, 17/18 groups agreed on the following (proportion increase of 0.89 (p value <0.00001)

- The DNAR decision was for the patient’s best interest in this situation
- Having understood that clear communication of the decision: written or verbal is sufficient to execute the DNAR order (Scottish Gov, 2010)
- There is a difference between DNAR and withdrawal of treatment

Discussion and Conclusions: In view of the clear lack of understanding regarding such an important issue, simulation is the safe and logical alternative to deliver knowledge about DNAR.

Take-home messages: Sessions ran in the Lothian area suggests the effectiveness of simulation in changing the junior doctors’ mind-set surrounding difficult ethical issues.

4GG4 (22260)
Nursing Evaluations of Residents in the Emergency Department

Dana Liu, University of Michigan Medical School, Department of Emergency Medicine, Ann Arbor, United States
Kara Baker, University of Michigan Medical School, Department of Emergency Medicine, Ann Arbor, United States
Ashley Pavlic, University of Michigan Medical School, Department of Emergency Medicine, Ann Arbor, MI, United States
Tina Martinek, University of Michigan, Department of Emergency Medicine, United States
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Background: Feedback is a valuable aspect of training for residents. Conventionally, feedback is obtained from a resident’s attending physician. However, residents work in close contact with other members of the care team, most prominently the nursing staff. Nurses may have more opportunity to directly observe residents and may value different behaviors. Therefore, nurses are situated to provide unique feedback on resident performance. The objective is to determine how nurses evaluate resident behavior.

Summary of Work: This was a retrospective qualitative study using 210 nursing evaluations submitted July 2010, October 2013. It was IRB exempt. The comments were coded using grounded theory and was continued until saturation was reached.

Summary of Results: Nurses evaluated residents favorably. Of the comments, 50% included positive comments, 80% were actionable. The comments were coded into 9 categories. The most common positive categories were kind/nice, communication with nurses, and team player. The most common negative categories were poor communication with nurses, efficiency, communication with patient, and clinical judgment. For example, “It is very difficult to get in touch with him regarding questions and requests.” Another category was respect an example was “very arrogant, speaks down to people.”

Discussion and Conclusions: Our data indicates that nurses highly value kindness and communication with nurses. These two aspects of interacting in the health care setting may not be highlighted in conventional attending provider feedback, yet they are clearly valued by other members of the care team. Residents who can these may have better interactions with the team and be able to provide better patient care.

Take-home messages: Nurse highly value that residents have good relationships and communication with nurses.
4GG5 (20609)
The Reflective Learning of Gender Concerns in Postgraduate Year-One Emergency Medicine Training

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Background: Gender inequality refers to the disparate treatment or perceptions of individuals based on their gender. Women’s reproductive capacities cause them to have “particular needs” for health care. Accordingly, the gender differences in health are inevitable and constantly present. To promote gender equity in health care, developing critical thinking, self-awareness, and analytical skills concerning gender-related topics is crucial for clinical teachers and learners in clinical settings.

Summary of Work: The e-portfolios of all the postgraduate year-one (PGY1) residents were reviewed. Gender and health is the critical topic addressed in the 1-month emergency medicine (EM) training curriculum. The PGY1 residents recorded their feelings on experiencing a clinical encounter with gender concerns in their e-portfolio, including the scene, addressed topic, discussion, strategy, and plan. In addition, they received feedback from the clinical teachers.

Summary of Results: Most gender concerns were related to female patients in ED. The gender concerns most frequently encountered by the residents are listed as follows: sexual harassment (22.8%), domestic violence (21.8%), privacy (14.0%), gender physiology (11.3%), family authority (7.0%), sex-role stereotypes (5.0%), violence (2.3%), sexual assault (2.3%) and conflicts (2.3%). All PGY1 residents provided perceptions, strategies, and amendments.

Discussion and Conclusions: The results indicate that the PGY1 residents believed that gender concerns involve sexual harassment, domestic violence, privacy, gender physiology, and family authority in most EM encounters. Experiencing more contextualised gender concerns in different clinical settings will be helpful for junior residents to establish gender equality in health.

Take-home messages: The reflective learning of contextualised gender concerns in ED will be helpful for establishing and maintaining gender equality in health.
4GG7 (19066)
What comments do anaesthetic consultants make in an online trainee assessment tool?

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**Background:** Prior to a major revision of the Training Curriculum in 2013, assessment of Australian anaesthetic trainees’ performance was based on a series of six-monthly In-Training Assessments (ITAs). The EWRAP electronic assessment tool was developed at the Alfred Hospital to facilitate frequent assessment of trainees by consultants, and to encourage a more reliable end-of-term ITA process. This study aimed to explore the nature of comments made by anaesthetic consultants in the assessment of trainees in the workplace using the EWRAP tool.

**Summary of Work:** An interpretive, qualitative approach was used to conduct a thematic analysis of the free text comments in the EWRAP database. After obtaining ethical approval and consent from the head of department, 2742 comments (made during a period from May 2008 to December 2011) were anonymised and analysed.

Each comment was assessed to be positive, negative, equivocal or neutral in tone. Thematic analysis of the comments then proceeded with the coding of the comments using a constant comparison technique to identify and modify emerging categories until a point of data saturation was reached, and no further themes were felt likely to emerge.

**Summary of Results:** Of 1000 consecutive comments analyzed, 750 were found to be positive, 34 negative, 136 equivocal, and 80 neutral. Five separate themes were identified within the comments, each with a number of subthemes: “Evaluating performance in EWRAP comments”, “use of comparative standards in evaluating performance”, “assessing attitude and personality traits”, “establishing the context of the assessment”, and “training and career development”.

**Discussion and Conclusions:** The free-text comments made on the EWRAP assessments add considerably to the depth of the assessment process, and contribute to a global, meaningful and context-specific evaluation of the trainee’s performance.

**Take-home messages:** Free-text comments may reveal aspects of performance that are not identified in other parts of an assessment process.

4GG8 (19142)
Use of web 2.0 technology to facilitate networked postgraduate learning in anaesthesia & critical care

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**Background:** The Fellowship of the Royal College of Anaesthetists (FRCA) is a postgraduate qualification required by all British trained anaesthetists. The multiple written and oral examination components of the FRCA present a significant hurdle in training, with a typical pass rate of 50-60%.

**Summary of Work:** We describe an innovative use of web 2.0 technology to facilitate peer-to-peer postgraduate learning in anaesthesia. A group of anaesthetists in training used the principles of constructive alignment (Biggs, 1999) to focus their learning toward published FRCA learning outcomes (Royal College of Anaesthetists, 2010). Using an open-source online scheduling system, together with a ‘freemium’ peer-to-peer web-based audiovisual conferencing programme, the group was able to generate a collaborative online community of learners.

**Summary of Results:** Learners were free to schedule meetings electronically with peers at any convenient time or location. During online meetings simulated oral examination between learners took place based on the learning topics of the FRCA curriculum.

**Discussion and Conclusions:** The restrictive working hours brought about by the European Working Time Directive (Directive 2003/88/EC), and the geographical dispersion of British post-graduate trainees brought about by the rotational nature of British training programmes, make generating and sustaining a sense of community among postgraduate medical learners more challenging than previously. These limitations can be overcome by the use of new online technologies.

**Take-home messages:** Novel web-based software can help learners build educational groups in order to maximise training opportunities. Communities of peer-to-peer learners can constructively align their learning with existing curricula by using these technologies.
**4GG9 (20113)**

**Development of a Novel Education Program to Enhance Rural Emergency Medicine Care, SEME**

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**Background:** Emergency Medicine (EM) is a core component of Family Medicine (FM) training programs in Canada. The majority of MDs working in Canadian EDs have no specialized EM training. The challenge of equipping family physicians (FPs) to work in rural EM environments lacking specialist support is believed to contribute to chronic physician shortages.

**Summary of Work:** The SEME curriculum was formulated using the Canadian College of Family Practice-EM (CCFP(EM) list of national competencies, and a survey of a convenience sample of FPs. The program is described, as well as the preliminary evaluation results.

**Summary of Results:** To date, SEME has enrolled 4 cohorts (40 individual trainees). The academic program consists of 12 seminars, 4 simulation sessions, 4 procedural workshops and 65 e-learning modules. SEME includes 8 weeks of EM training, with up to 4 weeks of subspecialty electives (e.g., ICU, anesthesia). Course evaluation and follow-up surveys post course showed that all participants felt the program met their expectations (enhanced clinical skills, knowledge base, and confidence to work in rural settings). Prior to SEME, less than 30% expressed “any” confidence in practicing EM in rural settings. 100% felt confident following graduation with the majority working in rural communities.

**Discussion and Conclusions:** We have successfully developed a CME program to enhance FPs skills and confidence to provide emergency medicine care in rural settings. Evaluation of this training on physician practice behaviour is ongoing.

**Take-home messages:** Development of novel educational strategies such as the SEME program can help with ongoing human resource challenges for healthcare provision.

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**4GG10 (20058)**

**Chirurgia minor**

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**Background:** The surgical practice during the internship is a time of uncertainty for many doctors where they, even though many are well versed in the theoretical knowledge, often feel they lack the necessary practical know-how for many simple surgical procedures which you most certainly encounter during your internship. The aim of our project was to prepare a brief summary booklet for the interns during their surgical practice and during their outpatient clinic practice. It is a quick reference guide containing three necessary areas: local anesthesia, sutures and infection prophylaxis. The idea was to keep it simple and not to describe basic- or advanced suture techniques. This booklet assumes that you already have a fairly good knowledge of the basic techniques.

**Summary of Work:** We compiled facts from our recommended surgical literature, knowledge we have from the basic training and from discussing the three areas stated above with the resident physicians in our surgical clinic.

**Summary of Results:** The result was a concise, pocket sized, quick reference guide, that all interns easily can carry with themselves. It is brief and kept simple, with a list of what you should consider when suturing (e.g what thread to use, local anesthetic doses & infection prophylaxis). Due to the simpleness of the booklet we’ve chosen to include only the essentials and to not include references, resources or discussions.

**Discussion and Conclusions:** Our intern colleagues will receive an easily-oriented, summarized booklet that addresses these three necessary areas that we so often encounter during our surgical emergency hours and in the outpatient clinic practice.
Surgical Prep Camp: A Novel Educational Program for First-year Residents

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Background: In July 2013, the University of Toronto launched a new annual simulation-based program, Surgical Prep Camp (SPC), that aims to prepare first-year surgical trainees for their residency. The course is designed to reflect CanMEDS outlines and it is built upon the success of its award-winning predecessor, the Toronto Orthopaedic Boot Camp, by extending its principles to all surgical specialties.

Summary of Work: All first-year surgical trainees participate in SPC which takes place at the onset of residency. The Surgical Prep Camp focuses on core skills essential for all surgical residents. For two weeks, residents from all specialities practice suturing, central line insertion, surgical airway and other fundamental skills. Following this phase is an option for speciality-specific skills training for up to two additional weeks. Upon the completion of Surgical Prep Camp, all residents participate in an OSATS evaluation for proficiency assessment.

Summary of Results: We share out experiences with the inaugural implementation of SPC. Skills examination performance results revealed normalised grand mean total checklist scores of 0.85 (0.15). Two tasks proved to be particularly challenging. A retention test is scheduled to determine how well the skills are maintained. We also present detailed feedback from our residents which will offer insight into the program’s execution.

Discussion and Conclusions: SPC is supported by the Department of Surgery and is mandatory for all first-year residents. With the ultimate goal of enhancing patient safety and producing more competent surgeons, Surgical Prep Camp provides new trainees with a sound foundation upon which they can build their technical and clinical skills.

Take-home messages: Early evidence suggests that simulation-based programs can have a profound positive impact on residency training across all specialties. We believe that more widespread adoption programs like Surgical Prep Camp will follow, helping to ensure that our future surgeons are better prepared to face the challenges that lie ahead.
4GG13 (18530)
The Trainee’s Operative Experiences for General Surgery in Thailand

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**Background:** In Thailand, each trainee in general surgery is requested to have experiences of 100 major operative procedures as an operator and 400 operative procedures as an assistant during 4 years. Many major procedures were recommended in the course syllabus, but some trainees seemed to select easier cases to operate, resulting in insufficient experiences as a general surgeon.

**Summary of Work:** An electronic logbook program was implemented since the academic year 2006. In this study, only the data of the trainees who started their training from the academic years 2008 and 2009 were analyzed, because they have just finished their training on the academic years 2011 and 2012.

**Summary of Results:** The electronic operative records of 162 trainees were analyzed. By average, each trainee operated 257 procedures as a chief operator (required 100), and assisted 482 procedures (required 400) during 4 years training. As an operator, the first procedure was appendectomy, followed by inguinal hernia operation, and upper GI scopy. As an assistant, the first procedure was laparoscopic cholecystectomy, followed by median sternotomy and inguinal hernia operation. Among 15 essential procedure groups, the average number of performance per trainee was over the minimal requirement for almost all procedures, except thyroidectomy and liver surgery.

**Discussion and Conclusions:** The electronic logbook operative records program allowed analyzing the trainees’ operative experiences much more accurate and easier than the written logbook system. All trainees had operative experiences more than the eligibility criteria.

**Take-home messages:** Electronic logbook, electronic operative record, essential procedure, resident’s operative experience, trainee’s operative experience.

4GG14 (20954)
Contemporary UK Higher Surgical Training and 2013 JCST Curriculum targets: Double deanery doubt

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Elizabeth Elsey, Nottingham City Hospital, Nottingham, United Kingdom
Tamsin Boyce, University Hospital of Wales, Cardiff, United Kingdom
James Catton
Wyn Lewis

**Background:** UK Higher Surgical Training (HST) has changed dramatically over the past decade, with competency based training and repeated appraisal producing increasing amounts of electronic documentation. Historically, no quantitative standards existed for the award of CCT (Certificate of Completion of Training). The 2013 JCST (Joint Committee on Surgical Training) curriculum published indicative numbers of operations, publications and presentations that must be achieved to gain a CCT in General Surgery.

**Summary of Work:** The aim of this study was to determine whether these targets are achievable within contemporary UK HST programmes. All trainees (n=91) appointed to substantive General Surgical ST3 posts in two UK Deaneries since 2007 were identified and their online portfolios scrutinised, with specific reference to target numbers.

**Summary of Results:** 556 6-month posts were analysed. No statistically significant differences emerged between the two Deaneries in terms of total operative numbers. Median operative caseload per 6 month post (range, JCST target) is shown below:
- Total cases: 137 (3-435, 134)
- Emergency laparotomy: 7 (0-40, 8.40)
- Inguinal hernia: 5 (0-85, 5)
- Cholecystectomy: 4 (0-76, 4.2)
- Appendicectomy: 10 (0-40, 6.7)
- Hartmann’s: 1 (0-13, 0.4)

Median number of peer-reviewed publications was 12 (0-67) and presentations at national level or above 7 (0-47), far exceeding the JCST requirements of 3.

**Discussion and Conclusions:** Due to the wealth of data now recorded online, for the first time HST posts can be accurately profiled and benchmarked.

**Take-home messages:** A significant number of trainees may be unable to meet standards for CCT within the constraints of current UK HST.
4GG15 (20953)
Developing and testing of a basic Train the Trainer (TTT) concept for operative medicine

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Background: Specialty training in many European countries lacks systematic curricula as well as pedagogical support for the educating consultants. Two teams from the University of Applied Sciences (HTWK) in Leipzig, Germany, and the Jesús Usón Minimally Invasive Surgery Centre (JUMISC) in Cáceres, Spain, are working together on the development and testing of a concept concerning basic training of didactical competencies for consultants.

Summary of Work: Seventeen partially standardized interviews with consultants in the field of LRO and Orthopedics in Spain and Germany were conducted and analyzed, inquiring the supporting and impeding factors in contemporary training as well as a detailed needs analysis. The results were used for the design of a two-day didactical training course. The pilot course was held in 09/2013 with 3 participants in Leipzig, the next one in Cáceres with 4 participants. About 4 weeks after the TTT, workshops for residents of each specialty were conducted, with the trained consultants acting as trainers. They were observed and evaluated by the project staff and their participants. More courses in Germany and Spain are about to come.

Summary of Results: The pre-post-evaluation shows slight improvements or constance of the didactical competencies of the trainers, but no significances (small sample). All participants of the workshops reached their learning goals and rated the trainers as very good or good. The detailed results are shown in diagrams. There will be more output until AMEE 2014.

Take-home messages: Basic TTT courses are a tried and tested method to make medical trainers aware of their pedagogical attitudes and their didactical skills and to develop those further. TTT can support a basic and needed certainty in the learning-teaching-processes of specialty training.

4GG16 (22667)
Delivery of an e-Learning course aligned to the curriculum for vascular surgery training in the UK.

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A Tambryaja, United Kingdom
OJ Garden, United Kingdom

Background: The University of Edinburgh developed the ChM in Vascular and Endovascular Surgery to coincide with the launch of Vascular Surgery as a new surgical specialty in the UK. The syllabus has been aligned with the UK Intercollegiate Surgical Curriculum for vascular surgery which provides the framework for systematic training to consultant level in the UK.

Summary of Work: This part-time online distance learning programme is designed to support advanced surgical trainees in their preparation for professional exit exams and upcoming consultancy responsibilities. In the first year of the programme, compulsory core modules have been designed to cover the basic elements of the specialty. Modules are delivered through a clinical problem-based approach and utilise asynchronous discussion boards in order to cover technical skills and procedures relevant to the cases as well as core knowledge and clinical skills. In the second year, modules allow students to explore research and teaching methodologies enabling them to analyse published evidence and enhance their interactive and written clinical communication skills. Students are also given the opportunity to undertake a surgical research project which may facilitate a future research active career. The portfolio-based learning aspect of this programme encourages students to engage with the process of reflection and critical self-awareness by documenting their reflective learning from experiences on the programme and in the workplace.

Discussion and Conclusions: The programme provides the opportunity for surgical trainees to study topics relevant to the new vascular surgery specialty, and supports learning for the Fellowship of the Royal College of Surgeons (FRCS) examinations.
4HH1 (20334)
Reflective Professional Development: What Do Undergraduates Experience?

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Background: Medical education during the undergraduate curriculum is partially focused towards professional attitudes. How do students deal with this in a Rehabilitation Medicine (RM) outpatient clinic?

Summary of Work: Study of reflective professional development during a first patient encounter by 2nd year medical students. 6 RM patients with postoperative M. Dupuytren treatment were involved. 18 2nd year medical students and a consultant supervisor reviewed their performance. The students interviewed outpatient RM patients individually during 30 minutes sessions. Afterwards a group session of 15 minutes was held to exchange impressions. The reflective assignment notes made by the students were evaluated by the supervisor. In a final group session of 60 minutes, exchange of experiences was performed guided by the clinician.

Summary of Results: All students experienced a real doctor learning environment. The patient-student encounter was informative and showed active involvement of the student during the session. It affirmed the students in their choice to become a medical doctor. ‘It felt like I was allowed to be a medical doctor’.

Discussion and Conclusions: Medical students are to be exposed to real patients contacts with proper senior guidance of clinicians. A first exposure to clinical activities in the RM environment is ideal. Take-home messages: Outpatient RM is a good teaching environment for medical students during their first patient encounter.

4HH2 (20346)
Evaluation of clinical supervision of medical students in early professional contact at Sahlgrenska University hospital

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Caterina Finizia, University of Gothenburg, Sweden

Background: The medical students at the Sahlgrenska academy in Gothenburg have since 2001 undertaken the course “early professional contact” (EPC) during the first two years of their education. The supervising clinicians include doctors in different stages of their medical career that have taken an introductory course. Interns at the Sahlgrenska University hospital have the possibility of volunteering as supervisors. Our aim was to identify strengths and weaknesses in the clinical supervision of EPC students from the students’ and supervisors’ perspectives.

Summary of Work: The students taking the course were divided into groups of four and each group got their specific supervisors. They met for three whole days and the supervision took place at various clinical wards. Feedback from supervisors and two groups of students was obtained upon completion of the course, through interviews and questionnaires. Focus was put on what in the supervision that they were especially happy about and what they thought needed improvement. Supervisors were also questioned specifically about the introductory course.

Summary of Results: Students mainly had positive experiences and were generally happy about their supervision. Some common points stood out as extra positive for the students. Examples of these include getting structured information about the daily planning, being able to speak to their own patients and having more than one supervisor. Negative experiences included practical issues such as lacking equipment or information, but also temporary supervision by doctors not trained to supervise EPC students. The questioning of student supervisors rendered additional helpful information.

Discussion and Conclusions: Several important factors for a successful supervision were identified, and may be of help for clinicians involved in future supervision of EPC students.
**4HH3 (21252)**
Monitors help teaching in pediatrics: Does it work?

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**Background:** Discipline “Pediatrics I”, part of Universidade Federal de Ciências da Saúde de Porto Alegre medical school grade, is characterized by traditional lessons based on expositive classes and teachers’ guidance, therefore using simple pedagogic tools.

**Summary of Work:** This study evaluates complementary methodologies and the role of interactions between students in the learning process. Monitors have organized five activities for undergraduate students on “Pediatrics I” discipline. Students and teachers answered a survey about those activities. Each one of 56 students has given a rating between 0-10 to subjects and methodologies adopted.

**Summary of Results:** Greater averages were given to breast feeding and new born physical examination subjects (9.38 ± 1.11) and to practical supervision methodology (9.28 ± 1.12). As a positive feature we highlight that 37.8% underlined that the proposed subjects complemented the discipline. Also teachers have considered breast feeding and new born physical examination as more relevant subjects (average 10).

**Discussion and Conclusions:** The importance of extracurricular activities, as well as the need to reformulate the teaching of Pediatrics, has been the subject of research and scientific publications. These reports indicate the contribution of different experiences in medical training, aiming to complement (not replace) the formal curriculum.

Conclusions: This educational experiment shows that alternative methodologies and subjects have great potential in enlarging students’ and monitors’ comprehension on the basic Pediatrics learning process, also assisting in the training of future teachers.

**Take-home messages:** Alternative methodologies and subjects, as well as interactions between students on the learning process, should be encouraged in medical school.

**4HH4 (21324)**
Cognitive apprenticeship at rotation at mental health care centers

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**Background:** At the Medical School, University of Copenhagen, Denmark, clinical training in psychiatry encompasses 5 weeks rotation at a mental health care center a year before graduation. In this period the students learn, by apprenticeship and more formal teaching, to carry out a mental examination, and to recognize and treat the most common disorders. Due to rise in student numbers and critical student evaluations, students are introduced to using iPads as a video tool for filming and illustrating points at supervision sessions. This to improve the clinical training in psychiatry hence improving the students understanding of the specialty and their competence in the mental examination.

**Summary of Work:** Six groups of students are instructed in how to use iPads to make videos and how to choose bits from their videos to show to the doctor for supervision. Doctors are participating in a workshop to learn how to give feedback when using videos. Qualitative methods are used to investigate how iPads work as a learning tool and how students think about the psychiatric specialty. Data analyses is based on theory of situated learning and the model of cognitive apprenticeship.

**Summary of Results:** The analyses are ongoing and the preliminary findings seem to challenge the logic of the model of cognitive apprenticeship and the understanding of situated learning.

**Discussion and Conclusions:** No conclusion yet. Discussion: Is situated learning and the model of cognitive apprenticeship, the right way to understand learning situations during 5 weeks rotation at a mental health care center?
**4HH5 (21370)**  
**Can we improve self-perceived ability in pre-hospital care?**

*R J Brogan*, NHS Lanarkshire, Medical Education, Hairmyers Hospital, East Kilbride, United Kingdom  
*C Paton*, NHS Lanarkshire, Medical Education, Kiklands Hospital, Bothwell, United Kingdom

**Background:** Paragraph 26 in GMC’s Good Medical Practice Guide states “You must offer help if emergencies arise in clinical settings or in the community, taking account of your own safety, your competence and the availability of other options for care.” (GMC, 2013) This means that doctors have a strong ethical duty to act within the boundaries of their capabilities in a potentially challenging pre-hospital environment. Although UK medical schools do now give emergency medicine experience as a result of Tomorrows Doctors 2009 (GMC, 2009), they are not required to give specific pre-hospital medicine training.

**Summary of Work:** At NHS Lanarkshire, we have developed ‘First On Scene’, a one-day course aimed at providing non-acute senior physicians with the skills to offer medical assistance in the pre-hospital setting to deal with medical emergencies and trauma related injuries. Teaching involves mini-lectures, inquisitive enquiry, practical stations, demonstration and simulation by a multidisciplinary team including the fire service, ambulance service and consultants from varying backgrounds all with relevant pre-hospital expertise.

**Summary of Results:** Work in progress. Course is running on the 3rd April 2014.

**Discussion and Conclusions:** We hope to show that this is a viable way to increase self-perceived ability of participants with no previous experience in pre-hospital medicine, that they retain these skills after 6 months as described by Wisborg (2008) and that they will be more likely to offer assistance in a pre-hospital emergency (Oliver 2013).

**Take-home messages:** This one-day course is a viable option to give non-acute medics the skills to cope in the pre-hospital environment until help arrives and may also be an option to role out at an undergraduate level to meet paragraph 26 in GMC’s good medical practice guidelines as described above.

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**4HH6 (20230)**  
**Comparing the best learning methods of neonatal chest x-ray interpretation within a limited time by 5th year medical students**

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**Background:** The 5th year medical students have to complete 4 weeks of pediatrics rotation but they have only one week for learning neonatology. However, the problems of chest x-ray interpretation were found. This study aims to compare learning methods that support with capability of neonatal chest x-ray interpretation in the context of time-limited.

**Summary of Work:** The study was performed in 5th year medical 29 students in Medical Education Center Chiangrai Prachanukroh Hospital. Students were divided into three groups. Group A was assigned for lecture-based learning of neonatal chest x-ray interpretation. Group B was assigned to follow ward round with neonatologist. Group C was given instruction files for self-study. The students were evaluated twice times for 12 chest x-ray questions on the second week and the end of pediatrics rotation period.

**Summary of Results:** First test; mean scores were 5.2, 4.7 and 5.5 (group A, B, C respectively), $F= 7.93$ ($p=0.002$). Second test; mean scores were 5.2, 5.5 and 7.6 (group A, B, C respectively), $F= 7.802$ ($p=0.002$). The Post Hoc Test comparison was found that group A with group C was statistically significant ($p=0.033,0.004$ first and second test respectively) as same as in group B comparing with group C ($p=0.003,0.018$ respectively). In contrast, between group A and B were not significantly different ($p=0.544,0.878$ respectively).

**Discussion and Conclusions:** Self-study learning has the highest mean score compared with the other groups. Students can study comprehensively and gain precise recognition in relevant subjects.

**Take-home messages:** Self-study with instruction file is the appropriate learning method for the time-limited learning environment.
ABSTRACT BOOK: SESSION 4
MONDAY 1 SEPTEMBER: 1400-1530

4HH7 (20979)
Which images do medical students draw to discuss their early clinical experience, in reflection meetings?

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Background: In 2010, a First Approach to the Patient (FAP) mandatory course (40 h) was developed at S. Paolo Teaching Hospital. It includes a 2-week nursing attachment, aimed at making first year students empathize with patients, observe healthcare teams and describe and deal with feelings accompanying their early clinical experience. After it, students attend reflection meetings, managed by a doctor and a pedagogist. They have to discuss in small groups their clinical experience and create a poster, which is later presented to the class, focusing on the patient’s experience, the healthcare team and the students’ emotions.

Summary of Work: From 2010, 400 students have elaborated 60 posters on their early clinical experience. They were analyzed by 2 researchers and divided into two categories: schemes and images.

Summary of Results: Forty-eight% of the students’ posters were schemes. Images were used to represent their experience in 52% of the posters, and were about: growth (trees), connection (bridge, path), exchange (cell, neurons), circulation (hearts), injection (syringe), balance (pair of scales), movement/raise (clouds, balloons, butterflies), ambivalence (sun/moon). White coats/medical doctors are also represented, but often without faces.

Discussion and Conclusions: When reflecting on their early clinical contact, students can use schemes, but they can be very creative in producing images to express and share their experience. Teachers’ questions on those images can help students to deepen the meaning of their experience. Images/metaphors allow them to present emotions that sometimes elude linguistic description.

Take-home messages: Drawing images can be an useful strategy to help students reflect on their early clinical experience and stimulate the debate.

4HH8 (20992)
Outcome-based, self-directed learning in clerkship improved students’ self-competencies on the clinical performance

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Background: Clinical clerkship provides students’ learning on patient management and basic skills in the real-world problem. We recently changed clinical clerkship from teacher-directed, discipline-specific clerkship to outcome-based, self-directed clerkship.

Summary of Work: To examine student perceptions and effects of self-directed clerkship, we assessed self-competencies related to outcomes measured by survey-based evaluations of the clerkship. A serial survey of 123 junior medical students at a medical school was conducted in 2013. Students evaluated their self-competencies on course evaluation form with 1-5 Likert scales.

Summary of Results: Overall competencies and competencies on 6 clinical outcomes (history taking, physical examinations, clinical reasoning, interpretation of routine laboratory test, patients management, self-directed learning) were evaluated. Average score of overall competencies were higher in students with self-directed clerkship than with teacher-directed clerkship. Self-directed learning in clerkship improved self-competencies on all 6 clinical outcomes after completing the clerkship.

Discussion and Conclusions: Self-directed learning in clerkship promotes students’ motivation and improved self-competencies on the clinical performance.
**4HH9 (20142)**

A study to explore the correlation between the number of students per health care team and students' confidence when performing practical clinical skills

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**Background:** The Swedish Medical Student Association has conducted student surveys since the late 1980’s, focusing a student perspective on the quality of medical education in Sweden.

**Summary of Work:** Every other year, the Swedish Medical Students Association has compiled results of student questionnaires and data from 2004, 2006, 2008 and 2012 has been used to illustrate medical students confidence when performing practical skills, such as connecting an ECG and also the correlation between the number of students in a health care team and assessed practical knowledge.

**Summary of Results:** The results show an alarming downward trend in student confidence in practical skills, and a distinct correlation between assessed knowledge of practical skills and the number of students per health care team. Swedish medical education has expanded greatly in the past 15 years and it is plausible that this can explain the results.

**Discussion and Conclusions:** It appears that ideally, a health care team should contain no more than two medical students and it is important to further analyze why significantly fewer students feel confident in 2012 compared to in 2004, 2006 and 2008.

**Take-home messages:** The study has shown a decline in student confidence when performing practical medical skills. When there are more than 2 students per health care team, students assess that they learn expected clinical skills to a lesser extent.

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**4HH10 (21755)**

Difference in teaching methods and their satisfaction/dissatisfaction levels during 2-week Anesthesia rotation in 5th year medical students

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**Background:** Difference in teaching methods can influence learners' satisfaction. Since 2009, our department of Anesthesia at Faculty of Medicine, Siriraj Hospital, Mahidol University has gradually transformed undergraduates’ classroom from 100% traditional lecture-based style into minimal lectures with more learner-engagement methods. The investigators would like to study the impact of different teaching methods on learners’ satisfaction.

**Summary of Work:** At the end of 2 weeks rotation, 5th year medical students of first half of year 2013 class were asked to anonymously complete the questionnaires about their satisfaction level as overall and 8 teaching methods; 1) skill lab 2) clinical attachment at GI endoscopy suite 3) teaching of basic skills in anesthesia in OR 4) bedside teaching in OR 5) small group discussion 6) individual case presentation 7) simulation and 8) lecture. They were asked to choose their 3 most satisfied and unsatisfied teaching methods in ranking.

**Summary of Results:** 150 questionnaires (100%) were returned and analyzed. Overall satisfaction level was 7.4/10. The 3 most satisfied teaching methods were simulation (23%), teaching of basic skills in anesthesia in OR (21%), and bedside teaching in OR (15%). The 3 most unsatisfied methods were individual case presentation (30%), small group discussion (29%), and lecture (20.5%). However, 110/150 students put more than 3 ranks in each categories. All students reported their satisfied teaching methods but 57/150 students did not report any unsatisfied methods.

**Discussion and Conclusions:** Overall satisfaction rate was quite high. The students tended to like hands on activities in real or simulated patients more than classroom based activities. Case presentation type of teaching may need some revision.

**Take-home messages:** Hands on activities during anesthesia rotation produced higher satisfaction than the classroom activities.
4HH11 (20465)
Factors Related to Satisfaction with the Clinical Training among Dental Hygiene Students

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Background: Many universities and technical colleges conduct class evaluation surveys among students on a regular basis. Hiroshima University has such a survey, which is already standardised. However, class evaluations are rarely conducted for clinical training that emphasises vocational education. Therefore, we decided to investigate what kinds of clinical training dental hygiene students look for.

Summary of Work: Most of the questions included in the standardised class evaluation rate the instructor’s teaching skills. Therefore, we developed a questionnaire specific to clinical training by adding questions such as ‘relationship with the patient’ to those rating instructor teaching skills and asked dental hygiene students to respond.

Summary of Results: Just like instructor teaching skills, ‘sense of accomplishment’ had considerable impact on satisfaction with clinical training. Instructor teaching skills are definitely required in a typical classroom. In practical training, preparation of equipment and machinery is typically necessary as part of these teaching skills. However, it is quite natural that the sense of accomplishment gained through work also affects satisfaction in vocational training.

Discussion and Conclusions: Instructor teaching skills are important; however, it is most likely also important to foster a sense of accomplishment in students and to allow them to build experience—rather than only observing—in the types of cases that they will actually treat.

4HH12 (20440)
A New Forum Curriculum for Fourth Grade Medical Students - A Preliminary Experience at National Defense Medical Center in Taiwan

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Guo Shu Huang, National Defense Medical Center, Department of Medicine, Taipei, Taiwan
Chien Sung Tsai, National Defense Medical Center, Department of Medicine, Taipei, Taiwan

Background: To offer our medical students to think through practical clinical issues and to develop the ability to resolve problems for clinical management, a new forum-based curriculum was applied for fourth grade medical students in our medical school, National Defense Medical Center, Taipei, Taiwan. We induct a forum class of each learning block in the last week after essential lectures are nearly completed and before block examination.

Summary of Work: A clinical scenario with a common clinical issue with no consensus will be presented in advance, e.g. the management of left main coronary artery disease. Thereafter the management (surgery or angioplasty) for the clinical scenario is debatable or controversial. The chairman will present the scenario and introduce interdisciplinary teachers. Students can ask the interdisciplinary teachers any questions about manifestations or clinical findings of the case. Then the students can present or will be chosen randomly for presentation their opinion about management. He or she will be challenged by teachers or other students, and then interdisciplinary teachers will give a mini-summary for their treatment opinion based on evidence based medicine and their clinical experiences.

Summary of Results: The satisfaction of forum were evaluated using a five-point Likert Scale. About 54% students agree or strongly agree with forum curriculum, whereas about 51% for lecture, 56% for physical hands-on, and 55% for problem-based learning respectively.

Discussion and Conclusions: Our new forum curriculum intends to offer additional dimensions and to inspire students can think through and them resolve clinical problems based on the way of evidence-based medicine of interdisciplinary teachers or their own classmates.

Take-home messages: Forum curriculum will be a new teaching method for medical students in facilitating their competence for solving clinical problems.
Experience in clinical rotations abroad of students from the Faculty of Medicine UNAM, in the 5th grade (internship), registered in the General Hospital "Dr. Manuel Gea González" of the Ministry

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Maria Teresa Ramirez Grycuk, Universidad Nacional Autonoma De México, Secretaría De Enseñanza Clínica E Internado Medico, Distrito Federal, Mexico

**Background:** Undergraduate medical students’ education has adopted technological innovations for swiftly learning medical news and practices. Real time distant videoconferences allow the apprentice to know what is being performed in other countries. This facilitates interaction between professors and students and between students of different universities. Distance learning has gained popularity as a new method that diminishes costs and allows participation of more students especially in real time videoconferences.

**Summary of Work:** During pregrade clinical rotation internship students integrate knowledge and actively participate as part of a medical team, while developing clinical diagnostic and basic therapeutic management competences. Pregrade medical internship lasts one year and is divided in 6 bimonthly rotations. The Faculty of Medicine of the UNAM has a program of clinical rotations in internship abroad during 2-3 months. Evaluations along this period used to be a report written by the student. Since 2010 our hospital established a new program by which the student prepares a videoconference of a clinical case that is broadcasted in real time and allows contact between the rotation pole (Hospital in Mexico City) and teachers and students abroad, for exchange of ideas, opinions and discussion of the case.

**Summary of Results:** We analyzed the impact of this new program through 39 presentations by real time distant videoconference along 2010 to 2013 of students that rotated in 18 hospitals located in 7 countries of Europe, North and South America, in Internal Medicine, Gynecology and Obstetrics, Pediatrics and General Surgery, using an opinion survey. Results will be presented in the meeting.

**Discussion and Conclusions:** Distant-videoconference presenting clinical case excelent media for the evaluation of ungraduate medical students in clinical rotation internships.

Utility of Group Case Discussions (GCD) in a Neurology Clerkship

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**Background:** Analysis of the Neurology clerkship at the University of Vermont COM revealed a need to increase active learning methods to optimize learning time with faculty and improve student learning.

**Summary of Work:** The objectives of the didactic sessions were reviewed and reformulated to reflect US Neurology Clerkship Core Curriculum Guidelines and the clerkship competencies. Idealized cases were developed to match the objectives and guide group discussion and higher order learning. Students reviewed cases and answered questions after reviewing appropriate references and video lectures. A neurologist then moderated each GCD.

**Summary of Results:** 16 hours of lectures were replaced by 8 hours of GCD. 3 additional hours per GCD were allotted for student preparation. Students were reliably prepared and participated in the GCD creating an interactive experience that allowed the moderator to evaluate and supplement the student’s knowledge based on their answers. Overall evaluation of the clerkship has increased steadily since GCD inception.

**Discussion and Conclusions:** Student feedback on the sessions was positive; despite fewer contact hours, student learning improved and the clinical relevance of the objectives was more evident vs. lectures. Faculty response to the new format was also positive and GCDs were more easily accommodated within daily clinical duties.

**Take-home messages:** Advantages of GCDs over lectures include: greater efficiency, better assessment of student knowledge, and increased scheduling flexibility. Though requiring more student effort than lectures, GCD were well accepted by students.
**Summary of Results:**

The health professional daily faces situations in which his or her professional decisions may be compromised due to marketing strategy of pharmaceutical industries. With the goal of providing the best possible care, doctors must know such strategies and take a stand to limit the interference of external factors in their choices.

**Discussion and Conclusions:**

In order to verify the effectiveness of the event, we conducted a questionnaire, to test the knowledge acquired by participants. The questionnaire consists of eight questions and it was proposed at the beginning and at the end of the course. The results showed an improvement in the total number of correct answers, from 57.84% of the first administration, to 79.2% in the second one.

**Take-home messages:**

It seems important to keep on educating students on the subject, to enable a greater number of future doctors to approach this problem.
4HH17 (21563)
Point-of-care ultrasound course for undergraduate medical students: A pilot study

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Marco Antonio de Carvalho Filho, Universidade Estadual de Campinas, UNICAMP, Campinas, Brazil

Background: Point-of-care ultrasound (US) has been recognized as an outstanding semiological tool. Teaching this method to undergraduate students may empower its incorporation into medical care, especially in emergency and critical medicine.

Summary of Work: A twenty-hours point-of-care ultrasound course, consisting of theoretical and practical classes, has been introduced to last year students of a medical school in Brazil, during their Critical Care rotation. The students answered a test on the first and the last days of the course, and were asked to evaluate it through a satisfaction questionnaire.

Summary of Results: Preliminary data shows statistical difference (p<0.01) between the pre and the post-test, revealing improvement in medium score from 38% correct answers in pre-test (medium score=15.2/SD+/-2.9) to 87.5% in post-test (medium score=35.0/SD+/-2.4; maximum score=40 points). Students positively evaluated the course/method, classifying point-of-care US as a “great semiological tool” that helps “anatomical comprehension”, “clinical reasoning”, and “improvement in diagnosis quickness and accuracy”.

Discussion and Conclusions: A Point-of-care ultrasound course that involves students in theoretical classes and bedside practical training is feasible, and theoretical knowledge is rapidly achievable. Medical students realized the importance and applicability of this method.

Take-home messages: Point-of-care US is well accepted and easily learned by undergraduate medical students.

4HH18 (21292)
Does the result of medical students' hand washing technique 18 months after teaching inform efficacy of the teaching method?

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Background: In the general medical curriculum there were many lectures and students were evaluated with a final examination. Regularly following knowledge or practice after teaching was unusual. We aimed to evaluate hand washing technique of medical students before and up to 18 months after the teaching hand washing class which was a way to inform teaching method efficacy.

Summary of Work: We conducted a prospective cohort study at a tertiary care hospital, Uttaradit, Thailand. The medical students’ hands were stained with a fluorescent substance and washed. Then efficacy of hand washing was assessed under the black light before and after teaching at 1 hour, 1 month and 18 months.

Summary of Results: 30 medical students were followed before the class and after 1 hour, 1 month and 18 months. Medical students washing hands with 6 step technique correctly was 86.3%, 94.3%, 95.7% and 99%. The efficacy of overall hand washing was improved after teaching from an average of before the class 64.5% to 79.7%, 91.2% and 84.5%.

Discussion and Conclusions: Technique and efficacy of 6 step hand washing in medical students after leaving the class was better than before the class. Medical students could maintain good technique and efficacy of hand washing until 18 months.

Take-home messages: The re-evaluation after the class might reflect on the teaching method which was useful to inform the teacher how to teach medical students and help them to retain their knowledge.
Use of Knowles’ adult learning principles promotes deliberate practice in clinical notekeeping and is valued by undergraduate medical students

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**Background:** Formulation of appropriate clinical notes is a key skill for medical graduates (Tomorrow’s Doctors 2009, 1(c), 19(a)) but is often only taught in a medico-legal context. We perceived a need for education focusing on formulation of structured pertinent clinical content of notes and used Knowles’ theories to develop a learning session to meet this need.

**Summary of Work:** An interactive learning session was delivered to final year medical undergraduates, incorporating footage of simulated ward rounds, a brief intervention and subsequent skill practice, followed by an eight-week clinical placement in hospital-based teams. A feedback survey was sent to students to evaluate both their learning and behaviour, focusing on students’ opinions of the relevance of the session and its effect on their confidence in the practiced skill.

**Summary of Results:** 50 of 140 students completed the survey. 76% reported improved confidence in the clinical notekeeping, and 96% found the session useful. 98% had used the practiced skill in the clinical environment. Students’ free-text comments suggested they valued the teaching as it allowed learning through error, deliberate practice through a problem-centred approach and it was directly relevant to their perceived needs.

**Discussion and Conclusions:** The ability to document concise and relevant clinical information is a complex higher-order skill which until now was not formally taught and practiced in our undergraduate course. We have found that a large-scale intervention to rectify this is perceived as relevant and useful by students and improves their confidence in developing this key skill.

**Take-home messages:** Deliberate practice in structured clinical note-keeping is valued by students.
4II ePOSTERS: eLearning 1
Location: Theatre Room 15, Level 0, MiCo

4II1 (22940)
Baby steps: Third year medical students’ knowledge of child development

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Background: In a longitudinal study of medical students’ knowledge of developmental milestones, we previously reported that students’ baseline knowledge was poor and did not improve significantly after preclinical education.

Summary of Work: We assessed students at the start of Year 1, at the end of preclinical teaching in Year 2 and after pediatrics clerkship in Year 3. Knowledge was assessed at each time point using 17 questions on the age at which most children attain certain developmental milestones. Milestones were categorized as motor or non-motor. Repeated measures ANOVA was used to assess the significance of changes over time.

Summary of Results: 26 medical students completed the survey all three years (75% loss to follow-up). Students correctly answered 24% of questions in Year 1, 25% in Year 2 and 30% in Year 3, which represents a significant change in overall knowledge over three years (p<0.05). Knowledge of motor milestones did not change significantly over the study period, while knowledge of non-motor milestones improved significantly over time (p<0.01). Post hoc testing revealed that gains were made during Year 3 of medical school.

Discussion and Conclusions: Students’ knowledge of developmental milestones changed significantly over the first three years of medical school. However, overall knowledge of child development remains weak compared to what students will need as practicing physicians. Given substantial losses to follow-up, it is uncertain whether participating students are representative of the entire class. Students’ knowledge will be reassessed at the end of medical school in Year 4.

Take-home messages: Normal child development is a critical part of general medical education, yet remains an area of training need. Longitudinal study of student learning sets a baseline against which change can be measured and may reveal future learning opportunities.

4II2 (20828)
Risk Management Program in Undergraduate Pharmacy Student Training at Chiangrai Prachanukroh Hospital

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Yongyuth Losuphakarn, Chiangrai Prachanukroh Hospital, Pharmacy Department, Chiangrai, Thailand

Background: There were various clinical and non-clinical risks occurring during the pharmacy student training period at our hospital. We developed a new risk management program in order to identify and minimize risks related to pharmacy students. The purpose of this action research was to evaluate the program that was first implemented in the education year 2012.

Summary of Work: We revised the level of practice permission for students and supervision methods in the training course. The orientation process was adjusted to let the students brainstorm about the possible risks that could happen before learning the previous risk scenarios. We also did formal and informal risk monitoring activities during the course. Risk occurrences were collected from self-reports by the students and individual interview.

Summary of Results: There were 91 risk events reported from 163 students in the year 2012 to 2013. Of total events, 30 and 61 events were classified as clinical and non-clinical risks. The clinical risks were all medication errors. The majority of non-clinical risks was student illness (48 events). The number of risk events tended to decrease from 51 to 40 events in the year 2012 and 2013.

Discussion and Conclusions: Implementation of this program could help identify risk occurrences and increase student awareness. The information we received helped us to improve the program to minimize the risks in the following year.

Take-home messages: Risk management program could raise awareness of pharmacy students to possible risks. Continuous program improvement should be organized and more data should be collected to evaluate program effectiveness.
A study of the impact of clinical decision support, e-mail and links to support pharmacogenomics education

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Presenter: Carolyn R. Rohrer Vitek*, Mayo Clinic, Center for Individualized Medicine, Rochester, MN, United States

Background: Previous studies have shown limited pharmacogenomics knowledge among providers, which impairs translation into clinical practice.

Summary of Work: This study assessed the impact of using computer-based clinical decision support (CDS) to identify providers in need of pharmacogenomics education and deliver such education electronically. Between 10/26/2013 and 1/22/2014 our system identified all the providers prescribing codeine or tramadol and sent a one-time email with specific pharmacogenomics information about these medications and CYP2D6 testing. The email also had links to additional online education. Data was collected electronically and with a survey.

Summary of Results: During the study period, 1,816 providers were identified. The overall survey response rate was 29% (n=530/1816) and 225/530 (42.6%) reported not opening the email (insufficient time n=70 and/or didn’t remember n=147). Only 9.8% were not interested in this topic, while 27.1% self-reported using the information links. Of those that used the information-link, 89.1% found the pharmacogenomics information useful, and 90% agreed they learned something new about pharmacogenomics.

Discussion and Conclusions: Our data show the use of email to deliver education may be affected by the overall burden of emails received by providers. It seems difficult to sort out emails with potential educational value. However, access to pharmacogenomics education seems welcome by providers who are using medications affected by CYP2D6.

Using CDS to identify providers in need of pharmacogenomics education is a reasonable strategy; however, the use of email to deliver this education is inadequate to capture their attention.

Take-home messages: E-mail is convenient but inefficient to disseminate education to providers.

J-Learning: The Plastic Surgery Portal

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Background: Plastic surgery remains a poorly taught subject at undergraduate level because of logistic challenges. An e-learning tutorial was developed with the objective of incorporating plastic surgery teaching within the undergraduate medical curriculum.

Summary of Work: An e-learning online tutorial was created by using a variety of web programmes (Flash, Coursegenie) and scripts (HTML, javascript, actionscript). The content covers the basis of plastic surgery including skin and wound healing, the reconstructive ladder, skin grafts, flaps, burns, and basic surgical skills. Regular feedback was obtained by consultants, junior doctors and medical students.

Summary of Results: A total of twenty-nine web pages were created. The focus was on creating a captivating, fun and interactive website, where students would be constantly challenged and tested on their newly acquired knowledge. Positive feedback was obtained, confirming the importance and value of this learning tool.

Discussion and Conclusions: The "J-Learning" tutorial provides a useful tool for easy and fast incorporation of plastic surgery teaching within the medical curriculum as well as in other medical teaching settings.

Take-home messages: "J-Learning" is a free useful tool that offers easy incorporation of plastic surgery teaching in the medical curriculum.
**4II5 (21826)**

**GUIDed E-Self sTudy for learning musculo skeletal examination (GUEST-5): A pre intervention analysis**

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**Background:** Many studies highlight that residents’ lack confidence in musculo-skeletal (MSK) examination. Though internet-based materials are widely accepted by the younger generation, there is limited data on internet-based teaching of skill-based topics like MSK examination. Internet-based teaching would be useful if materials can be verified and learning experience guided.

**Summary of Work:** Aim and Study design: Our study seeks to determine the improvement in confidence level in MSK examination, before and after the novel methodology of GUIDed E-Self sTudy, using questionnaires.

**Methodology:** Interested participants are given access to pre-verified online materials on examination of 6 major joints: neck, shoulder, elbow, back, hip and knee: 1: History taking; 2: Differential diagnoses; 3: Anatomy; 4: Physical examination; 5: Discussion with the faculty and fellow learners via an online platform. These 5 steps are available via an e-learning portal.

**Summary of Results:** 88 doctors have participated in the pre-intervention survey. Only 22.73% are confident in conducting a MSK examination. 54.55% are less confident in MSK examination compared to examination of other systems. Many turn to internet-based material (81%), especially “Youtube” (86%) for learning of MSK examination. It is worrying that most (58.75%) are confident in the reliability of these materials even though they have not used it before. 50% of participants have done either a Rheumatology or Orthopedics rotation; yet they are not confident in MSK examination.

**Discussion and Conclusions:** Internet-based learning is preferred among “Gen Y” doctors. However, without proper verification and guidance, learning from the internet can be dangerous. Take-home messages: We propose a guided e-learning methodology for learning MSK examination safely and effectively.

**4II6 (21878)**

**The Effectiveness of the Developed Innovative Multimedia CAI on Lipid and its Chemical Components Analysis by Spot Test Kit (STK-PCM) for Thai Army Nursing Students Year 2**

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**Background:** Lipid is an important basic subject in biochemistry. It is difficult because it is a concrete object. The number of students increase and their learning abilities are different. The innovative multimedia Computer Assisted Instruction (CAI) on lipid and its chemical components analysis by Spot Test Kit were developed.

**Summary of Work:** The objectives were firstly to compare the achievement before and after the learning experience with the CAI, and secondly to compare the experimental to the control group with respect to the achievements and the attitudes towards learning about lipid. The research was carried out in two parts. One was the construction multimedia CAI software by Macromedia Authorware 7. The other was the development of Spot Test Kit. For the phase of experimental teaching; the experimental group studied by the developed CAI and left the computer to do the experiment while the control group used the regular approach.

**Summary of Results:** The results are the achievement before and after the learning experience with the CAI was significantly increased at the level .001. The average score with respect to the post-test and the attitudes to learning about lipid of the experimental group was significantly higher than that of the control group at the level of .001.

**Discussion and Conclusions:** Inconclusions, the developed CAI and Spot test Kit can be used as an efficiency studying tool in science teaching both in self directed learning and also cooperating with a conventional lecture. Take-home messages: Besides, other subjects should be done so that the students can learn more at any time and place.
Pilot study of Weight4KIDS, developing an interactive eLearning program on paediatric obesity management for health professionals

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Background: Education in childhood obesity management is sparse within health-care settings. eLearning is a potentially cost-effective, flexible method for training health professionals in paediatric obesity. The aim of Weight4KIDS was to develop and pilot an interactive eLearning program for health professionals in paediatric obesity management to assess uptake, acceptability and impact on participant learning outcomes.

Summary of Work: Weight4KIDS is a series of 11 e-Learning modules: a core module (basic assessment and initial management) and advanced modules (physical measurements, practical interventions, adolescent obesity, general medical issues, endocrine aspects, orthopaedic issues, nutrition, physical activity, sleep and psychosocial issues). Health professionals from six sites (three non-metropolitan) were invited to complete modules. Participants' knowledge on module topics was assessed at baseline. A post-training survey assessed participants' knowledge, views on module duration/content and intention to improve clinical practice.

Summary of Results: The core module took 20 minutes (median) [IQR: 13-37] to complete (n= 130; 70% nurses; 55% non-metropolitan). Participation in advanced modules varied (range: n=18 to 70) with median completion times across modules ranging from 2-10 minutes. In all modules there was a statistically significant improvement in participants' pre- to post-training knowledge scores (P<0.05; related samples Wilcoxon Signed Rank Test). Most participants (range across all modules) indicated module completion: occurred during work time (58 to 84%), was of appropriate duration (81%-100%) and detail (83% to 96%), and prompted intention to improve clinical practice (74% to 93%).

Discussion and Conclusions: Weight4KIDS improved participants' knowledge of paediatric obesity management and was highly acceptable to a predominately nursing sample. The results support wider rollout of Weight4KIDS.

Take-home messages: Interactive e-learning programs are highly acceptable and practical methods to enhance knowledge on paediatric obesity management.
419 (20087)

Medical Histology 2.0: How new technology changes student habits in the learning of old-fashioned science

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Francisco Ribeiro de Moraes, Barretos School of Health Sciences, Dr. Paulo Prata, FACISB, Barretos, Brazil
Eduardo Anselmo Garcia*, Barretos School of Health Sciences, Dr. Paulo Prata, FACISB / Molecular Oncology Research Center, Barretos Cancer Hospital, Barretos, Brazil

Background: Histology serves as a basis to teach about diseases and/or physiological conditions in the Medical curriculum. Histology teaching is challenging: there are several communication issues between students/teachers during the identification of histological structures in the microscope; access to slides/microscope outside the school is limited; study in groups is hard to perform using the current microscopes in school. New approaches may help students to learn in an easier way. Our objectives were to analyze the perception of the students in the learning process, using virtual slides vs. histology.

Summary of Work: During the histology component of first year of Medicine, seventy-six students were subjected to microscopy and virtual slides-directed lectures and home studies. They answered a questionnaire about study habits, and their perception about the impact of virtual slides use outside the school. Besides 48.7% reported that the use of virtual slides or microscope would make no difference, 73.3% reported that virtual slides use increases learning speed, and 45.3% believe that will be more helpful. An interview-based needs assessment conducted in three countries (16 surgical residents, 19 program directors) indicated a desire for an evidence-based, interactive, case-based instrument to identify knowledge gaps and provide reference for daily use. This data was used to design and pilot a new online learning hub: STaRT — Surgical Training and Assessment for Residents.

Summary of Results: Fourteen participants completed the required tasks and over 35% engaged in additional activities. Results reinforced findings from the initial needs assessment. Orthopedic trauma residents highly value evidence-based case scenarios for developing clinical decision making skills. Most valued aspects of the learning experience were: interactivity, clinical content, platform structure, and navigation.

Discussion and Conclusions: Lack of opportunities to self-assess in a clinical setting is common although it is highly valued by orthopedic trauma residents. Feedback from target audience shows that an online learning hub for self-assessment can indeed help develop decision-making skills.

Take-home messages: The use of an online case-based learning hub can provide effective assessment and feedback to complement the training of surgical residents.

4110 (22463)

Does an online case-based experience help develop decision making skills for surgical residents?

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Kathrin Lüssi, AO Foundation, AO Education Institute, Duebendorf, Switzerland
Kodi Kojima, University of Sao Paolo, Sao Paolo, Brazil
Wa’el Taha, King Abdulaziz Medical City, Riyadh, Saudi Arabia

Background: The use of e-learning for medical education continues to gain in popularity, but is it helpful? An interview-based needs assessment conducted in three countries (16 surgical residents, 19 program directors) indicated a desire for an evidence-based, interactive, case-based instrument to identify knowledge gaps and provide reference for daily use. This data was used to design and pilot a new online learning hub; STaRT — Surgical Training and Assessment for Residents.

Summary of Work: Twenty residents were invited by surgeon planning committees to provide feedback on a pilot version of STaRT after completing specific learning activities; video-based case discussion, multiple-choice test questions, and review resources. Subsequently, individual interviews consisting of ten questions were conducted with 14 participants from five continents, across all stages of orthopedic trauma residency (28.5% beginner, 21.4% intermediate, 21.4% advanced, 28.5% recently completed). Qualitative data was thematically analyzed.

Summary of Results: Fourteen participants completed the required tasks and over 35% engaged in additional activities. Results reinforced findings from the initial needs assessment. Orthopedic trauma residents highly value evidence-based case scenarios for developing clinical decision making skills. Most valued aspects of the learning experience were: interactivity, clinical content, platform structure, and navigation.

Discussion and Conclusions: Lack of opportunities to self-assess in a clinical setting is common although it is highly valued by orthopedic trauma residents. Feedback from target audience shows that an online learning hub for self-assessment can indeed help develop decision-making skills.

Take-home messages: The use of an online case-based learning hub can provide effective assessment and feedback to complement the training of surgical residents.
4II11 (21432)
Teaching ECG-interpretation skills using e-learning: How much and how often?

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Anders G. Holst, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark
Lars Kayser, University of Copenhagen, Copenhagen, Denmark
Jesper Hastrup Svendsen, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark
Lars Konge, Centre for Clinical Education, Copenhagen, Denmark

Background: Many medical students and young doctors feel that their electrocardiogram (ECG) interpretation skills are inadequate. E-learning courses could alleviate this problem. We explored (1) the effect of a short e-learning course and (2) the retention of skills following the course.

Summary of Work: 217 medical students were enrolled in the study. Each participant completed a pre-test before taking a three-hour monitored ECG-e-learning course immediately followed by a post-test. Students were randomised to perform a retention-test after 2-4, 10-12, or 18-20 weeks, respectively. Each test had a maximum score of 100 points.

Summary of Results: Mean test-scores improved from 52.4 points (SD 16.8) in the pre-test to 68.0 points (SD 12.8) in the post-test (p<0.001). Retention-tests showed a significant decrease in test-scores both after 2-4 weeks (from 67.4 to 60.2 points, p<0.001, n=63) and after 10-12 weeks (from 68.8 to 60.2 points, p<0.001, n=51). The retention-test-scores were, however, still significantly higher than at baseline (p≤0.001). The difference in score-loss was not statistically different between the two follow-up-groups (p=0.47). The remaining 10-12 weeks and all 18-20 weeks retention-tests will be completed in May 2014.

Discussion and Conclusions: We found a significant effect of a three-hour ECG-e-learning course. The level of skills deteriorated after 2-4 weeks, where about half of the effect was lost. This was, however, still greater than at baseline. No significant difference was observed between test scores at 2-4 weeks and at 10-12 weeks.

Take-home messages: Short e-learning courses are effective but should probably be administered frequently.

4II12 (20177)
Predicting exam performance using social network analysis

David Pier*, University of Edinburgh, Edinburgh, United Kingdom

Background: University of Edinburgh and the Royal College of Surgeons of Edinburgh have jointly established a suite of online distance learning programmes to support surgical trainees and to prepare them for independent surgical practice and for their future academic development. The programmes make use of asynchronous discussion boards to teach and evaluate surgical knowledge and understanding. Using social network analysis of discussion board interactions we are able to better predict final exam marks and better support at-risk students.

Summary of Work: The advanced nature of the content covered on these programmes as well as the experienced nature of the surgical trainees has led to the development of dynamic case-based discussions the progression through which is dictated as much by the trainee as it is the tutor. Using social network analysis tools we asked if discussion board interactions could predict a students final exam marks.

Summary of Results: Social network analysis allowed a better prediction of final exam marks than measuring participation alone.

Discussion and Conclusions: Using social network analysis tools and monitoring participation during in-course assessments allows at-risk students to be determined earlier and with more accuracy.
4II13 (20711)
**iDiabetes: Designing objective-based online diabetes website for medical students**

*Kevin Emery Boczar*, University of Ottawa, Medicine, Ottawa, Canada  
*Michael Froeschl*, University of Ottawa Heart Institute, Medicine (Cardiology), Ottawa, Canada

**Background**: Diabetes is a growing epidemic in today's society and the pathology affects multiple organ systems and areas of the body. The purpose of this project was to design and implement a comprehensive educational website for medical students to use throughout their medical education to see how diabetes affects the various body systems.

**Summary of Work**: The University of Ottawa curriculum was examined and all learning objectives related to diabetes were identified. Material was written for each objective and organized by both University of Ottawa curriculum Unit and by body system. The website was then created using the Word Press software, populated with the organized material, and published online.

**Summary of Results**: Ottawa Diabetes ([http://www.ottawadiabetes.com](http://www.ottawadiabetes.com)) is an interactive, curriculum-based website designed to achieve the learning outcomes identified by the competency-based curriculum. This open-access e-learning tool is a comprehensive learning resource that incorporates various learning modalities. Material is tailored to University of Ottawa medical students but is relevant for medical students from all schools.

**Discussion and Conclusions**: Undergraduate medical education is shifting away from traditional didactic methods towards a more self-directed learning environment. E-learning has emerged as a vital learning modality that allows students to tailor their studies in a personalized approach.

**Take-home messages**: Ottawa Diabetes provides an opportunity for active self-directed learning while disseminating knowledge in an evidence-based fashion. Ottawa Diabetes Educational Website encourages students to take an active role in their education and tailor their studies on diabetes to their own unique needs.

4II14 (19668)
**Massive Open Online Courses (MOOCs) are relevant for postgraduate training of physicians**

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*Signe Bojsen*, Centre for Clinical Education, Copenhagen, Denmark  
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**Background**: The CanMEDS Physician Competency Framework is widely used to describe seven roles in postgraduate training needed for better patient outcomes. Training in these roles is limited by the selection of locally provided courses and a busy schedule. These limitations may be addressed by MOOCs – a big number of freely available courses from universities worldwide.

**Summary of Work**: Two independent researchers analyzed course descriptions of all courses in the two biggest MOOC databases: Coursera and EdX. Courses were categorized into “not relevant”, “possibly relevant”, or “relevant” for each of the seven roles using the CanMEDS description provided by the Danish Health and Medicines Authority.

**Summary of Results**: We found 668 courses, of which 123 were judged relevant and 60 as possibly relevant for one or more of the seven roles: Medical Expert (47), Communicator (16), Collaborator (7), Leader (24), Health Promoter (34), Academic (63), and Professional (18). A number of relevant and freely available flexible online courses exist for every CanMEDS role even though the majority focuses on the roles of Medical Expert and Academic. These diverse courses may especially help postgraduate training in areas with limited local selection of courses.

**Discussion and Conclusions**: Many MOOCs are relevant for physicians in post-graduate training and may be used for development of the seven roles.

**Take-home messages**: A great number of MOOCs are relevant for post-graduate training of physicians.
Implementation of Elearning materials in nursing skills education

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Brigit Zwartendijk, Leiden University Medical Center, Educatie Zorgsector, Leiden, Netherlands

Background: In the Netherlands an Individual Healthcare Professions Act is in place. In order to improve the quality of health care and to protect patients from inexpert and inaccurate acting, each healthcare professional has to attend formal training to maintain existing and to develop new knowledge, skills and competencies. Every 5 years the care professional needs to obtain a renewed permission to work in health care.

Summary of Work: Besides other requirements like actual experience in the field, a care professional needs to manage 10 general and some department-specific restricted medical treatment skills. For each of these skills a separate training program has been developed, consisting of 4 steps: theory, knowledge test, skills lab, and a clinical test. After these 4 steps the professional is observed and assessed in daily practice by a supervisor to conclude the training program for the specific skill. In our nursing school we modeled the first step of the training program (learning the theory) into online Elearning materials. The Elearning lessons consist of didactic elements like text, questions, feedback, illustrations, animations and video.

Summary of Results: Learners enjoy the programs and the flexibility of delivery. Being able to learn through online materials in one’s own pace and convenient place is a huge advantage for workplace learners. The online materials can also be used outside the formal training program, for a quick reference when needed.

Discussion and Conclusions: The Elearning materials are an effective way to train health care professionals in performing specific skills. The training program contributes to the quality of care.

Take-home messages: Elearning modules effectively support skills training.
**4JJ1 (19710)**

**Changes in Perception and Attitude on the Nurse's Role by the Shadowing Experience: “A Nurse Day”**

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Yung-Wei Hsu, Mackay Memorial Hospital, Department of Medical Education, Taipei City, Taiwan
Shu-Chuan Lin, Mackay Memorial Hospital, Department of Nursing, Taipei City, Taiwan
Chun-Chih Peng, Mackay Memorial Hospital, Department of Medical Education, Taipei City, Taiwan
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Shou-Chuan Shih, Mackay Memorial Hospital, Department of Medical Education, Taipei City, Taiwan

**Background:** Given the increasing complexity of the current health care environment, health care professionals need to work together more effectively to provide better patient care. This Interprofessional education (IPE) program “A Nurse Day” gave medical students a chance to follow nurses throughout their work day and to realize the role of professional nurse.

**Summary of Work:** An Interprofessional Education Questionnaire of Nurse’s Role (IEQNR) was developed and distributed to forty fifth-year medical students and forty nursing staffs who participated in a one-to-one “A Nurse Day” IPE program. All the students were asked to complete an open questionnaire after the shadowing experience and to attend a post-IPE discussion forum.

**Summary of Results:** All medical students witnessed the nurse performing procedures, making critical decisions, liaising with various health care professionals, and interacting with patients and their families. The students reported increased understanding of nurse professionals, openness to learn from nurses and also their ability to communicate with nurses. “A Nurse Day” improved the collaboration between health care professionals not only through the understanding of the real work role of nurse but indeed changed the perception and attitude of medical students.

**Discussion and Conclusions:** The shadowing experience, overall, not only had a positive impact on the medical students but also provided a chance of reflection to professional nurses.

**Take-home messages:** “A Nurse Day” provides an amicable way for undergraduate medical students to get a clear understanding of nurse’s role and also changed their perception and attitude of nursing.

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**4JJ2 (19638)**

**Nursing faculty teaching nursing skills to medical students: A Lebanese experience**

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Jihad Irani*, University of Balamand, Faculty of Medicine and Medical Sciences, Beirut, Lebanon
Silva Sailian, University of Balamand, Nursing Program, Faculty of Health Sciences, Beirut, Lebanon
Vicky Gebran, University of Balamand, Nursing Program, Faculty of Health Sciences, Beirut, Lebanon
Ursula Rizk, University of Balamand, Nursing Program, Faculty of Health Sciences, Beirut, Lebanon

**Background:** Nursing faculty teaching medical students basic nursing skills is a relatively new trend. Collaboration in education among medical and nursing professions can improve students’ performance in clinical skills and consequently positively impacts the quality of care delivery.

**Summary of Work:** In 2011, the Faculty of Medicine at the University of Balamand, Lebanon, launched a "nursing skills" module as part of clinical skills teaching to MED-1 students. The module is prepared and delivered by nursing faculty in a laboratory setting. It consists of informative teaching as well as hands-on laboratory practice. The skills taught are: hand-washing, medication administration, intravenous initiation and removal, nasogastric tube insertion and removal. Sixty-five medical students attend this module every year. A Likert-scale-based questionnaire is used to evaluate their experience.

**Summary of Results:** Medical students agree that the module provide adequate opportunities to enhance nursing skills and knowledge and favor cross-professional education between nursing and medical disciplines. Most of the respondents report that this experience prepares them better for clinical rotations while increasing their confidence and decreasing anxiety level. Medical students highly appreciate the nursing faculties’ expertise and perceive them as knowledgeable and resourceful.

**Discussion and Conclusions:** Nursing faculty participating in medical students skills teaching is well perceived, has a positive impact and shows nurses as proficient teachers to medical students.

**Take-home messages:** Cross-professional education is an attractive model when it comes to teaching nursing skills in medical school.
4JJ3 (18452)
ESOP: Evaluating Scopes of Practice

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Lindsay McRae, University of Ottawa, Pediatrics, Ottawa, Canada
Charmaine Ma, University of British Columbia, Medicine, Vancouver, Canada

Background: Interdisciplinary healthcare education has been slowly introduced into medical schools and is believed to be the new direction of healthcare education programs. As medical students with previous healthcare backgrounds, we would like to explore the dynamics of interdisciplinary collaboration in order to identify gaps that currently exist.

Summary of Work: We created a GoogleDoc survey that we emailed to practicing professionals in the various disciplines. The questions in the survey covered different core components of each profession’s scopes of practice and also asked participants to rate the depth of their own perceived knowledge.

Summary of Results: The results for the survey demonstrated 3 important points for consideration: firstly, over half of the participants believed inter-professional education was ‘very important’ (50% RPh, 62% MD, 55% RN); secondly, participants believed they were either ‘somewhat unprepared’ (43% RPh, 19% MD, 29% RN) or ‘somewhat prepared’ (42% RPh, 33% MD, 36% RN) for effective inter-professional practice through their healthcare training program; lastly, every profession performed worse on questions regarding their own scope of practice than they predicted. Approximately half of participants (RPh, MD, RN) believed that they were ‘extremely knowledgeable’ about their own scope of practice while their actual scores on profession-specific questions ranged from 50.5-72.3%. The majority of participants (RPh, MD, RN) claimed that they were ‘somewhat knowledgeable’ about other scopes of practice while their actual scores on questions regarding other scopes of practice averaged 60.5%.

Discussion and Conclusions: These results demonstrate the continued presence of major gaps in knowledge between professions and also within one’s own profession. Our survey has highlighted the need for improvements in education programs for both prospective graduates as well as practicing professionals. We hope that our study will inspire enthusiasm that will help lead to changes in education and practice.

Take-home messages: Interdisciplinary education is important and should be incorporated into medical school curriculums.

4JJ4 (20810)
Knowledge and Attitude of Medical Students towards Inter-professional Collaboration

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Sazid Rezwan, Sir Salimullah Medical College, Medicine, Dhaka, Bangladesh

Background: Interdisciplinary healthcare teams are central to improving patient outcomes. Strong inter-professional education (IPE) is fundamental for effective team performance. Although academic and policy perspectives on IPE are often the sole lenses through which IPE is viewed, equally important is soliciting student perspectives on IPE. But, in Bangladesh, there is lack of knowledge and process to develop a positive attitude towards inter-professional education and collaboration.

Summary of Work: A cross sectional type of descriptive study was conducted to assess the knowledge and attitude of students of Sir Salimullah Medical College, Dhaka towards inter-professional collaboration. 700 students were purposively selected for study. Data were collected by face to face interview from the respondents through semi-structured questionnaire.

Summary of Results: Majority of them showed lack of knowledge (82.86%) about inter-professional collaboration. Most of the Students did not know the importance (89.29%) of inter-professional collaboration and education. Very few students enjoy team work (12.86%). Majority of them do not know how to implement (68.57 %) inter-professional collaboration.

Discussion and Conclusions: That can be concluded that knowledge and attitude of medical students of third world country like Bangladesh is very poor. So a large community cannot take part in the era of inter-professional collaboration which makes this worldwide collaboration incomplete. Measures like campaigning, review of curriculum, collaboration with other countries, student exchange etc. should be taken. This can contribute a lot in making the term ‘inter-professional collaboration’ complete.

Take-home messages: Inter-professional collaboration is still a weak field for medical students of Bangladesh.
The impact of final-year interprofessional education (IPE) for medical and dental students

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Jun Tsuruta, Tokyo Medical and Dental University, Graduate School of Medical and Dental Science, Department of Professional Development in Health Science, Tokyo, Japan
Kazuki Takada, Tokyo Medical and Dental University, Graduate School of Medical and Dental Science, Department of Professional Development in Health Science, Tokyo, Japan

Background: An aging society requires coordinated and collaborative care between medical, dental and other health professionals.

Summary of Work: A total of 255 final-year students from five schools for health professions participated in a two-day-long case-based IPE program. A case that had systemic, oral, and social problems was prepared in order to promote and require active participation of all students in mixed-small-group discussion. All students filled pre- and post-participation questionnaires. The results were analyzed quantitatively and qualitatively.

Summary of Results: Seventy percent (178/255) of the participants considered this program to have exceeded their expectations. Students’ ratings of the following significantly increased after participation: 1) the roles and responsibilities of other professions, 2) the view points of other professions in addressing healthcare needs of patients, and 3) one’s own roles and limitations in knowledge and abilities. Qualitative analysis revealed that while all students valued learning the roles, responsibilities, and view points of other professions, students from the schools for medical technicians and oral hygienists also valued learning those of ones’ own profession, built confidence in patient-care collaboration, and self-motivated for further study.

Discussion and Conclusions: Our results suggest that a final-year IPE session may be effective in helping students acquire the Roles/Responsibilities competencies and that its impact may vary among students of different health professions. Also, our program may serve as an IPE model in which students of both medical and dental professions study together.

Take-home messages: Final-year IPE session may effectively equip students with the Roles/Responsibilities.

A model of interprofessional education (IPE) at Udonthani Rehabilitation Department

Sunee Sethasathien*, Udonthani Medical Education Center, Rehabilitation Department, Udonthani, Thailand

Background: Interprofessional education (IPE) helps to prepare readiness for collaborative work with the patient who has multiple problems including rehabilitation patients. But there was no IPE curriculum for rehabilitation students in Thailand, so we tried to develop an IPE model for our undergraduate rehabilitation students.

Summary of Work: Workplace based IPE was conducted for the fourth-year medical, physiotherapy, occupational therapy and nursing students from different universities when they studied concurrently at the rehabilitation department. Groups of six to eight mixed students and one facilitator worked collaboratively with real patients, following by group presentation and panel discussion. Students’ satisfaction and performance were evaluated. Problems and suggestions were discussed for improvement of the consecutive session.

Summary of Results: 66 mixed students were included in four IPE sessions. None of the students had IPE experience, 95.18% strongly agreed that IPE increased understanding in interprofessional role and collaborative practice, 100.0% agreed that IPE was suitable for rehabilitation topics. But lower number of medical students satisfied with knowledge gained and nursing students showed lower level of readiness for IPE. 89.5% of students could play a proper role during the session. Satisfaction scores rose when multi-professional facilitators were included, and a short lecture was added at the end. Attending staff reported no extra workload.

Discussion and Conclusions: Workplace-based IPE with multi-professional facilitators in combination with short lecture-based learning was a satisfactory IPE model for our rehabilitation students. Medical students required more professional knowledge and nursing students required more self confidence for active participation.

Take-home messages: Workplace based IPE is a simple way to start IPE in rehabilitation medicine.
Discrepancy of collaboration between nurses and physicians: 3-year follow-up study from students to nurses and physicians

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Chan Woong Kim, College of Medicine, Chung-Ang University, Emergency Medicine, Seoul, Republic of South Korea
Sung Eun Kim, College of Medicine, Chung-Ang University, Emergency Medicine, Seoul, Republic of South Korea
Sang Jin Lee, College of Medicine, Chung-Ang University, Emergency Medicine, Seoul, Republic of South Korea

Background: Nurse-physician collaboration has recently been emphasized as one of the important factors to improve quality of patient care. In fact, health care professionals fail to collaborate with each other.

Summary of Work: We conducted a survey about perception of collaboration. 30 nursing and 35 medical students participated. Self-assessment about collaboration in decision-making by students was done through ACLS simulation. After 3 years, 55 candidates who are now working in hospital (27 nurses and 28 physicians), underwent same self-assessment of the need and actual performance about collaboration.

Summary of Results: Groups of nurses and physicians felt the need for collaboration in clinical decisions, initially and 3 year later. However, in undergraduate simulation, there was a discrepancy about collaboration. Nursing students evaluated that they were not collaborating during simulation as medical students thought. After graduation, the discrepancy disappeared on simulation 3 years later. However, in practice, the collaboration of both groups failed to achieve improvement, in spite of its importance in actual working.

Discussion and Conclusions: Throughout surveys done in three-year period, perception about importance and need of collaboration was not changed. On the other hand, collaboration performance of two groups 3 years later was less satisfactory than before even though discrepancy of their concepts in collaboration of two groups disappeared. Therefore, effort to enhance ‘Non-technical skill (NTS)’ such as communication could improve collaboration with nurses and physicians.

Take-home messages: Since health professionals and students lack opportunity to be educated about collaboration and communication in the workplace, implementation of NTS in the curriculum of medical and nursing students should be considered.

Research involving community activities and interprofessional education: First steps

Ana Claudia Camargo Gonçalves Germani, University of São Paulo, Preventive Medicine, São Paulo, Brazil
Francis Tourinho, UFRN, Nursing, Natal, Brazil
Rosiane Diniz*, UFRN, Medicine, Natal, Brazil

Background: In Brazil, many community activities are developed as “extension” activities. The government and institutions recommended the inseparability among extension-education-research. However, the third dimension isn’t explored. Considering interprofessional education (IPE) as a challenge to curriculum, the extension appears as an opportunity. JUS (University’s Journey of Health) is an example, as an activity performed by students from seven undergraduate courses which goal is to build health promotion in a small city.

Summary of Work: The objective here is to describe the first steps to research IPE in the JUS. Electronic questionnaire was applied to characterize the 66 students participating in 2013. We also identify the self-perception of competence development in health promotion, using scale from 0 (not relevant) to 10 (fully competent). We attempted to construct concept maps (CM) in interprofessional groups in a face-to-face (F2F) meeting.

Summary of Results: Online questionnaire and the support of the JUS coordinators were decisive to ensure the characterization of sample, which included 63 (95%) students and confirmed the presence of different professionals at different stages of undergraduation course. Only 28 (44%) students participated in the F2F meeting. There was difficulty to construct CM in short spaces of time in heterogeneous groups. 33 (55%) students have never used CM. The questions about self-perception of competence development was to trigger reflections about the contribution of JUS in future professional practice.

Discussion and Conclusions: Heterogeneous sample is a challenge (and a treasure) of extension activities. As JUS is a voluntary action without common space provided in the curriculum of different courses, the attendance at research activity was hampered.

Take-home messages: Assuming the demonstration of learning in extension could drive curricular changes, the rendezvous between extension and research was promising to provide a win-win process.
Effectiveness of Problem Based Learning for Inter-professional education in Okayama Medical School

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Hiroko Ogawa, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Department of General Medicine, Okayama, Japan
Takao Tsuduki, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Department of General Medicine, Okayama, Japan
Motoi Okamoto, Okayama University Medical School, Faculty of Health science, Okayama, Japan
Hironori Nakura, Faculty of Pharmaceutical Science, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Department of Emergency Pharmaceutics, Okayama, Japan

Background: Medical students study focused on knowledge, skills and roles with their friend during medical school but not with other medical person. In clinical situation we always work with other medical persons but inter-professional education is not enough to know each other. Therefore our Okayama University has a medical school, pharmaceutical school, school of Nursing, and school of medical technology, we had case discussions using problem based learning (PBL) for inter-professional education.

Summary of Work: The purpose is to discuss their case with students of other departments. 5th grade medical students, 4th–6th grade pharmaceutical students, 4th grade students of Nursing and medical technology participated in case discussion and there were almost 10 students in each case. Medical students and students of Nursing and medical technology had one case for one year but pharmaceutical students had several cases. In the first week they diagnosed the case using PBL and in second week they taught their own learning issue to other students and discussed the patient’s treatment, drug information, patient care and patient education.

Summary of Results: Not only medical students but also students of other departments were interested in clinical reasoning. Furthermore students understood their own role in the clinical situation and difference in their points of view. Variety of team in safety environment made them motivated.

Discussion and Conclusions: Students not only have an experiment of team training with students of different departments but also recognize their own profession through case discussion using PBL.

Take-home messages: Case discussion using PBL is good for communication in undergraduate education.
SESSION 5  
Monday 1 September: 1600-1730

5A SYMPOSIUM: Building Continuous Quality Improvement into an Accreditation System: Benefits and Challenges  
Location: Gold Plenary, Level +2, MiCo

Panel: Barbara Barzansky, Liaison Committee on Medical Education/American Medical Association  
Geneviève Moineau, Association of Faculties of Medicine of Canada/Committee on Accreditation of Canadian Medical Schools, Canada  
Dan Hunt, Association of American Medical Colleges, USA  
Ducksun Ahn, Korean Institute of Medical Education and Evaluation  
Chi-Wan Lai, Taiwan Medical Accreditation Council

Accreditation is a summative process where schools are judged on their compliance with defined standards at a particular point in time. However, compliance with standards is often not achievable by a school working hard just before an accreditation review. This means that there is a need to include an on-going system of continuous quality improvement (CQI) related to accreditation expectations and educational quality as part of the process. This raises some controversial questions and challenges, for example: How, if at all, should the CQI and accreditation processes be linked? Should accreditors make CQI mandatory? Should CQI be formative? Should the results be known by accreditors? These and related questions will be debated by the panellists and discussed by the audience. By the end of the session, participants should understand the range of options for a CQI process focused on achieving and maintaining compliance with accreditation standards.

5B SYMPOSIUM: Recent Developments in Research on Clinical Reasoning and Implications for Medical Education  
Location: Auditorium, Level +3, MiCo

Panel: Geoff Norman, McMaster University, Canada  
Henk Schmidt, Department of Psychology, Erasmus University Rotterdam, The Netherlands  
Silvia Mamede, Institute of Medical Education Research Rotterdam, Erasmus MC, The Netherlands  
Martine Chamberlain, University of Sherbrooke, Québec, Canada

Geoff Norman will review dual processing theories of clinical reasoning. Henk Schmidt will share recent studies on potential sources of diagnostic errors and strategies to minimize them. Silvia Mamede will present research on the use of structured reflection as an instructional approach in clinical teaching. Within the same line of investigation, Martine Chamberlain will bring new insights about the effects on learning of self-explanation while solving clinical problems. Through this series of presentations, the symposium will provide participants with an overview of recent research on different aspects of clinical reasoning development. Subsequent discussion with the audience will explore what we can learn from this research to improve clinical teaching.

5C SYMPOSIUM: Personalised Medicine - Implications for Medical Education  
Location: Brown 3, Level +2, MiCo

Panel: Judita Kinkorová, Technology Centre of the Academy of Sciences of the Czech Republic  
Olga Golubnitschaja, Friedrich-Wilhelms-University of Bonn, Germany  
Vincenzo Costigliola, European Medical Association, Italy  
Josep Grifoll Saurí, AQU/ENQA/INQAAHE, Barcelona, Spain  
Maria Rosa Fenoll Brunet, Universidad Rovira i Virgili, Barcelona, Spain (Chair)  
Madalena Folque Patricio, University of Lisbon, Portugal (Co-chair)

The new trends in advanced healthcare aim to promote a paradigm shift from delayed intervention to predictive medicine tailored to the person, from reactive to preventive medicine and from disease to wellness. The cost-effective management of diseases and the crucial role of predictive, preventive and personalised medicine (PPPM) in the modernisation of healthcare have been acknowledged as priorities by health-related institutions and considered a cross-cutting priority for funding research programmes, like Horizon 2020 in Europe. This symposium will explore the challenges and strategies for implementing multidisciplinary programmes towards an integrative approach to PPPM in the training of future generations of health care professionals.
5D1 (18627) Exploring the dimensions of the Medical Teaching Unit physician preceptor role

Jane B. Lemaire*, University of Calgary, Medicine, Calgary, Canada
Jean E. Wallace, University of Calgary, Sociology, Calgary, Canada
William A. Chali, University of Calgary, Medicine, Calgary, Canada
Peter Sargious, University of Calgary, Medicine, Calgary, Canada
Kelly Zarneke, University of Calgary, Medicine, Calgary, Canada
C. Maria Bacchus, University of Calgary, Medicine, Calgary, Canada

Introduction: A well-trained physician workforce is a vital foundation for a strong healthcare system. The Medical Teaching Unit (MTU) is a crucial training environment for medical schools and residency training programs. The MTU physician preceptor’s role is important, complex and stressful with various concurrent and competing role demands. Physician performance in this role may affect the domains of health care delivery, medical education, team leadership and physician wellness.


Results: The physicians were seen to execute duties in keeping with the a priori core MTU preceptor role identity of clinician, teacher and leader. However, many varied skills and behaviors related to the role were also detailed by the observers. They saw the preceptors working within a predominantly chaotic extended MTU environment while trying to promote order through their behaviors and the mastery of their professional skills. Several crucial elements of the preceptor-extended MTU environment interface were identified: the work, team, physical setting and healthcare system. These elements had both static and dynamic components that could promote chaos or order. Although independent of the preceptor, they were seen as intricately linked to the role and as impacting individuals performing in the role.

Discussion and Conclusions: This research has enhanced our understanding of the MTU preceptor role and exposes the important external and contextual factors that impact the physicians in the role. The observers saw the MTU preceptors as performing their expected duties, and doing so while largely mitigating the extended MTU environment chaos. We can now better define the MTU preceptor role and clarify role expectations. This may guide the development of orientation, mentoring and evaluation programs for preceptors. Potential new hypotheses on enhancing role performance can be developed and tested. By understanding the external and contextual factors that impact physicians in the role, we may be able to make systems changes to create better training environments. These system changes could enhance workforce training, the delivery of medical care, medical education, team leadership and physician wellness.

References:

5D2 (18731) Explaining the quality of teaching in seminars

Annemarie Spruit*, Utrecht University, Faculty of Veterinary Medicine, Utrecht, Netherlands
Jimmie Leppink, Maastricht University, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands
Ineke Wolfhagen, Maastricht University, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands
Albert Scherpbier, Maastricht University, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands
Peter van Beuken, Utrecht University, Faculty of Veterinary Medicine, Utrecht, Netherlands
Debbie Jaarsma, University of Amsterdam, Academic Medical Centre, Amsterdam, Netherlands

Introduction: Teachers play an important role in seminar learning as facilitators and content experts. However, contextual factors like students’ preparation, group size, group interaction, and content appear to influence their performance (Spruit...
et al. 2012). Understanding the impact of these contextual factors may optimize teaching performance and enhance the effectiveness of seminars on students’ learning. In this study we aimed to investigate how teaching quality in seminars is explained by students’ preparation and seminar group size, interaction, and content.

Methods: The validated Utrecht Seminar Evaluation (USEME) questionnaire was used to collect information on teaching quality and the aforementioned explanatory variables. To account for intra-student, intra-seminar, and intra-teacher correlation in the data mixed-effects linear regression was used to analyse 988 completed questionnaires in 80 seminars with 36 different teachers.

Results: Group interaction and seminar content had large ($\beta = 0.418$) and medium ($\beta = 0.212$) positive effects on teaching quality evaluations, whereas the effects of the students’ preparation ($\beta = -0.055$) and group size ($\beta = -0.130$) were small and negative.

Discussion and Conclusions: The results of the relation between group interaction and teacher quality confirm the results of a study of problem-based learning curricula, in which tutors’ skills with regard to group interaction positively contributed to the performance scores they received from tutorial groups (Dolmans et al. 2001). Although it is still unclear what the strong relationship between group interaction and teacher quality means in terms of learning outcomes, one implication of this relationship may be that teachers should design their seminars such that they stimulate interactions between students. Faculty development programs should focus on enhancing teachers’ discussion skills and train course coordinators and teachers in designing challenging seminar content and using different facilitating methods within seminars.

References: • Spruijt A, Jaarsma A, Wolfhagen H, van Beukelen P, Scherpbier A: Students’ perceptions of facilitating methods within seminars. Faculty development programs should focus on enhancing teachers’ discussion skills and train course coordinators and teachers in designing challenging seminar content and using different facilitating methods within seminars.

Scott Wright, Johns Hopkins Bayview Medical Center, Baltimore, Malaysia

Introduction: As international partnerships in medical education become more common, ensuring that effective learning environments are translated across borders will become more relevant. However, assessing medical school learning environment is challenging. The goal of this study was to test the ability of a new learning environment assessment tool, Johns Hopkins Learning Environment Scale (JHLES), to detect differences in pre-clerkship learning environments at 4 medical schools. Two schools are new international partnerships in Malaysia: Perdana University Graduate School of Medicine (PUGSOM), a graduate-entry program run by Johns Hopkins University School of Medicine (JHU), and Perdana University-Royal College of Surgeons in Ireland School of Medicine (PU-RCSI), a school-leaver program run by RCSI. Perdana schools matriculated their first students in the fall of 2011. The other two medical schools were Cyberjaya University College of Medical Sciences (CUCMS), a school-leaver program in Malaysia, and JHUSOM, a graduate-entry program in the United States.

Methods: First and second year students responded anonymously to surveys at the end of the academic year. All surveys included the JHLES, a 28-item survey using 5-point Likert scale response options. During development at JHUSOM, factor analysis resulted in 7 domains (listed with respective Cronbach’s $\alpha$): community of peers ($\alpha=0.91$), faculty relationships ($\alpha=0.80$), academic climate ($\alpha=0.86$), engagement ($\alpha=0.82$), mentorship ($\alpha=0.74$), acceptance and safety ($\alpha=0.58$), and physical space ($\alpha=0.66$). Surveys at the 3 Malaysian medical schools also included the Dundee Ready Educational Environment Measure (DREEM), the most widely used method to assess learning environments internationally. DREEM is a 50-item survey using 5-point Likert scale options, with items grouped by its developers into 5 categories, which have not isolated as discrete factors in previous factor analyses. Categories are: perception of teaching, academic self-perception, perception of atmosphere, and social self-perception. Significance was set at $p<0.05$ after Bonferroni correction for multiple comparisons.

Results: Complete surveys were collected with the following response rates: 51/55 (93%) PUGSOM, 97/134 (72%) PU-RCSI, 221/240 (92%) CUCMS, and 189/240 (79%) JHUSOM students. Total JHLES scores were higher at JHUSOM than PU-RCSI, with no significant differences in other pairwise comparisons. JHLES detected statistically significant differences between schools in 6/7 (86%) domains, all except “academic climate.” Differences did not follow a uniform pattern: JHUSOM and PUGSOM rated “acceptance and safety” higher than CUCMS and PU-RCSI, JHUSOM and CUCMS rated “mentorship” higher than PUGSOM and PU-RCSI, and CUCMS had the highest rating for the “community of peers” domain. Comparing only Malaysian medical schools, a difference was seen in only 5/5 (20%) DREEM categories (CUCMS rated 5D3 (18581)

Profiling medical school learning environments across cultures using one new scale

Sean Tackett*, Johns Hopkins Bayview Medical Center, Baltimore, United States

Hamidah Abu Bakar, Cyberjaya University College of Medical Sciences, Cyberjaya, Malaysia

Nicole Shilkofski, Perdana University Graduate School of Medicine, Serdang, Malaysia

Niamh Coady, Perdana University Royal College of Surgeons in Ireland School of Medicine, Serdang, Malaysia

Krishna Rampal, Perdana University Graduate School of Medicine, Serdang, Malaysia

ABSTRACT BOOK: SESSION 5
MONDAY 1 SEPTEMBER: 1600-1730
“perception of teachers” lower than PU-RCsI and PUGSOM), and there were no differences in DREEM total scores. By comparison, JHLES detected significant differences in 5/7 (71%) domains when only data from Malaysian schools were analyzed. Total JHLES score was highly correlated with the total DREEM score (rho=0.80), and more strongly correlated than DREEM to students’ global rating of the learning environment (rho=0.56 vs. 0.44).

Discussion and Conclusions: JHLES can discriminate between discrete learning environment factors across a range of cultural and educational settings, thereby creating unique learning environment profiles. Interpretation of these profiles may allow schools to understand how they are currently supporting trainees and to identify areas needing attention.

5D4 (18846)
What do tomorrow’s doctors need to learn about ecological sustainability? A systematic review

Sarah Walpole*, Hull York Medical School / York Hospital, Centre for Education Development / Acute Medical Unit, York, United Kingdom
David Pearson, Hull York Medical School, Centre for Education Development, York, United Kingdom
Jonathan Coad, Hull York Medical School, Centre for Education Development, York, United Kingdom
Ian Roberts, London School of Hygiene and Tropical Medicine, Epidemiology, London, United Kingdom
Anthony McMichael, Australian National University College of Medicine, Biology and Environment, Canberra, Australia
Stefi Barna, University of East Anglia, Medicine, Norwich, United Kingdom

Introduction: According to the World Health Organization, ecosystem change is a major health threat. The Global Consensus on Social Accountability calls medical schools to respond to current and future health-related challenges. (1) The CanMEDS framework highlights that doctors’ roles include health advocacy and healthcare management. (2) This two-year research project investigated the place of ecosystem change as a topic within medical curricula.

Methods: Initial searches reveal no reviews or consensus statements on ecosystems-thinking in medical education, therefore a systematic review of the international literature was chosen as the research method. A protocol, including search strategy and screening criteria, was developed in consultation with experts in the field. Extensive searches of the health, medical education, allied health professional education, education and science literature (peer-reviewed and grey literature) were carried out in databases, from Medline and ERIC, to LILACs and KoreaMed. Results were deduplicated into Mendeley. Inclusion/Exclusion criteria were pilot by two researchers on a sample of 100 papers. After ensuring consensus and clarity of the screening criteria, two researchers independently screened all papers, and where there was disagreement, consensus on inclusion or exclusion was reached in consultation with a third researcher. A framework with three overarching themes (health-ecosystem interactions, healthcare-ecosystem interactions and implications for practice) was used for data abstraction and analysis following a narrative synthesis approach.

Results: 3938 papers were identified from 14 databases and included in the initial screen after de-duplication. After excluding 3604 papers that do not address ecosystems or do not address health professional education, 334 papers reached the second screen. 234 papers were then excluded due to quality or methodology (115 case studies and 119 comment pieces). Included papers referred to a range of issues, including “ecosystems”, “global environmental change”, “climate change” and “environmental sustainability”, and these terms were either not defined or vaguely defined. Almost unanimously, findings suggested that future doctors need to learn about the impact of ecosystem change on health, the impact of healthcare on ecosystems or both. Studies varied in the extent to which they suggested that tomorrow’s doctors need training on how to incorporate this understanding into their practice.

Discussion and Conclusions: This is a timely first systematic enquiry into ecosystems-thinking in medical education. Across Europe and globally, there is no consensus on how ecosystems should be addressed in medical education. Consensus papers and reports identify that educators and students consider aspects of ecosystem change, especially the health impacts of climate change and environmentally-sustainable clinical practice, to be relevant to the training of tomorrow’s doctors. Methodological challenges in researching this rapidly-emerging health topic include ensuring search sensitivity and specificity, drawing lessons from other disciplines, and selecting, applying and reinterpreting a framework for analysis of a diverse data set. Limitations of this review include lack of capacity to incorporate papers written in other alphabets, and a hypothesized publication bias towards literature advocating the importance of ecosystems as a topic in medical curricula. Further research on ecosystems as a topic in medical education could investigate attitudes of patients and the public, definition and location within medical curricula, and effective pedagogies.

Multi-vocal narrative and the struggle for an integrated professional identity

Sally Warmington*, The University of Melbourne, School of Population and Global Health, Faculty of Medicine, Dentistry and Health Sciences, Melbourne, Australia

Introduction: Constructing a professional identity is a fundamental aspect of medical students’ preparation for practice. Educational research has shown that the work of identity construction is integral to every learning interaction. [1] Identity is dynamic and multiple, emerging in particular interactions with others. The relationship between a student’s emerging and pre-existing identities can influence their capacity to develop empathy for patients from diverse backgrounds. [2] This paper reports on one aspect of an ethnographic study investigating how medical students and hospital patients experience their encounters with each other.

Methods: The study draws on the theoretical work of Bakhtin on human relations as dialogue including the narrative phenomena of ‘voicing’ and ‘ventriloquation’. Data includes interviews with students, tutors and patients, and observations of bedside tutorials and ward rounds. The narrative presented in this paper is an excerpt from an audio-recorded interview with a student, Anushka. It was subjected to a dialogic narrative analysis, which focuses on the way a story is constructed in a particular context, and the way it is performed.

Results: As Anushka relates her response to feedback from a clinical tutor, three different ‘voices’ can be discerned, which are juxtaposed with each other and with her rendering of the voice of the tutor. The analysis reveals her struggle to reconcile her preferred way of interacting with the patient with the tutor’s instructions. She articulates her desire to develop a professional way of working with patients that is congruent with the values and practices of her established identity. Anushka accomplishes substantial identity work as she tells the story, positioning herself in relation to the interviewer and story characters. The story highlights the evolving relationship between her emerging and pre-existing identities. Furthermore, because identity always emerges in relation to others, she also constructs an identity for the tutor in the process. Similar narratives emerged in many of the interviews in this study, and this one was chosen because it highlighted the struggle between the students’ identities particularly well.

Discussion and Conclusions: This work provides empirical support to the growing body of literature that addresses the emergence of medical students’ professional identities and their integration with pre-existing identities. This is revealed as an active process, not a passive response to the tutor’s instructions. Rather than uncritically complying, Anushka works to resolve the conflicting demands of the situation in a way that allows her emerging identity to be integrated with her pre-existing ‘selves’ – acknowledged as a challenge by many students [3]. In comparison with those who compartmentalise their identities, integration may enhance students’ future capacity to empathise with a diverse range of patients. Identity formation can be seen as a creative struggle, made visible through the analysis of one student’s narrative about receiving feedback from her clinical tutor. This study confirms the value of narrative inquiry for the investigation of this under-researched domain of medical education. By learning about how identity is constructed during learning interactions, clinical teachers may be better able to support the identity work achieved during teaching interactions. Further research is needed to study the influence of local cultures and educational practices on the construction and integration of students’ identities.

References:
5E  AMEE FRINGE 1
Location: Brown 1, Level +2, MiCo

5E1 (22991)
‘Intellectual streaking’: Educators exposing their minds and hearts

*Elizabeth Molloy*, Monash University, HealthPEER, Melbourne, Australia
*Margaret Bearman*, Monash University, HealthPEER, Melbourne, Australia

**Summary**: As educators we often ask our learners to be vulnerable, but present ourselves as high status and knowledgeable teachers. For example, we frequently ask learners to try a new skill for the first time in front of an audience, whereas we demonstrate a skill that is planned, practised and polished. Another common situation is in a feedback discussion, where educators might ask learners to self evaluate, and provide examples of when and how they have fallen short of the mark, and seldom reciprocate this vulnerability in diagnosing and verbalising our own practice mistakes or challenges. This fringe session investigates the metaphoric notion of ‘intellectual streaking’. We use this analogy to impart the idea that an exposure of a teacher’s internal dilemmas, emotions, thought processes and/or failures, as well as the accompanying emotions of uncertainty and fear, can be illuminating and valuable. The challenge with exposure is that the risk of failure is real but this is what makes the teaching so compelling for learners. In this short presentation we will provide examples of when and where revealing the inner mind and heart is valuable. We will ask the audience to describe ‘war stories’, where session attendees can choose to share narratives and/or pictorial representations of failures, uncertainties and dilemmas in their practice. As facilitators, we too will model by opening ourselves to scrutiny through our own ‘intellectual streaking’ by sharing stories of educational failures and triumphs.

5E2 (20715)
Do as you should do and forget what you saw or heard

*Robbie Hage*, St. George’s University, Anatomical Sciences, St. Georges, Grenada

**Summary**: I would like to take you to the OR to observe how our colleagues in the cutting profession handle soap and deal with sterility. In the cafeteria we watch ‘soap’ on TV and a commercial break. We continue and attend a lecture of a long time professor in basic science followed by an introduction and presentation of a keynote speaker. Your role is diverse. You are who you are and you may be the student (alert, dosing off or checking your e-mails). The professor may put you on the spot and ask you a question. Perhaps you even have a question for the keynote speaker. Guaranteed you will recognize scenarios you wish your students will not copy. You gain insight into why students do not always get your message and just stay away. This is intended for any person who wants to know what education is like in the Operating theatre, in the lecture theatre, and for those who like to go to theatre!
5E3 (21636)
A rheumatologist makes sense of integration: The cartilage model

Anne Minenko*, University of Minnesota, Minneapolis, United States

Summary: Joint cartilage is extraordinary. It's more than a physical cap to protect against 'bone on bone'. The makeup of its layers – yes, it has layers – is tailored to purpose, be it to absorb compressive forces or to deflect shear stress on the surface. Articular cartilage is fascinating. It's live tissue yet has no nerves or blood supply. Although 90% water, in reality it looks and feels more like cue ball than an implant. Healthy joint cartilage is very active. In the right conditions, its cells are busy collagen- and matrix-making factories that give this organized tissue its highly desirable properties. If healthy cartilage was a country, its GDP per capita and high standard of living would be the envy of any economy. I am a rheumatologist and I think articular cartilage is amazing. I am also director of an integrated, 10-subject, 2nd year medical school course. What if I told you that I think this tissue is incredible because knowledge of healthy, degenerating, aging cartilage served as sense-making models for a healthy integrated course, an arthritic integrated course and an integrated course-in-decline? Do your health science students learn about cartilage and its diseases, but perhaps wrestle to understand why curriculum integration? Might your non-rheumatology faculty be equally confused by aging vs. degenerating cartilage as by your integrated curriculum? I invite you to this Fringe to learn about cartilage so that your students and your faculty can gain appreciation for this tissue and all can make sense of integration.

5E4 (21933)
Temporal Logics in Healthcare Work and their Implications on Interprofessional Collaborative Practice

Issac Lim*, National Healthcare Group, Health Outcomes & Medical Education Research (HOMER), Singapore

Summary: There are few concepts, if any at all, more important than the concept of time. American historian of technology and science, Lewis Mumford once argued that “the clock, not the steam-engine, is the key-machine of the modern industrial age.” The clock and its effects are ubiquitous. Edgar Schein, an expert on organizational culture noted that “there is probably no more important category for cultural analysis than the study of how time in conceived and used in a group or organization.” The manner in which healthcare work is organized, activities are sequenced and paced, are all subjected to interpretations. These interpretations will in turn affect how healthcare workers behave and respond to fellow healthcare workers. In this Fringe Session, I will discuss two types of temporal logics that are important for educators to consider. By temporal logics, I refer to “a set of symbolic temporal systems that provides the elaboration rules on which individuals or groups rely when assessing the propriety of behaviors.” Specifically, I will discuss how “work-temporal logics” – symbolic systems that guide organizational members in the organization of work – and “relationship-temporal logics” – symbolic systems that guide organizational members in the multiplex relationships that they are part of in a workplace. Importantly, I will invite the audience think along with me the implications of temporal logics on interprofessional collaborative care, especially when different professional groups have different and conflicting interpretations of time.
Introduction: The notion of preparedness for practice is poorly defined in medical education literature. In addition, despite growing literature on workplace learning and the characteristics of the working environment which promote learning, there is limited evidence around the characteristics of the working environment of doctors in training that best support preparedness for independent practice. This PhD explores the way General Practice trainees and early career General Practitioners describe their training environment in General Practice, the meaning they attach to the notion of preparedness and their perceptions of the impact of the training environment on their preparedness.

Methods: The study was informed by the interpretivist paradigm. I conducted 27 in-depth semi-structured interviews with 15 early career General and 12 General Practice trainees at the end of their training. Interview data were transcribed and analysed thematically, drawing partially on the grounded theory approach of data analysis.

Results: Interviewees described their training environment in terms of their sense of being included in the practice, the practice ethos, the importance of training to the practice, the trainer and their relationship with the trainer. There was no unanimous way in which interviewees talked about preparedness, however the meanings attributed to preparedness centred around two central elements ‘confidence’ and ‘adaptability’ and included: working independently and being self-directed; knowledge of business and partnership issues; ability to manage patients and workload; good consultation skills and effective time management; and adequate knowledge and passing the RCGP CSA examination.

Discussion and Conclusions: The way the training practice can impact on trainees’ preparedness was explained drawing on Bandura’s theory of ‘self efficacy’ and Lave and Wenger’s theory of ‘situated learning’. Inclusive training practices, characterised by less hierarchical relationships between the doctors, particularly vis-à-vis trainees, were better at preparing trainees for their future role by affording them greater opportunities to take part in a wider range of General Practice work. The role of the trainer was also pivotal in preparing trainees through effective teaching. Supervision tailored to trainees’ needs, and guided decision making enhanced confidence of trainees in their ability to work independently. The findings from this thesis might be of an interest to policy makers and can be used to inform the quality assurance framework of postgraduate medical training and the design of GP training programmes. The study offers new insights into the notion of preparedness and adds that preparedness is not only manifested by self-confidence but also by the ability to adapt to future work. In addition, the study suggests that for trainees to be better prepared, what matters is not simply the length of time spent in training but rather the nature of the training environment, the opportunities afforded to trainees and their engagement in such opportunities.


5F2 (18613) Development and validation of a structured curriculum in basic laparoscopy, A four-step model

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Jette Led Sorensen, Rigshospitalet, University Hospital of Copenhagen, OBGYN, Copenhagen, Denmark
Bent Ottesen, Rigshospitalet, University Hospital of Copenhagen, OBGYN, Copenhagen, Denmark
Christian Rifbjerg Larsen, Hillerød Hospital, Surgery, Hillerød, Denmark
Teodor Grantcharov, St. Michael’s Hospital, University Hospital of Toronto, OBGYN, Toronto, Canada

Introduction: The overall aim of this PhD thesis was to develop and validate a four-step curriculum in basic laparoscopy for residents in obstetrics and gynecology. Important work has been done to validate laparoscopic simulators as viable methods for teaching technical skills outside the operating room. The next step is to integrate simulation training into a curriculum in order to plan and standardize education. However, integration of structured simulation training remains a problem. This is mainly due to lack of knowledge on best practice within training methods and the ideal design of a curriculum. Through four collective studies this thesis aimed to develop and validate a four-step curriculum in basic laparoscopy that adhered to the current standards of proficiency-based training and distributed and deliberate practice. The core competencies revolved around basic laparoscopic theory and practice, integrating a knowledge component, a technical skills component and, as a novelty compared with the existing literature, an operational component.

Methods: Study 1: A validation study, a test containing 37 multiple-choice questions was developed through interviews with four experts in laparoscopy and subsequently through a Delphi audit involving regional laparoscopic surgeons.

Study 2: A randomized trial investigating the impact of...
instructor feedback when training a complex operation (a salpingectomy) on a virtual reality simulator. The intervention group received instructor feedback the control group did not. Study 3: A prospective cohort study that investigates whether doctors with different laparoscopic competence levels can assess laparoscopic operations on a validated assessment scale. Study 4: A prospective observational study. A curriculum with four steps was developed: Step 1) 1-day course in basic laparoscopy, Step 2) A multiple-choice test in basic laparoscopy, Step 3) Structured virtual reality simulation training, and Step 4) Operation on a patient with subsequent formative assessment.

Results: Study 1: The test showed good construct validity and no evidence of differential item functioning, meaning no questions had to be excluded before the test could be taken into use. Study 2: The trial demonstrated that instructor feedback significantly increased efficiency. The intervention group, who received standardized instructor feedback for 20–30 minutes, used half the amount of time and number of repetitions to reach proficiency level compared with the control group. Three participants in the control group dropped out due to the frustration of not being able to complete the task. Study 3: Senior residents and chief physicians in gynecology were equally able to assess laparoscopic operations on the basis of an assessment scale. Study 4: 52 first-year residents signed up. There was 100% attendance during Step 1, and 55% completed all four steps. There were several reasons for dropping out; the main reason was the voluntary nature of the study. Additionally, some logistical problems were identified for Step 4.

Discussion and Conclusions: We propose a flexible four-step curriculum in basic laparoscopy containing a course component, a knowledge component, a virtual reality training component involving instructor feedback, and an operational component with subsequent formative assessment.

5F3 (18633)
The Effect of Conceptual and Contextual Teaching Strategies on the Transfer of Basic Science

Kulamekan Kulasegaram*, University of Toronto, Family Medicine, Toronto, Canada
Kelly Dore, University of Toronto, Toronto, Canada
Nicole Woods
Geoffrey Norman

Introduction: Application of previously learned knowledge to new problems or contexts is a process known as transfer. Undergraduate medical education is optimized when learners are able to transfer basic science concepts to clinical learning. Previous research suggests that spontaneous transfer of conceptual knowledge is difficult for learners, thus creating a challenge during undergraduate training. However, familiarity with the context of a problem mediates the difficulty. When transfer problems are presented in familiar contexts (e.g. similar surface details, organ systems, clinical contexts), this near transfer is facilitated for learners. But when contextual familiarity does not exist, the problem is one of far transfer and is difficult. Previous research on improving transfer suggests two conflicting strategies based on different theoretical perspectives. The first is to teach learners to rely on contextual information such as the surface details of learning problems implying learners should be exposed to context variation during learning. An alternative view argues that learners should be taught decontextualized content and focused on conceptual information. Using theories from cognitive psychology, this thesis investigates how emphasizing contextual information of clinical problems such as organ systems versus conceptual basic science information impacts transfer of physiology concepts relevant to diagnosis in both near and far transfer.

Methods: Novice learners were randomized to learn physiology principles across three experimental studies and tested for ability to diagnose and explain written clinical cases at immediate and delayed testing. In study 1, we examined how emphasizing conceptual information using teaching analogies changed near and far transfer performance compared to learning without emphasis on conceptual information. In study 2, we explored how novices used contextual information during transfer by comparing transfer performance after learning with conceptual teaching analogies versus learning in multiple practice contexts. In study 3, we explored practice that emphasized conceptual information with or without context variation. Results were analyzed with appropriate statistical methods.

Results: The results showed 1) while emphasizing conceptual information can improve transfer, contextual alignment (near transfer) between learning and problem solving had the strongest effect in improving performance for all students. 2) Novices use contextual information as recognition cues for new problems. However, novices can be shifted away from
Introduction: Problem formulation: In endeavors to discern relevant anatomy for medical students, the AACRA, the Dutch Anatomists (NAV) and the British anatomists have each produced a core program of anatomy for the medical graduate. The American and Dutch initiatives have resulted primarily in inventories of subject matters, lined with diagnostic and therapeutic procedures. The British document is more competence based, formulating objectives like "Students should be able to describe/recognize...". Apart from their clear focus on completeness and coherence these core programs hardly reflect on ‘anatomical competence’.

Conceptual framework: The competence approach fits in the philosophical tradition of pragmatism. Pragmatism is rooted in the idea that meaning is determined by practical consequences. In the context of anatomy education, this means that anatomical knowledge becomes meaningful or relevant for a medical doctor when it is used, or when it ‘works’, in medical practice.

Research question(s): The aim of this thesis is to add to the discussion about relevant anatomy by exploring the nature of anatomical competence. Two overarching questions are:

1) What is understanding anatomy?
2) How do M.D.’s use anatomy in medical practice?

Methods: Description of research methodology
In this thesis, a mix of research methods is used. The methods are explained briefly below.

Results: Presentation of main results
Numerous studies have shown that spatial ability is beneficial for learning anatomy. A large controlled trial illustrates that, reciprocally, learning anatomy is beneficial for one’s spatial ability. Two experiments explore the differences between anatomy assessments with and without images. A psychometric study of an informal assessment confirms the notion that using images changes the item-difficulty and item-discrimination of test items, indicating that these test items measure different cognitive skills. A think-aloud experiment, studying the cognitive processes of students when answering test items with and without images, demonstrates that students regularly visualize when answering anatomical test items and visualize more frequent in items without images. So, students use mental images to produce answers to anatomical test items. A stimulated recall experiment, studying the cognitive processes of junior doctors during a consultation with a standardized patient, reveals the way anatomical knowledge is used in medical practice. It shows that junior doctors all use mental images of anatomical information during the consultation, although some of them visualized more frequently and more lively than others.

Discussion and Conclusions: Discussion of results:
Results illustrate the way anatomical information is processed in the brain. They suggest that M.D.’s use anatomical knowledge in practice by building and processing adequate mental images, during clinical reasoning. Similarly, ‘understanding anatomy’ comprises the ability to build and process adequate mental images. This indicates that anatomical competence relies for a large part on the ability to remember and process visual information and to connect this information with input from the patient’s history and physical examination. Theoretical and practical implication: So, in medical education, anatomy teachers would best provide students with learning tasks that help them to remember adequate visuospatial representations or to ‘get the picture’. Secondary to this is learning the adequate language for communication with colleagues and patients.
5G1 (22004) Guidelines for designing programmes of assessment

Joost Dijkstra*, Maastricht University, Educational Development & Research, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands

Background: Programmes of assessment are required to fulfil the demanding purposes assigned to assessment, e.g. determining students’ competence as future doctors. The paucity in literature about guidance for design of assessment programmes encouraged us to develop broad applicable support for achieving high-quality assessment programmes.

Summary of Work: Firstly, elements defining the design of high-quality assessment programmes were determined based on interviews with assessment experts in medical education. Secondly, guidelines for assessment design (GLAD) were formulated. A framework for evaluation of clinical guidelines and criteria for theory building were used to validate the GLAD in two case studies.

Summary of Results: A comprehensive framework for design of assessment programmes and 73 guidelines were developed and validated. Clarity, consistency, and parsimony were strived for while developing the GLAD. Next, the GLAD were evaluated and analysed on criteria for practicality (i.e. use in practice), explanatory power (i.e. ability to explain strength and weaknesses), utility (i.e. effect of application), and productivity (i.e. theory development).

Discussion and Conclusions: Assessment design needs to incorporate organizational issues and deal with interrelated elements like context, logistics, and politics. Defining quality as fitness-for-purpose enables us to apply the GLAD in various settings. The comprehensiveness of assessment programmes and large amount of GLAD make assessment design a complex endeavour. It requires a broad spectrum of expertise. Hence, design of assessment programmes is inherently a matter of teamwork.

Take-home messages: Guidelines for assessment design cannot replace assessment design expertise. Relevance of specific guidelines depends on the purpose of assessment.

5G2 (21935) Enhancing health professional educators’ assessment practice

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Background: There are many resources available which provide information on ‘good assessment design’. However, there is a gap between what is known to be good assessment practice, and what educators actually choose to do. We have developed an ‘assessment decisions’ framework, funded by the Australian Office for Learning and Teaching, which supports educators in making better assessment decisions.

Summary of Work: Thirty one university teachers, including 9 health professional/sciences educators, were interviewed regarding how they made choices about assessment design. Current literature on good assessment practice also contributed to the framework.

Summary of Results: The current framework is made up of six categories which reflect the areas of consideration for educators when making assessment decisions. These are:
- purposes of assessment
- learning and teaching contexts
- outcomes for learners
- designing and sequencing tasks
- the role of feedback to the learner
- interactions with learners and colleagues.

Health educators particularly noted the role of their own professional identity and experience in shaping assessment designed to develop future health practitioners. There were also challenges to design assessments which were aligned to the learners’ immediate needs, the university requirements and external professional body requirements.

Discussion and Conclusions: The ‘assessment decisions’ framework integrates a learner-centred approach to assessment with the realities of teaching environments.

Take-home messages: The ‘assessment decisions’ framework is a tool which may assist health professional educators to enhance assessment design.
5G3 (21806)
Designing A Final Cumulative Assessment for Pharmacy in Qatar: Reflections from a pilot project

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Background: Assessment of clinical competence is an essential requirement of health professional education. Effective assessment must be objective, transparent and generalizable to practice, demonstrating psychometric reliability and validity, whilst simultaneously being feasible and defensible. Final Cumulative Assessment (FCA) models have emerged as a method for allowing candidates to demonstrate they have consolidated the required knowledge and skills and can apply their learning to patient care.

Summary of Work: A pilot FCA in pharmacy was proposed to comply with the Qatar National Vision 2030 that sets out: “effective services, a skilled national workforce, capable of providing quality health services”. The design of the pilot project was influenced by the Canadian experience, the large number of international pharmacy graduates in Qatar with diverse backgrounds, the change in the scope of pharmacy practice in Qatar, and the recently established regulatory infrastructure for the health professions that is responsible to ensure professional competence.

Summary of Results: Our results represent a detailed description of how the partnership between an educational institution, a regulatory authority and major stakeholders in Qatar was established, the challenges met and how they were overcome. Data that cover OSCE case writing, validation and standardization, training of standardized patients and assessors, development and validation of multiple choice and pharmacy practice questions and capacity building are described.

Discussion and Conclusions: This initiative is the first in the region and is expected to be a model for other countries to learn from and improve upon.

Take-home messages: Partnership between academic institutions and healthcare regulator is essential in countries that take fast reform steps in the education and healthcare sectors.

5G4 (18508)
Global benchmarking of Australian medical student learning outcomes

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Background: How do we know our medical degree programs are achieving intended outcomes? Do you have rigorous data to demonstrate learning outcomes? Are these data externally benchmarked?

Summary of Work: For the first time in Australia, in 2012 at The University of Queensland, all final year medical students took the IFOM CSE (International Foundations of Medicine Clinical Sciences Exam) from the National Board of Medical Examiners, USA. This is a 160 MCQ, 4.5 hour exam covering medicine, surgery, obstetrics, paediatrics and mental health.

Summary of Results: Implementation, as an online exam was successful. Mean IFOM score was 531 (range 779-200). The local cohort performed better that the International Comparison Group (31% below score 500 vs 55% below 500). However 49% of the local cohort did not meet USMLE (US medical licensing exam) Step 2 CK minimum score. Correlation between locally developed exam scores and IFOM scores was moderate (0.552, p<0.001).

Discussion and Conclusions: International benchmarking of medical degree program learning outcomes is feasible, and provides a variety of useful data that can be used to improve curriculum and program performance.

Take-home messages: We should give serious consideration to the responsibility that we have to formally account for the performance of medical degree programs, and externally benchmarks are one component of a comprehensive quality assurance program.
5G5 (21265)
A common vision of the minimally competent borderline candidate? Do Educators and Clinicians agree?

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Background: Defensible cut-scores for high-stakes examinations are critical to validity. Adopting a new standard setting method, particularly when a large item bank is involved, needs to be undertaken with careful planning, knowledgeable participants, dedication and determination. As the Angoff method is the gold-standard for the licensing and certification industry, a national examining body recently made the decision to adopt this method. Vital to the Angoff method is the concept of a minimally competent borderline candidate (MCBC). It is critical that all subject matter experts (SMEs) share a common vision of MCBC. A major consideration in planning the conversion was the selection of the SMEs. Stratification was needed to ensure appropriate regional representation and balance between educators and clinicians; as they experience students from different perspectives it was important to control for bias. The purpose of this study was to retrospectively determine if stratifying by professional status was necessary.

Summary of Work: The process involved bringing together 50 purposefully selected SMEs from across Canada for a two and a half day meeting to estimate Angoff values for 850 selected response items. SMEs were given an orientation to standard setting and a consensus building session on envisioning MCBC. The bank was split into two halves so that each item was rated by 25 SME’s.

Summary of Results: Independent t-test between the average Educator and Clinician Angoff value were conducted for each half of the item bank. Neither test was significant (t= 0.05, d.f. = 992; t=0.284, d.f.=994).

Discussion and Conclusions: Clinicians and educators do share a common vision of MCBC and consequently there is no need to stratify on professional status.

Take-home messages: A mix is good so that all stakeholders feel involved but this is not critical.

5G6 (20722)
Closing a loop in assessment: Predicted and actual probability of a borderline student answering an item correctly

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Background: Year 3 students at Keele take a written formative assessment under examination conditions. We compare the probability of a borderline student answering any item correctly as predicted by an Angoff panel with the observed probability for the 2012 and 2013 cohorts. Borderline scores were defined as the predicted cut-score ± 1 SEmas for each cohort.

Summary of Work: The observed probability of a borderline student getting each item correct was calculated (number of borderline candidates who answered the item correctly/number of borderline candidates). The predicted probability was taken from the Angoff panel all of whom were familiar with students’ attainment and the curriculum. We plotted predicted versus observed probabilities, calculated the correlation (Pearson’s R) between the observed vs predicted probability of a borderline student getting an item correct and then calculated the range, mean and standard deviation (SD) of the differences between predicted and observed probabilities.

Summary of Results: There were 143 and 134 students in the 2012 and 2013 cohorts respectively and 8 members of the Angoff panel. The Pearson correlation coefficients (observed versus predicted) were 0.63 (2012) and 0.65 (2013). The range, mean (sd) difference between the observed and predicted probability was -0.4 to +0.6, -0.015(0.20) in 2012 and -0.4 to +0.6, -0.021(0.21) in 2013.

Discussion and Conclusions: Assessors’ predictions of the probability of a borderline student correctly answering individual items is poor but are as likely to be too high as too low.

Take-home messages: An Angoff panel’s estimation of the probability of a borderline student answering an item correctly is likely to be inaccurate.
5H1 (22829)
Learning the ropes: Effort-reward imbalance as a source of stress in postgraduate medical education

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Background: Residents are frequently found to score high on burnout measures. Though many models have been developed to quantitatively explain such scores, these models are general by nature in order to be applicable to multiple occupations. Consequently such models provide limited insight in why residents experience their training as stressful.

Summary of Work: We used a qualitative approach to gain in-depth understanding of the phenomenon under study. 7 semi structured interviews were conducted with pediatric residents with varied experience.

Summary of Results: The results were in line with the elements of the job-demands-resources model (JDR-model). However our approach provided more detailed information about the dynamics behind stress in postgraduate medical education (PGME). Most striking was the finding that novices have to devote much of their initial learning resources at developing organizational and communicative competences at the expense of developing medical expertise. Because they were predominantly focused at developing medical expertise, residents as well as their supervisors did not reward their efforts in the early stages of PGME to develop generic competences. These effort-reward imbalances seem important causes of stress.

Discussion and Conclusions: Although postgraduate training is inevitably very challenging, explicit expectation management, acknowledgement of generic competence development among novice residents and training in effective coping strategies seem potential solutions to remedy excessive stress in postgraduate training.

Take-home messages: More explicit attention to the development of generic competences in the early stages of PGME could decrease stress among residents.

5H2 (19477)
'Being in from the beginning and having an input': Early thoughts from the Broad Based Training pilot group

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Background: Society’s changing complex health needs require a more flexible approach to postgraduate training focused on producing generalists, equipped to meet these demands (Greenaway, 2013). In response, the Academy of Medical Royal Colleges (AoMRC) is piloting a two-year broad based training (BBT) programme in seven regions in England. BBT provides 6-month placements in four specialties. Commissioned by the AoMRCs to evaluate this programme we are conducting a longitudinal mixed methods study of the BBT 2013 intake (n=42) and a comparator group.

Summary of Work: This paper explores the outcomes of thematic analysis of qualitative data generated from three initial focus groups of BBT trainees.

Summary of Results: Thematic analysis revealed issues relating to career decisions, training opportunities, programme format and the trainees experiences of the BBT programme to date. The BB trainees’ perceptions are very positive to date; they see this as a progressive initiative and are pleased to be part of it from its inception. Overall they feel excited and enthusiastic about what they have experienced thus far, with the additional year added to training via this route regarded as beneficial. While the data reveal some teething problems, these are mainly minor, organisational and IT issues.

Discussion and Conclusions: The trainees are enthusiastic about this new training format and feel that this is “a forward looking programme”.

Take-home messages: Early indicators are that this new Broad Based Training initiative is being positively received.
**5H3 (19607)**

**Better training, Better care: Medical Procedures Training Initiative**

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**Background:** Training in procedures has been identified as the top priority for core medical trainees (GMC trainee survey 2011). Current practice relies on each trainee being lucky enough to encounter each procedure during clinical rotations and during on-calls. Where trainees are not lucky enough, they are entering their registrar years without the skills to efficiently lead the medical ‘on-take’. This can lead to delays in patient diagnosis or treatment. Because a single delay can easily burgeon into a lengthy series of multiple delays, this can lead to an associated prolongation of patient stay.

**Summary of Work:** Both confidence and competence in practical procedures can be increased with a procedure bleep system. A dedicated procedure bleep, carried on a rotational basis alerts the bleep holder when a medical procedure is planned. The bleep holder then attends to observe, assist, perform, or teach the relevant procedure. Hands on teaching is facilitated with online resources.

**Summary of Results:** This scheme shares the opportunities for procedure exposure amongst all trainees and ensures that a good breadth of experience has been gained independent of current ‘placement’. Formal evaluation revealed that 95% (19/20) of junior trainees felt more confident and competent as a result of participation. Furthermore, consultants felt this initiative reduced the burden on the medical registrars on-call.

**Discussion and Conclusions:** With improved training we are ensuring our diagnostic and therapeutic interventions are conducted efficiently, we are actively reducing length of hospital stay and improving the standard of healthcare provided.

**Take-home messages:** By providing better training, we are providing better care for our patients.

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**5H4 (21516)**

**Predicting the unpredictable: A pilot study demonstrating the use of simulation techniques in preparing medical students for the on-call shift**

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**Background:** From experience as foundation year one (FY1) doctors, we identified an unmet learning need in preparing final year medical students for the scenarios and pressure they will encounter on-call, centred upon areas less commonly covered but invaluable in practice. We designed and conducted an innovative series of FY1 led workshops focusing on the application of medical knowledge within a mock on-call situation.

**Summary of Work:** Current FY1 doctors proposed a variety of scenarios and workshops: assessing acutely unwell patients, fluid management, prioritisation, handover and safe prescribing. To simulate the pressure of an on-call within a safe learning environment, the students were bleeped at random to assume the role of FY1 on-call. Teaching leads assumed the role of health professionals. Models, mock xrays and results were provided and tasks were executed under real time constraints.

**Summary of Results:** 20 students participated in these pilot workshops. Likert scales were used to assess confidence and prior knowledge of each scenario; a 100% response rate was achieved. 75% disagreed / strongly disagreed that they felt confident in approaching an on-call shift; following the workshop 100% agreed / strongly agreed that they felt more confident approaching the shift. 100% stated the bleep simulation made teaching realistic and 76.9% stated it aided their learning.

**Discussion and Conclusions:** This project highlights a learning need for more simulated teaching to prepare final year medical students for the daunting and unpredictable on-call shift.

**Take-home messages:** FY1 doctors are in a key position to identify the scenarios that will benefit students and design interactive workshops that result in improved confidence and outcome.
**5H5 (19359)**

**Learning perspective. How to facilitate responsibility for own learning among junior doctors**

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**Bo Rahbek**, Junior Doctors in Denmark, Education & Career, Copenhagen

**Background**: During the last years focus on the term “responsibility for your own learning” has increased. It is talked about by consultants as well as junior doctors. But what is meant by the phrase and – more interesting – how do you manage to take responsibility for your own learning? And furthermore, how can the context become more supportive and facilitate the learning perspective?

**Summary of Work**: Junior doctors in Denmark find that the best way to address this is to facilitate workshops in which both consultants and junior doctors participate due to the importance of hearing each others viewpoints.

**Summary of Results**: It is important to point out that the the learning environment will improve if the supervisors are supportive. The more junior doctors perceive the feedback as supportive the more they engage in their work, the more they learn, and the more they take responsibility themselves.

**Discussion and Conclusions**: Based on the feedback from the workshops we know that:
- supportive contexts are needed to facilitate learning
- the psychosocial work environment improves after the workshop, mainly because both consultants and young doctors participate
- supportive feedback encourage junior doctors to engage in more challenging activities thus increasing their learning rate

**Take-home messages**: A supportive framing of learning activities will promote deeper learning, better achievement, and longer persistence.

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**5H6 (21024)**

**My home is where my heart is: Motives of residents and medical students for the choice of their residency program location**

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**Jan Pols**, University Medical Center Groningen, Wenckebach Institute, Groningen, Netherlands

**Hanke Dekker**, University of Groningen/University Medical Center Groningen, Institute for Medical Education, Groningen, Netherlands

**Ids Dijkstra**, University Medical Center Groningen, Wenckebach Institute, Groningen, Netherlands

**Background**: In accordance with international research many residents continue their career in the region where they were trained. As a consequence regional healthcare systems depend on the effectiveness to attract Postgraduate Medical Education (PGME)-trainees. This raises the question what makes postgraduate training programs in our region attractive. We investigated what reasons students and trainees have to choose for training positions in our region and what would make our region more attractive.

**Summary of Work**: A questionnaire was developed based on existing research and interviews with residents. 529 residents at the University Medical Center Groningen (UMCG) and 159 final year medical students received this questionnaire. The response rate was 172 for residents (32%) and 79 for medical students (49%).

**Summary of Results**: For students as well as residents the educational climate was a very important motive. Only for residents the perceived probability to be accepted as a resident was more important. Students and residents show a strong regional bonding with the location of education as well as their future working environment. Residents made many suggestions to make PGME in the region more attractive. Advices bear on secondary benefits and quality of medical training.

**Discussion and Conclusions**: This study emphasizes the importance of a positive educational climate. It does not provide reasons why residents did not chose a certain location of education. Results of this study can be used to come to a better connection between needs of (future) residents and the UMCG/Northeast Region and thereby heighten its recruitment power.

**Take-home messages**: For the recruitment of residents PGME should invest in educational climate.
51 SHORT COMMUNICATIONS: 
Portfolios in Teaching & Assessment
Location: Amber 2, Level +2, MiCo

511 (20890)
Assessing student competencies in community and primary care with an integrated portfolio approach

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Background: Learning and teaching in the community presents both opportunities and challenges for curriculum design. Although most health care encounters take place in the community, medical education and assessment have traditionally taken place in more controlled environments. Students may be widely dispersed geographically and their learning experiences highly contextual.

The skills required to be an effective community clinician include a range of clinical competencies, written and oral communication, health planning and effective use of evidence, self reflection, empathy and ability to work in teams. Any curriculum needs to guide students as they engage with patients in their diverse communities, align with student learning outcomes and be underpinned by robust and reproducible assessment that truly reflects the knowledge and skills required.

Summary of Work: Through a process of collaboration and engagement an integrated curriculum and portfolio assessment has been developed to provide an authentic experience, a broad range of learning objectives and a reproducible assessment process for students undertaking an eight week immersive rotation in Community primary care. The portfolio assessment reflects the integrated nature of the term, focusing students attention in the areas of evidence based decision making, social determinants of health, clinical reasoning, students as teachers, clinical skills, knowledge, professionalism and self reflection.

Summary of Results: Evaluation and assessment data is available from 257 students with a response rate of 98%. This demonstrates a highly acceptable, authentic and valuable experience for students and teachers.

Discussion and Conclusions: A competency based portfolio assessing medical students achievement in an immersive primary and community care term is highly acceptable to medical students and staff.

512 (22446)
The use of portfolio as an assessment and integration resource between theory and practice in a family health course

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Background: This paper presents portfolio use as a distinguished methodological strategy in a post-graduate distance course at family health area.

Summary of Work: The use of portfolios is presented as an important way of evaluation in the use of active methodologies. With portfolio construction it is possible to evaluate the learning process individually, identifying the needs of each student. Portfolio activities are requested at the end of each unit, composed by a group of five teaching units, formed by complex cases. Each portfolio activity was designed for the student following growing complexity, seeking to integrate all knowledge developed during the course to their professional practice in family health.

Summary of Results: The portfolio has proved to be an important evaluative tool for distance learning courses, integrating theoretical concepts and clinical practice. Methodological effective use of portfolios was ascertained from an index 90% positive rating on student satisfaction and low dropout rate in the course (14.10%).

Discussion and Conclusions: The use of portfolio in distance education in context and interactively engages students and provides meaningful learning. The activities approach in a problematical way the social and cultural contexts, arouse reflections and troubleshooting based on ordinary facts for health teams in primary care.

Take-home messages: The use of portfolio is presented as an effective and differentiated methodological tool in life-long learning for health professionals in distance education.
513 (22574)
What kinds of support and feedback are needed to increase the effects of a reflective portfolio for first-year students in Medicine?

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Background: Studies have shown that a reflective portfolio is a useful instrument for documenting acquisition of competencies; it works best when combined with self-reflection and external feedback. In 2013, the Faculty of Medicine in Tuebingen introduced a portfolio to help the beginners settle into their new role as students, to reduce anonymity at the university and to train continuous critical self-reflection as part of professional development. The aim of our study was to identify efficient methods of support and feedback. It was agreed to plan a lean but effective process.

Summary of Work: In a prospective randomized study, we compared: 1) a Senior Mentoring Program with at least one obligatory 1:1-meeting and oral feedback; n=161; 2) detailed written feedback with on-demand counselling, n=184. Qualitative and quantitative analysis were conducted by questionnaires and structured focus groups with consultants, mentors, and students.

Summary of Results: Mentors and consultants were impressed by the openness and quality of portfolios. The students in the Mentoring Group showed a significantly higher level of satisfaction in most items and of benefit through feedback and advice. Most students preferred one 1:1-meeting every 6 months. Only a small number of students of the consultation group requested personal counselling, although the offer was well known (94%). “Submerging” students were identified early. Problem areas during studies became transparent.

Discussion and Conclusions: The study provides compelling arguments in favour of mentoring, thus justifying the input of the faculty. The Portfolio in combination with oral feedback is appreciated, although it should be implemented in respect of study load.

514 (22167)
How does a program of assessment influence students’ learning?

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Background: The challenge of assessment practices is to acknowledge the effect of assessment on learning and use of these effects to guide learning. The use of programmes of assessment in which a wide collection of assessment information and feedback is combined for a (high-stake) promotion decision may encourage students to direct their own learning in a more meaningful way. This study investigated how medical students perceive the influence of a program of assessment on their learning.

Summary of Work: n=17 students of a graduate-entry medical school were interviewed. In the competency-based, comprehensive program of assessment, all assessment information and feedback is combined in a portfolio, which used for an end of year promotion decision. The interviews were analyzed using theory-based thematic analysis, in which a succession of coding templates and hierarchically structured themes, were applied.

Summary of Results: Students perceived assessment and assignments (as part of the various courses of the program) as summative, although these were designed to be formative. The portfolio facilitated learning, through follow-up of feedback, assessment and assignment results, and subsequent self-reflection and discussion with the mentor.

Discussion and Conclusions: The summative perception of assessments and assignments in a program of assessment resulted in (classical) pre-assessment effects on the learning response. The combination and follow-up of all feedback in the portfolio was perceived as helpful for learning and presented a positive post-assessment effect.

Take-home messages: Use of a portfolio in a program of assessment is essential for meaningful follow-up of feedback and encourages students to direct their own learning.
Reliability testing of a portfolio assessment tool for postgraduate family medicine training in South Africa

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Background: Workplace-based assessment of postgraduate trainees has received increasing attention worldwide. Family medicine was recognized as a speciality in South Africa in 2007. A satisfactory portfolio of learning is a prerequisite to sit the national exit examination. The aim of this study was to develop a reliable and feasible portfolio assessment tool (PAT) for South Africa.

Summary of Work: Six raters each rated nine portfolios from the Stellenbosch University programme, using the PAT, to test for inter-rater reliability. This rating was repeated three months later to determine test-retest reliability. Following initial analysis and feedback the PAT was modified and inter-rater reliability again assessed on nine new portfolios. An acceptable intra class correlation was considered to be >0.80.

Summary of Results: The total score was found to be reliable with a coefficient of 0.92. For test-retest reliability, the difference in mean total score was 1.7%, which was not statistically significant. Amongst the sub-sections only assessment of the educational meetings and the logbook showed reliability coefficients > 0.80.

Discussion and Conclusions: This was the first attempt to develop a reliable and feasible national portfolio assessment tool to assess postgraduate family medicine training in the South African context.

Take-home messages: The tool was reliable for the total score, but the low reliability of several sections in the PAT helped us to develop 12 recommendations regarding the use of the portfolio, the design of the PAT, and the training of raters.
5J SHORT COMMUNICATIONS:
Selection for Postgraduate Training
Location: Amber 3, Level +2, MiCo

5J1 (22474)
Validation of a new situational judgement test as part of national selection in Ireland

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Background: Having undertaken medical school training and an intern year, doctors in Ireland can apply for a post in General Practice (GP) specialty training. Currently there are 14 regional training programmes in Ireland, each having its own recruitment process which selects for the competencies it deems essential for success in the specialty. As part of a move towards nationally coordinated recruitment for selection to GP training, a validation study was conducted to explore the extent to which a new situational judgement test (SJT) could be used as a robust shortlisting tool focusing on important non-academic attributes.

Summary of Work: This study describes the design and analysis of a new SJT for selection (n=115), which was piloted alongside live selection this year (comprising a structure application form and interview). The SJT targets three domains: Empathy, Professional Integrity and Coping under Pressure.

Summary of Results: Psychometric analysis was used to determine the reliability and content validity of the SJT items. The association between the SJT scores, interview outcomes and subsequent training performance was analysed. As a proportion of the items piloted came from an established SJT for GP selection in Australia, the extent to which SJT items developed in one cultural setting are relevant in another was also explored.

Discussion and Conclusions: A robustly designed SJT provides increased reliability and validity to enhance standardisation for a national coordinated selection process for GP training in Ireland.

Take-home messages: SJTs can improve selection processes in postgraduate training which target important non-academic professional attributes.

5J2 (22421)
GP selection in Australia: Predictive validity of the AGPT selection system

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Background: General Practice Education and Training (GPET) have introduced significant and innovative changes to the Australian General Practice Training Program (AGPT) since 2010. This new national selection methodology now comprises a situational judgement test (SJT) and a multiple-mini interview (MMI). Early evaluation evidence shows this approach to be sufficiently reliable and effective, with favourable feedback from candidates. In partnership with Work Psychology Group, GPET are now seeking to explore the predictive validity of the new selection system. The aims are to further understand the benefits of the AGPT selection methodology and the positive implications for medical selection internationally.

Summary of Work: For both the 2010 and 2012 entry cohorts (N=c.1600), AGPT selection data and in-training performance data will be gathered and evaluated. This will use existing sources, stakeholder feedback, qualitative case studies and a bespoke questionnaire issued to supervisors.

Summary of Results: Analysis will be undertaken Spring/Summer 2014. This will explore the overall predictive validity of the process, the reliability of measures, demographic analysis and the predictive and incremental validity of each element of the selection process.

Discussion and Conclusions: We will draw conclusions in relation to the reliability, validity, fairness and cost-effectiveness of the AGPT selection system.

Take-home messages: Take home messages will articulate the key implications identified by this study for both GPET and medical selection internally.
The utility of Multiple-Mini-Interviews within a National Assessment Centre for selection into General Practice

**Background:** Entry into general practice training was determined by a National Assessment Centre (NAC) approach using a combination of a Multiple-Mini-Interview (MMI) and a written Situational Judgement Test (SJT). We wanted to know if interviewers could make reliable and valid decisions about the non-cognitive characteristics of candidates using the MMI. Second, we explored the concurrent validity of the MMI with the SJT.

**Summary of Work:** A variance components analysis estimated the reliability and sources of measurement error. Further modelling estimated the optimal configurations for future MMI iterations. We calculated the relationship of the MMI with the SJT.

**Summary of Results:** Data were available from 1382 candidates, 254 interviewers, six MMI questions, five alternate forms of a 50-item SJT, and 11 assessment centres. For a single MMI question and one assessor, 28% of the variance between scores was due to candidate-to-candidate variation. Interviewer subjectivity, in particular interviewer taste for candidates accounted for 40% of the variance in scores. The generalisability co-efficient for a six question MMI was 0.7; to achieve 0.8 would require ten questions. A disattenuated correlation with the SJT (r= 0.35) demonstrated evidence for construct and concurrent validity. Less than two per cent of candidates accounted for 40% of the variance in scores. The generalisability co-efficient for a six question MMI was 0.7; to achieve 0.8 would require ten questions. A disattenuated correlation with the SJT (r= 0.35) demonstrated evidence for construct and concurrent validity. Less than two per cent of candidates accounted for 40% of the variance in scores.

**Discussion and Conclusions:** The MMI is a moderately reliable method of assessment in the context of a National Assessment Centre approach. The largest source of error relates to aspects of interviewer subjectivity, suggesting further interviewer training would be beneficial. MMIs need to be sufficiently long for precise comparison for ranking purposes.

**Take-home messages:** In order to justify long term use of the MMI in postgraduate assessment centres approach, more theoretical work is required to understand how written and performance based tests of non-cognitive attributes can be combined, in a way that achieves acceptable generalizability, and has validity.

Criteria for the selection of obstetrics and gynaecology residency applicants: Do we all agree?

**Background:** Selection criteria are important and differences of the interviewer’s ranking of the selection criteria can affect the resident selection process.

**Summary of Work:** All 14 interviewers comprising the Programme Director (PD), Chair, 10 core faculty and 2 residents, ranked ten criteria in order of importance to them. The criteria were: academic results; IQ; EQ; hardworking; team player; diversity of work experience; diversity of demographic background & interests; good fit to innovative culture; holistic; and understanding lifestyle of being an OBGYN. The scores of the ranking were averaged (1 most, 10 least important).

**Summary of Results:** “Team player” was the overall most desirable criteria (score 2.1). “Hardworking” (2.9) and “EQ” (3.6) were the next most desirable while “diversity of background” (8.6) was the least important. The Chair considered “team player” as most important followed by “diversity of experience” and “EQ”. The PD, however, considered IQ, academic results and EQ the three most important criteria.

**Discussion and Conclusions:** In general, criteria towards optimal group performance (team player, hardworking & EQ) were favoured by the interviewer panel. However there were diverse opinions, especially in relation to the PD and Chair, both of which might provide strategic direction for the residency. This needs to be addressed.

**Take-home messages:** There are considerable differences in the selection criteria of resident among interviewers. It is important for the interview panel to discuss on the desired characteristics of residency applicants prior, to ensure internal and strategic alignment.
Residency selection interview format – Are multiple round-robin panels better?

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Weng Yan Ho, Singapore
Phuong Hao Ly, Singapore
Megan Wong, Singapore
Bernard Chern, Singapore

Background: Selecting a good resident is a challenge.

Summary of Work: As opposed to a single final interview panel for the selection of residents, we started a new format of simultaneous round-robin format comprising a main panel chaired by Program Director with a few faculty and a resident, another panel with 2 faculty and a ‘bullpen’ chat area with faculty and residents. A survey of 10 questions with answers on a 5-point Likert scale was done.

Summary of Results: All 13 (100%) interviewers responded. They agreed or strongly agreed that the new format gave a better opportunity to get to assess the candidates (100%) and allowed the team better use of time to learn beyond candidate’s statement and CV (100%). They agreed or strongly agreed, that the candidates would feel that they had a better opportunity to express themselves (92%); it being advantageous to include core faculty (100%); it being advantageous to include residents in the interview panel (85%); it was fairer and more transparent than the previous interview format (92%); and it helped the Program Director select candidates who best fit into program (92%). All (100%) would recommend this new format for the next batch of shortlisted OBGYN candidates and all (100%) would recommend for other Residency Programs.

Discussion and Conclusions: The survey showed that interviewers viewed the format of multiple round-robin panels as much better than single panel.

Take-home messages: Residency programs should consider multiple simultaneous interviews rather than a single panel interview format for better selection process.
5K SHORT COMMUNICATIONS: Approaches to Teaching & Learning
Location: Amber 4, Level +2, MiCo

5K1 (19451)
A study to explore the use of Cooperative Teaching and Learning Method (CTL) to enhance the academic achievement of nursing students at Oman Nursing Institute

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Background: Research evidence has shown that cooperative teaching and learning (CTL) increases the academic achievement of students at any level of education. Unfortunately this innovative pedagogical method, is at a halt and not extensively used in the nursing discipline. Although the CTL methods shows that it improves the level of academic performance, no comparative study has been done for the use of the Team-Pair-Solo method.

Summary of Work: Team-Pair-Solo method was instituted for second year (n 162) and third year (n 127) General Nursing Diploma students at Oman Nursing Institute. Quasi Experimental one group post test design was adopted where the total population was selected. Furthermore the post test was conducted at one week interval to assess and compare the effectiveness of this method.

Summary of Results: The z test revealed that effectiveness of the Team-Pair-Solo method was significant (p = 0.001), hence it indicated that the level of performance of the 2nd year was excellent than 3rd years. Majority of the students (nearly 91%) expressed that Team-Pair-Solo method was more advantageous and satisfactory.

Discussion and Conclusions: The Team-Pair-Solo method improved the student’s academic scores as it was interesting and student friendly. The students expressed that they have learned and expressed that this method had more merit. Henceforth, it can be concluded that Team-Pair-Solo was an effective method for improving the academic achievement of nursing students.

Take-home messages: Cooperative teaching method improves critical-thinking, problem solving, communication skills and improves the knowledge comprehension, retention, and use of nursing students hence it is suitable for any subject.

5K2 (21104)
Creative Play in Learning and Teaching: More than a method of learning

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Background: The imperative to prepare socially-oriented doctors with the capacity for agency in the face of uncertainty is relevant for informed decisions regarding healthy families, individuals, communities, and the National Health System in Brazil. Pairing epidemiology and creative play would lead to individual, group and class increased learning.

Summary of Work: Creative play was introduced, as a pilot study in a 110-hour epidemiology course for 120 second-year medical students. Students participated in lectures, team-based work, and group mentorship. Group work assignments involved using educational media. Ten groups of students worked 4 months each to develop a creative final learning presentation that incorporated material from all previous activities. The creative play approach, with successively iterative developmental stages, worked as a formative and summative exercise involving experiential learning, motivation, active feedback, and research.

Summary of Results: Students synthesized learning activities and experiences using audio, video, animation, shows, movies and podcasts. Contrary to previous traditional approaches, the participation and motivation of students increased during the semester as did the depth of research about the groups’ theme.

Discussion and Conclusions: Given creative freedom with responsibility, motivated students to develop activities that showed active participation and understanding through iterative play with epidemiology concepts and data. Learning needs more than one iteration when groups learned from other groups. This experience was deeper and more unpredictable for students and teachers than any specific method of learning.

Take-home messages: Students developed serious and creative activities with their peers that promoted scholarly participation and joyful learning. Finding ways to assess these activities while supporting creative freedom is the next challenge.
**5K3 (21932)**

**Supporting patient self-management in paediatric diabetes: Conditions, constraints and practices in the emergence of professional knowledge**

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**Background:** Policy directives emphasizing patient self-management have prompted a reconfiguration of health care provision that delegates to patients and families many of the roles and responsibilities previously held by professionals. The associated health education needs of patients have been considered, but the implications for professional education and learning are less well understood.

**Summary of Work:** This ESRC funded qualitative doctoral research focused on the emergence of professional knowledge in every day clinical practice. Using paediatric diabetes as a case study, data collection comprised participant observations, interviews and examination of documents and artefacts in an outpatient clinic.

**Summary of Results:** Different practices of surveillance and monitoring (of blood glucose levels for example) and the different modes of insulin delivery work to produce different knowledge practices for particular treatment regimens.

**Discussion:** Professionals supporting patient self-management face challenges that are often framed in narrow terms of interpersonal relationships and patient empowerment. This study shows the particular ways that specific materialities, such as tools and technologies of treatment provision, are also implicated.

**Discussion and Conclusions:** Education for professionals supporting patient self-management must take account of the materialities of treatment provision as well as the nuances of interpersonal relationships: both dimensions participate together in the emergence of professional knowledge.

**Take-home messages:** Configuring healthcare to support patient self-management evokes corresponding shifts for professional practice, education and learning. In paediatric diabetes, the specific materialities of treatment provision play important roles in the emergence of professional knowledge.

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**5K4 (20895)**

**Cheering and the ultimate aim of Education**

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**Background:** Sports’ Cheering in Thailand, unlike other countries, is not just for encouraging the athletes to win each game, but the aim is to gather unity among university students. The cheering is an important competition among faculties, which is why we put so much effort in perfecting the 12-minute show, also known as, “Climax”. The 180 freshmen are the ones running the show, while juniors are behind the stage.

**Summary of Work:** For one year, all the juniors of Faculty of Medicine, Chiang Mai University prepare all the materials, performances, and background for the tremendous stage. We also fundraise over US$ 30,000 to support the Cheer activities. We coordinate with everyone in our class. We also spend 38 days coaching and teaching the freshmen to get ready for the Climax show.

**Summary of Results:** Trophies and successful shows are expected, but the working experiences and relationships are the true benefits that we gain from working along the way. We learn and benefit from leading, team-working, and spending time together with the classmates in our medical school. Connections and friendships are crucial, especially during on medical rotations when we have to work with everyone.

**Discussion and Conclusions:** Therefore, apart from studying Medicine, the freshmen and juniors participate in Cheer activities to learn about their colleagues’ personalities before working with them on the wards. After one year, we believe that the ultimate purpose of education is the development of character, which is the core of becoming a great and sophisticated doctor.

**Take-home messages:** The medical knowledges can be gained from reading and studying, which will make you a doctor, but the life-long experience that you get from our Cheer club will make you a Great doctor with an open-minded perspective. Ask yourself if you know and have worked with everyone in your medical school.
Peer produced multimedia training tools: Improving undergraduate confidence in OSCEs

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Background: In modern medicine multimedia resources are a key component of learning. Material developed by medical students for medical students is increasingly prevalent as it ensures that developed resources are focused and relevant to the medical curriculum. As a peer-led Medical Educational Society we identified a globally low level of confidence in students performing specialist clinical examinations. A working group (n=5) reviewed current multimedia in this area, rapidly developed a student-led resource and assessed the impact on perceived confidence with these examinations.

Summary of Work: Stage 1: Task deconstruction and material production
Working group analysis of available training videos identified 3 recurring themes: no 1st person view, no OSCE timer and no explanation of difficult steps. Subsequently the group developed consensus criterion examinations for cerebellar and speech examination and training videos were produced.
Stage 2: Trial
A group of year 4 students trialed the videos (n=15) and completed questionnaires. Before trialing, 0% of students felt confident with these examinations, only 20% had been formally taught them. The rest of the questionnaire focused on the impact of the new training tools on pre-OSCE confidence.

Summary of Results: After using the training videos, students unanimously felt more confident performing these examinations and expressed a desire for further peer-produced videos.

Discussion and Conclusions: Peer teachers have the insight to identify problem areas and develop targeted multimedia solutions in revision areas where students lack confidence. Our experience demonstrates the benefit of clinical examination videos produced by students, for students.

Take-home messages: Peer-produced multimedia training tools are an effective way of improving students confidence in OSCEs.
Implementing a global curriculum in pediatric post-graduate training: Progress report from the Global Pediatric Education Consortium (GPEC)

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**Background:** The Global Pediatric Education Consortium (GPEC) developed a competency-based global curriculum. Built upon 12 primary competencies, the Curriculum contains KSA’s requisite for pediatric training worldwide.

**Summary of Work:** Seven countries have adopted the Curriculum as their "gold standard" and have begun developing implementation strategies.

**Summary of Results:** The most aggressive early adopter, Brazil, has leveraged the Curriculum to convince its government to extend/fund training an additional 12 months. Eleven university pilot sites (one in each state) have launched and extensive faculty training has begun. Further, the Southern Cone community (Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay) jointly adopted the Curriculum as the gold standard for that region. The principle Pediatric textbook, developed by Brazilian Pediatric Society, will be restructured to align with the Curriculum; the Curriculum will be published as a companion text and both will be published in Portuguese and Spanish for use as principle resources in the Southern Cone region. Spain adopted the Curriculum and the Spanish Association of Pediatrics translated the Curriculum into Spanish and graciously shared it with the Southern Cone countries.

**Discussion and Conclusions:** A number of progressive countries have adopted the GPEC Curriculum as their gold standard and have begun implementation for training, certification, and CPD. Strategies include gaining buy-in from governments, training faculty, and aligning resources (eg, textbooks and assessments) with the Curriculum.

**Take-home messages:** Adopting a global curriculum as a national or regional standard is feasible and has the potential to improve the quality of care to children in a country/region by uniformly improving the quality of training.
Global Health Made Local: Medical students working with families towards better health

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Background: Students at the Medical School for International Health at Ben-Gurion University in Israel have designed and run Global Health Made Local (GHML), a program with two main objectives:
1. For students, typically from North America, to meet and engage with local families.
2. To empower local families in health-related matters.

Summary of Work: First-year students were matched with a local family or community center, with the help of a municipal social worker, and met each other twice per month. Together, students and families created culturally appropriate health-related programs, and students took on the role of ‘adopted health partners’. Feedback and support from peer students was in monthly meetings. A pilot and formal program (lasting 6 months) have been completed.

Summary of Results: Fifteen of 22 students completed end-of-program evaluations. All students gained an understanding of factors related to healthcare, including socio-economic status, family background, language capacity and immigrant status. Health-related activities developed include preparing healthy meals, doing exercise videos, attending doctor’s appointments together, and discussing personal hygiene and safe sexual practices. Both students and families valued the experience of investigating aspects of health together.

Discussion and Conclusions: GHML provides an intersection of medicine, public health, community and social determinants of health. Through meeting local families, students were able to enhance cultural competence skills, and families were helped in negotiating health care issues.

Take-home messages: GHML is a well-received and organized student program that links medical students and local families with the goal of better understanding healthcare problems.

Education without borders: The current state, and evolving significance, of Global Health education in UK medical schools

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Background: Global health represents a topic that is increasingly both popular and pertinent in medical education. The emerging challenges of providing medical care in the 21st Century, such as globalisation, climate change and ageing populations, have made this so. However, global health is still a relatively new discipline, and one whose definition remains contested and continues to evolve.

Summary of Work: A review of the current literature on teaching in this area, investigating the potential benefits of global health education, as well as research into courses currently offered by UK medical schools, and how these institutions define the field.

Summary of Results: Global health courses are growing increasingly popular in the UK, with most institutions now offering optional modules in the subject. These courses also offer a potential lens through which other topics, traditionally less popular with medical students, such as research methods and public health, could be taught, improving learning outcomes.

Discussion and Conclusions: Educating medical students in global health issues has the potential to create doctors who are not only more able to attain the ‘Tomorrow’s Doctors’ criteria of expected standards for UK graduates, but also ones more able to meet the evolving challenges of working in healthcare, both now and in the future. Hence, medical schools should consider granting global health courses a place on their mandatory curricula.

Take-home messages: Global health represents an exciting, evolving, growing area of medical education that has the potential to help make medical school graduates both more competent and more capable of tackling healthcare challenges, both at home and abroad.
Developing Open Educational Resources for International Medical Education: The Leicester-Gondar Link Collaborative Teaching Project

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Background: Whilst the Leicester-Gondar link has delivered successful training programs for healthcare workers in the city of Gondar, Ethiopia, since 1996, face-to-face delivery of education is reliant on a significant amount of goodwill and resource. The Leicester Gondar Link Collaborative Teaching Project evolved from the idea of using Open Educational Resources (OERs) as a solution to this problem.

Summary of Work: 15 OERs (podcasts and slidecasts) were produced by Leicester doctors who also repurposed existing resources for use in Gondar. Standardized templates were designed to ensure a consistent instructional design for authors. OERs were hosted on a blogging platform (www.leicestergondarlink.com). New resources were promoted using social media, thereby encouraging further discussion and learning as well as academic networking beyond the two countries.

Summary of Results: Over 4000 views on the resources page were recorded from 35 countries in the first 6 months. A further 300 views were registered on the social bookmarking site. The social media channels have over 130 members. There are now conversations between doctors in training from both countries representing the early stages of a new community of practice.

Discussion and Conclusions: OERs offer sustainable and scalable methods for delivering technology-enhanced learning to the developing world. OERs provide the opportunity for healthcare professionals anywhere to support colleagues in low-income countries at minimal cost. The awareness of OERs can be amplified by social media extending their reach to hard-to-access communities.

Take-home messages: OERs have the ability to sustain relationships and networks between healthcare workers across the globe; however, further research is needed to evaluate their true impact on learning and patient outcomes.
5M SHORT COMMUNICATIONS: 
Roles of the Teacher
Location: Amber 6, Level +2, MiCo

5M1 (21647)
Exploring students’ perceptions about the teacher’s role during early clinical teaching

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Background: The start of clinical teaching is a significant milestone for medical students. Bedside teaching requires a variety of competencies and attributes. In a previous study, according to teachers’ opinions, we found that information provider, facilitator role, evaluator, and role model were particularly important in this period. The aim of this study was to explore students’ perceptions about teacher’s role during early clinical training and contrast these findings with teachers’ perceptions.

Summary of Work: Eight focus groups were conducted (n=54 students from third to seventh medical school year). Sessions were audio-recorded, transcribed verbatim, and responses were thematically organized and analysed using Grounded Theory.

Summary of Results: Students identified three teacher’s roles: facilitator, evaluator, and role model. According students, the facilitator role includes organising student groups, demonstrating technical procedures, giving feedback and recommendations, and action plan formulation. The evaluator role includes evaluation of professionalism, asking questions according to the level of formation and proficiency, and performing final evaluations. Lastly, the role model includes both on-the-job and teaching aspects. Students also mentioned other differences among teachers’ attitudes, some of them positive (motivated, interested in teaching, caring for students), and others negative (uninterested, not caring for students).

Discussion and Conclusions: Qualitative methodology allowed us to contrast the information obtained from the students with the perspective of teachers. Both students and teachers identified facilitator role, evaluator, and role model. Students emphasized positive and negative teacher attitudes regarding teaching motivation and caring for students.

Take-home messages: In student-centred education, facilitator role, evaluator and role model should be considered areas to be developed by tutors during early clinical teaching.

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5M2 (22713)
What makes a good clinical teacher in surgery in undergraduate medical education?

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Background: A clinical teacher is defined as someone who interacts with a student in the context of ongoing patient care. Twelve roles of a teacher by Harden effectively describes a good teacher, however the role of teacher as ‘information provider’ in surgical teaching needs more elaboration. This study was done to find students’ perception about a good clinical teacher in surgical ward rotations.

Summary of Work: Methodology used was qualitative case study. Four focus group discussions comprising 24 medical students of final year MBBS attending surgical rotations was done. Data was recorded and analysed using coding and thematic analysis.

Summary of Results: Students identified 63 main descriptors of a good clinical surgical teacher which were summarized to five main themes. These themes comprised knowledge, demonstration of clinical skills, communication skills, motivation, supervision and feedback.

Discussion and Conclusions: Knowing the students’ perceptions about the good clinical teacher in surgery will facilitate the learning of surgical concepts and skills and making good clinicians of the future.

Take-home messages: Characteristics of good teachers may vary for different disciplines.
The didactic trained teacher is more than a lecturer! Changes in role-commitment with didactic training

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Background: Harden and Crosby (2000) identified 12 roles of medical teachers that should be present at medical schools. In this contribution changes in commitment to those roles due to didactic training are analyzed.

Summary of Work: 144 teachers of the Medical University of Vienna – 113 beginners and 31 graduates of didactic training – rated their current and preferred future commitment to each of the 12 teaching roles. Chi-square-analyses were conducted to estimate the distribution of current and preferred future commitment to the teaching roles among both groups. Gaps between current and preferred future commitment were analyzed using t-Test and Mann-Wittney-Test.

Summary of Results: Teachers at the beginning of their didactic training unilaterally tend to occupy more traditional teaching roles, whereas graduates show an equal distribution in current commitment to the 12 roles. Beginners have clear preferences for more traditional teaching roles, while the role-preferences of graduates are equally distributed. The gaps between current and preferred future commitment are significantly smaller for graduates.

Discussion and Conclusions: Graduates of didactic training occupy a broader range of different roles, their role-preferences are more diverse and the gaps between their current and preferred future roles decrease. The results indicate that the training equipped them with the capacity to engage in a variety of teaching roles in accordance with their preferences.

Take-home messages: Analyzing changes in the distribution of the 12 teaching roles with didactic training and changes in the gaps between current and preferred future commitment can be an important indicator for the training’s success.
Exploring effective e-teaching in clinical education

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Background: A key element of studying clinical education at postgraduate level involves the exploration of the qualities of effective teaching. This study extends this exploration into the field of effective e-teaching.

Summary of Work: Using the literature on effective teaching in clinical education as a starting point, postgraduate students were invited to explore whether the qualities of effective teachers are the same as those of effective e-teachers.

Summary of Results: Effective teachers and effective e-teachers share a range of identifiable qualities and skills which can be applied in a variety of teaching situations.

Discussion and Conclusions: By identifying and exploring the qualities of effective teaching and e-teaching, professionals involved in clinical education can develop exciting and innovative approaches to their teaching, using a range of digital tools to support them.

Take-home messages: Becoming an effective e-teacher can enhance both the teaching and learning experience in clinical education.
5N SHORT COMMUNICATIONS:
CPD 2
Location: Amber 7, Level +2, MiCo

5N1 (22090)
Continuous Professional Development (CPD) – not a question of obligatory or voluntary, rather a bit of both!

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Background: According to the bargaining agreement, Danish specialist doctors have the right for respectively 10 days (hospitals) or 8 days (private practice) of CPD-activities. Participation in CPD-activities are voluntary, which gives the individual doctor the possibility to do activities, they find beneficial to their own needs. However, being voluntary, there are no regulations on what defines CPD-activities nor whether the doctors actually attend.

Summary of Work: The DMA has initiated a two-step study among Danish specialist doctors to find out, how they make use of their right to attend and choose CPD-activities. The study includes 2 qualitative group interviews with a total of 16 voluntary gynaecologists and obstetricians. This study will be followed by a quantitative survey among 1.000 doctors from different specialities.

Summary of Results: The results of the interviews show 8 main themes, one being that specialists have very different financial conditions for CPD-activities. Among the other themes: are who decides which CPD-activities to attend, and whether making CPD obligatory would guarantee time and funding.

Discussion and Conclusions: There is a tendency towards younger specialist doctors wanting obligatory, point-giving CPD (CME credits) in order to secure that they enhance their competences, while more senior specialist doctors argue that points do not make a better doctor.

Take-home messages: So far our study shows, that that junior and senior specialist doctors have different needs to their CPD – both in regards of content and to the organisation of their CPD.

5N2 (22489)
Mobile Application to support Primary Health Care dentists in medicine prescription

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Background: For World Health Organization, the most effective way to improve the use of medicines in developing countries Primary Care is the combination of education and supervision of health professionals, consumer education and ensuring adequate access to appropriate medications. Thus, the aim of this work is to develop an application for the Android platform to serve as a consult method for professionals that meet the Primary Health Care (PHC).

Summary of Work: To select the content to be inserted into the application, we selected the main topics in clinical pharmacology for dental practitioners working in primary health care. Therefore the following themes will be implemented in the application: antimicrobials, beta-lactam antibiotics, macrolides, tetracyclines, antifungal, antiviral, anti-inflammatory drugs, non-steroidal anti-inflammatory, steroidal anti-inflammatory, etc. At the environment development the correct configuration is vital for the production and testing of mobile applications step. The mobile application is being developed for Android platform and enables access to information even in the offline mode.

Summary of Results: Thus, the application was made for mobile and is assisting health professionals in defining and prescriptions to care their patient at the dental clinic. The application mobile of Oral Health pharmacology in the PHC will be another mechanism to improve quality of care.

Discussion and Conclusions: The implementation of applications who works offline allows their use in Primary Health, even in distance places, far from big centers, without internet access.

Take-home messages: Mobile applications are an important tool in education and have the potential for significant improvement in the learning process.
**5N3 (19402)**

**Affirmation of Continued Competence of Physicians in Practice: A Scoping Review**

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Bursey Ford, Memorial University of Newfoundland, Medicine, St. John's, Canada

Elise Cogo, London School of Hygiene and Tropical Medicine, Epidemiology, London, United Kingdom

Jeanie Zeiter, Royal College of Physicians and Surgeons of Canada, Research, Ottawa, Canada

Craig Campbell, Royal College of Physicians and Surgeons of Canada, Continuing Professional Development, Ottawa, Canada

**Background:** Physician engagement in lifelong learning within a rapidly changing healthcare system is a professional obligation and expectation of medical regulators and the public concerned with variability in the quality and safety of health care. There is a need for Maintenance of Competence (MOC) systems to demonstrate how engagement in learning is promoting continuous improvement of competence and performance of physicians.

**Summary of Work:** The Royal College of Physicians and Surgeons sought to summarize evidence regarding the development or implementation of national systems of continuing professional development (e.g. theoretical frameworks, contextual factors and evidence that informed decision-making). Using the Arksey & O’Malley (1995) framework searches were conducted to identify English-language records in multiple databases, using a validated search string (1990-November 30, 2013). Records were reviewed in duplicate until consensus was achieved. Data were extracted and then ‘charted’ using the Ritchie & Spencer (1994) framework.

**Summary of Results:** Following de-duplication, 7477 records were reviewed. A total of 232 full-text reports were reviewed to determine final inclusion. ‘Data’ were reviewed and discussed in a rich, contextualized fashion and identified numerous approaches for consideration within our context.

**Discussion and Conclusions:** Evidence for developing and implementing strategies for ensuring competent performance of physicians was summarized and provided a series of recommendations for Royal College Council to consider and debate.

**Take-home messages:**

1. There is a growing need for Maintenance of Competence (MOC) systems to demonstrate how engagement in learning is promoting continuous improvement of competence and performance of physicians.
2. Royal College has summarized evidence for development or implementation of MOC systems in 3 key areas.
3. Gaps in evidence for development and implementation of MOC systems exist.

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**5N4 (18449)**

**Didactic and technical considerations when developing e-learning for CME**

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Margreet Wieringa-de Waard, Academic Medical Center, Department of General Practice/Family Medicine, Amsterdam, Netherlands

Bernadette Snijders Blok, Academic Medical Center, Department of General Practice/Family Medicine, Amsterdam, Netherlands

Henny Pouw, Health Center “Op maat”, Department of General Practice/Family Medicine, Almere, Netherlands

Nynke van Dijk, Academic Medical Center, Department of General Practice/Family Medicine, Amsterdam, Netherlands

**Background:** Several usability issues were encountered during the design of a blended e-learning program for a course in evidence-based medicine for general practice trainers.

**Summary of Work:** The program was developed in several steps. For instance step 2 focused on which educational principles to apply, that is, which learning theories, instructional designs and other theories should influence the program. Step 3 focused on the design elements, namely whether to use hypermedia and/or multimedia, and what screen design and which font to use.

**Summary of Results:** The choice of which didactic design to use to achieve the learning goals is greatly influenced by which learning theory is considered most appropriate for the specific goals and audience. After selecting the didactic design, we studied which technical components could best support the learning of our population.

**Discussion and Conclusions:** Designing high quality e-learning for postgraduate education is very complex.

**Take-home messages:** Developing an e-learning course is a challenge in combining technical and pedagogical usability.
Targeting Different learning styles: Statistical analysis results of over 4000 conferences attendees, peer-reviewed journal and Learning Management System (LMS)

Claude Guimond*, Fédération des médecins omnipraticiens du Québec, CME/CPD, Westmount, Canada
Martin Labelle, Fédération des médecins omnipraticiens du Québec, CME/CPD, Westmount, Canada
Daniel Paquette, Fédération des médecins omnipraticiens du Québec, CME/CPD, Westmount, Canada

Background: The Fédération des médecins omnipraticiens du Québec, FMOQ, is one of the largest CME/CPD providers for Quebec family physicians. In order to respond to learning needs, we offer different CME products, targeting different learning styles and preferences.

Summary of Work: CME was integrated into the mission of the FMOQ since its beginning. Every year, we provide nine, two day conferences with an average of 325 attendees. Over the last 28 years, we have published a monthly peer-reviewed scientific journal. Readers can complete a post test and receive CME credits. Over a two year period we review most of the family medicine curriculum. In 2012, we launched an LMS with a specific pedagogical path. The content is extracted from the most appreciated of our large group conferences. These three learning products thus meet different learning styles.

Summary of Results: At the end of June 2014, we will provide a complete statistical report from our entire membership base (8256). Preliminary work shows that only 43% of the LMS users have never attended our large group conferences. The age distribution of conference attendees is the same as that of the LMS. We will repeat the exercise and extend it to the readers of our journal.

Discussion and Conclusions: Learning preferences are a reality and as a CME/CPD provider we should try to offer material and CME credit opportunities that meet the different learning styles.

Take-home messages: As a CME provider, we should take the needs assessment results and tailor our CME products according to each of the different learning styles.
50 Celebrating Ten Years of Essential Skills in Medical Education (ESME) Courses

Location: Amber 8, Level +2, MiCo

The ESME Course has been offered at AMEE conferences since 2005, facilitated by Stewart Mennin. ESME rapidly expanded to other venues throughout the world, and is a regular feature of the IAMSE and APMEC Conferences, facilitated by Ronald Harden. Additional, more specialised courses are also offered including ESME Assessment (ESMEA), Research Essential Skills in Medical Education (RESME), Essential Skills in Computer-Enhanced Learning (ESCEL), Essential Skills in Simulation Based Learning (ESMESIM), and Essential Skills in Continuing Education and Professional Development (ESCEPD). In 2012 an exciting development was the launch of ESME Online and ESME Leadership Online. Several thousand participants have now successfully completed the face-to-face or online courses. In this session participants from a range of ESME Courses will tell us what they gained from attending the ESME courses and how they have applied the ESME principles in their own teaching.

Presentations will be given by:

- Carmen Fuentealba, St Kitts
- Amina Sadik, USA
- Arnoldo Riquelme, Chile
- Philip Chan, UK
- Dimitri Parra, Canada
- Lim Wee Shiong, Singapore
- Dairshini Sithambaram, Kuala Lumpur
- Mohamed Al-Eraky, Saudi Arabia
- Giorgia Ganduglia, Uruguay
- Liris Benjamin, Dominica
5P SHORT COMMUNICATIONS:

Simulation 1
Location: Theatre Room 13, Level 0, MiCo

5P1 (21161)
Experience of simulated general practice clinics: A qualitative study

E L Rees*, School of Medicine, Keele University, North Staffordshire, United Kingdom
M H Bartlett, School of Medicine, Keele University, North Staffordshire, United Kingdom
R K McKinley, School of Medicine, Keele University, North Staffordshire, United Kingdom

Background: With the increasing emphasis on patient safety there is a need for students to be able to develop knowledge and skills in an environment that does not increase risk to patients.

Summary of Work: Simulated clinics were organised whereby fourth year medical students conducted whole consultations with simulated patients in a general practice premises. The clinics allow students to develop competencies in information gathering, clinical reasoning and therapeutic management without direct supervision and without posing any risk to patients. Students were assessed on the safety, efficacy, and proficiency of their clinical practice.

Four focus groups were held on the day of the clinics (n=16 students). Follow up interviews were held at four weeks (n=6). Interviews were audio recorded and transcribed verbatim. Transcripts were analysed by thematic analysis following principles of the constant comparative method. Ethical approval was granted from the school of medicine ethics committee.

Summary of Results: Students saw a mean of 3.9 (range 3-5) students per two-hour clinic. Students valued the opportunity to take responsibility for whole consultations, feeling “more like a doctor than a student”. The lack of a tutor as a ‘safety net’ raised students’ awareness of gaps in their knowledge, particularly relating to management and therapeutics. Students appreciated the feedback received after the clinics, especially that from the simulated patients. At four week follow up students had not actively addressed the knowledge gaps they identified during the clinics.

Discussion and Conclusions: Unobserved whole simulated consultations in general practice were highly acceptable to students.

Take-home messages: Knowledge gaps identified by students during simulation are not necessarily filled.

5P2 (19862)
Integration of Simulation in Pharmacology Learning

Michan Malca*, Universidad Peruana de Ciencias Aplicadas, Lima, Peru
Segundo Aliaga, Universidad Peruana de Ciencias Aplicadas, Lima, Peru

Background: Acute cardiovascular and neurologic emergencies must be accordingly treated to decrease mortality. High fidelity mannequins can be used to integrate case management training in medical school curriculum. The aim was to integrate simulation in pharmacology learning of medical students.

Summary of Work: Faculty trained in simulation selected learning objectives included in the cardiovascular and neurologic curriculum of the medical school. Four cases for training these objectives were created with a high fidelity simulator. Students established their own learning objectives before starting the scenario (pre-briefing). Students divided into groups of 5 to 6 along with a facilitator managed 4 cases: hypertension, shock, arrhythmia and seizures. At the end of each scenario a debriefing session was held. Later, students completed a 7-item survey for the evaluation of the sessions using open and 5-point scale questions (1:poor, 2:fair, 3:adequate, 4:good; 5:excellent)

Summary of Results: 78 students completed the 4 scenarios rating the activity very highly. Two months later the survey was post on internet to be freely completed; 23 (29.5%) answered; around 90% considered simulation useful and 82% agreed that it was highly applicable to their current and future training. 70% of respondents suggested specific topics to be included in further simulation activities.

Discussion and Conclusions: High-fidelity simulation can be successfully integrated in pharmacology learning of medical school curriculum.

Take-home messages: High fidelity simulation can used to reinforce pharmacology learning.
**5P3 (22696)**

*In situ simulation* versus *off site simulation* in obstetric emergencies and effect on knowledge, safety attitudes, team performance, stress, and motivation: A randomized controlled trial

**Jette Led Sorensen**, Rigshospitalet, University of Copenhagen, Juliane Marie Centre for Children, Women and Reproduction, Copenhagen, Denmark

**Cees Van der Vleuten**, Faculty of Health, Medicine and Life Sciences, Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands

**Doris Østergaard**, Capital Region of Denmark and Copenhagen University, Denmark, Danish Institute for Medical Simulation, Copenhagen, Denmark

**Vicki LeBlanc**, The Wilson Centre, University of Toronto, Toronto, Canada

**Marianne Johansen**, Rigshospitalet, University of Copenhagen, Obstetric Department, Juliane Marie Centre for Children, Women and Reproduction, Copenhagen, Denmark

**Bent Ottesen**, Rigshospitalet, University of Copenhagen, Juliane Marie Centre for Children, Women and Reproduction, Copenhagen, Denmark

**Background:** Obstetric emergencies threaten safety of pregnant women. Simulation-based medical education (SBME) seems a relevant training method. One unresolved issue on SBME is how *‘in situ simulation’* (ISS = SBME conducted in the actual patient-care unit), versus *‘off site simulation’* (OSS = away from the patient-care unit) impact learning. We hypothesise increased fidelity and higher levels of stress and motivation of ISS, and this may enhance learning.

**Summary of Work:** Methods: One hundred participants were divided into authentic teams of ten. Each of these multi-professional team participated in two obstetric simulation scenarios: The teams were randomized to either the experimental group (n=50) in ISS-setting or the control group (n=50) in OSS-setting. The outcome measures were pre- and post-simulation: knowledge tests, safety attitudes inventory, stress inventory, salivary cortisol levels, intrinsic motivation inventory, perceptions of the simulation, team-performance based on video-assessment.

**Summary of Results:** Results: The trial was conducted in 2013 with 97% participation-rate. Average-scores in pre-simulation knowledge-test and post-simulation were 70% and 83%, respectively in both groups (ISS and OSS). On a five-point Likert-scale, the overall attitude towards the simulation-training was five (median value) for both groups. The participants scored the authenticity of the simulation in the ISS versus the OSS at a median of four and three, respectively (p=0.002). More results will be presented.

**Discussion and Conclusions:** Knowledge-testing and overall evaluation did not reveal differences between the ISS-participants versus the OSS-participants. The ISS-participants found the simulation to have significantly higher authenticity.

**Take-home messages:** The perspective of this trial is to provide new knowledge about the contextual effects and importance of fidelity of simulation settings.

**5P4 (22623)**

Linking learning to practice: Using simulation to test knowledge retention and clinical application

**Majka Woods**, University of Minnesota Medical School, Office of Medical Education, Minneapolis, United States

**Jeffrey Chipman**, University of Minnesota Medical School, Office of Medical Education, Minneapolis, United States

**Suzanne van den Hoogenhof**, University of Minnesota Medical School, Office of Medical Educalton, Minneapolis, United States

**Background:** A considerable amount of time is spent in undergraduate medical school emphasizing basic science information with clinical scenarios. However, less emphasis is placed on the ability to take the information and apply it in low stakes practice environments early in student education. Also, there is a limited understanding about the influence of proximity of learning basic science and clinical facts and the retention over time of information for application in a clinical setting.

**Summary of Work:** For this study two respiratory pathophysiology simulation cases (Richards J, Hayden E. Respiratory Pathophysiology Simulation Cases (Pneumothorax and Pneumonia) MedEdPORTAL; 2012. www.mededportal.org/publication/9167) were adopted and an assessment tool was developed, in house, focused on history taking and physical findings, communication and professionalism.

**Summary of Results:** The assessment tool was developed to understand if students were able to take prior knowledge and apply it in a clinical setting. Approximately 232 students on two campuses will participate in the simulation in March 2014. On one campus the students will have had the basic science content proximal to the simulation exercise, on the other the students will have received the content approximately 6 months prior to the simulation.

**Discussion and Conclusions:** Conclusions will be drawn when the data is analyzed in early April. We will analyze the validity of the assessment instrument, as well as conduct a comparison study between the two groups of students as well as the groups of students by case.

**Take-home messages:** We believe giving students simulated clinical experiences is an important piece of learning how to apply the information they are learning.
5P5 (18549)
Relive game: Serious game for CPR training

Federico Semeraro*, Maggiore Hospital, Anaesthesia and Intensive Care, Bologna, Italy
Antonio Frisoli, Scuola Superiore Sant’Anna, PERCRO Laboratory, Pisa, Italy
Claudio Loconsole, Scuola Superiore Sant’Anna, PERCRO Laboratory, Pisa, Italy
Andrea Scapigliati, Catholic University of the Sacred Heart, Institute of Anesthesia and Intensive Care, Department of Cardiovascular Sciences, Rome, Italy
Giuseppe Ristagno, Istituto di ricerche farmacologiche “Mario Negri, Department of Cardiovascular Sciences, Milan, Italy
Erga Cerchiari, Maggiore Hospital, Anaesthesia and Intensive Care, Bologna, Italy

Background: Relive is a game about cardiopulmonary resuscitation (CPR). The main purpose of this game is to increase the awareness on CPR and prompt people, especially teenagers and young adults, to attend a CPR class and be prepared to intervene in case of cardiac arrest.

Summary of Work: Relive is a first person 3D adventure in a near future, on planet Mars. The game is divided in 2 different modes: Story mode and Tournament mode. Tournament mode is a ready-to-play simulated emergency scene, taken from selected game scenes, where the player faces different rescue situations and test CPR directly. During this game setup the player can challenge his friends directly in a score run, where the score directly identified the CPR accuracy. During the game the player is forced to acquire the basis of CPR to move forward in the story, in an interesting and non-invasive way. To keep the CPR skills razor sharp and for a fun and fast CPR challenge a tournament mode will encourage group play. Families, schools and groups will challenge themselves to beat the best score.

Summary of Results: Based on the motion detection technology previously published (http://www.ncbi.nlm.nih.gov/pubmed/23238423), Relive would like to become a tool for increase CPR awareness for the general population and become a new way to learn CPR.

Discussion and Conclusions: Serious game like Relive are extremely promising for resuscitation trainers and educator communities as a tool for spreading important messages to the lay public. Relive will be part of the cardiac arrest awareness week in Italy in October 2014.

Take-home messages: Think different way to teach (Federico Semeraro)
If you can’t win, change the rules. If you can’t change the rules, then ignore them. When in doubt, think! (Peter Safar)

5P6 (19908)
SimObserver, A mixed method study on self directed learning from patient simulation observations

Rainer C. Gaupp*, EduSim, Emergency Department, Therwil, Switzerland
Andrea B. Eissler, PeerConsulting GmbH, Gümlingen, Switzerland
Christian Eissler, Regionalspital Emmental, Langnau, Switzerland

Background: Patient simulation supports medical education. Audio-video links allow real-time observation scenarios for those students not actively involved in the scenario. This work investigates the role of these observations in self-directed learning processes.

Summary of Work: A mixed-method research design was used to analyze 81 healthcare professionals who participated at a one-day simulation course. Observers of the scenarios were videotaped during scenarios and qualitative content analysis was applied to analyze videos. Two raters used a 22-item coding-system to identify learning-supportive behavior. Statistical analysis of a validated 18-item questionnaire was used to measure reflective thinking.

Summary of Results: Video analysis revealed that observers are highly concentrated during scenarios: They use metacognitive strategies while observing. Furthermore, observers apply cognitive strategies to overcome inert knowledge. In contrast, distractions or inobservance occur rarely, they cover only 1.6% of the time spent. Sequence measures show observable learning behavior in 19% of the observations. Quantitative analysis support qualitative data: Scores for reflection and critical reflection on a 1-5 scale show mean values of 4.04±.47SD (reflection) and 3.98±.60SD (critical reflection) respectively. These levels are independent from training level, professional experience and profession. Students rate observations as valuable for their learning process, (mean 4.36±.75SD), most students agree (86.4%) that the observation is equally important than the action itself.

Discussion and Conclusions: Not only active participation in simulation scenarios, but also observation of scenarios support learning processes. Observers use cognitive and metacognitive strategies to foster learning while observing others.

Take-home messages: Observing simulation scenarios is valuable for learning processes. Simulation educators should actively involve observers during debriefings to foster these processes.
5Q  CONFERENCE WORKSHOP: The use of Twitter in medical education (2020)
Location: Workshop Room 1, Level 0, MiCo

Natalie Lafferty*, University of Dundee College of Medicine, Nursing, and Dentistry, Dundee, United Kingdom
Anne-Marie Cunningham*, Cardiff University School of Medicine, Cardiff, United Kingdom
Margaret Chisolm*, Johns Hopkins University School of Medicine, Baltimore, United States

Background: Because of their ubiquity and power, social media tools are increasingly attractive to medical educators. Twitter, developed as a way to publicly share 140-character messages, has the potential to bring together an international community of medical educators and learners in a way that no other social media tool can. Twitter offers users a personalised learning style and allows them to cross discipline, instructional level, geographic, and time barriers. Twitter promotes open interaction and idea-sharing among a worldwide community of educators and learners, encouraging a collaborative and constructivist approach to learning.

Intended Outcomes: Participants will: 1) describe a range of social media formats, including Twitter; 2) discuss application of Twitter in different learning environments; 3) access and engage with other medical educators on Twitter; and 4) describe limitations in the use of social media, including an understanding of organizational and institutional guidelines.

Structure: It will involve: i) a brief overview of social media formats, including Twitter, and their application in different learning environments (10 minutes); ii) facilitator-led small groups where each participant will set up his/her own Twitter account, send messages to fellow participants, embed shortened links into messages, and engage in a live chat with a global community of medical educators who are not attending AMEE (60 minutes); and iii) a panel discussion on the limitations of social media use, including an understanding of organizational and institutional guidelines (20 minutes).

Who should attend: This highly interactive workshop is suitable for medical educators and leaders who are interested in innovative education tools, with no previous knowledge required.

Level: Introductory

5R  CONFERENCE WORKSHOP: Introducing the Core Entrustable Professional Activities for Entering Residency (1998)
Location: Workshop Room 2, Level 0, MiCo

Robert Englander*, Association of American Medical Colleges, Medical Education, Washington DC, United States
Steven A. Lieberman*, UTMB School of Medicine, John P. McGovern, Galveston, United States
Jay Rosenfield*, University of Toronto, Undergraduate Medical Professions Education, Toronto, Ontario, Canada
Monica Lypson*, University of Michigan Medical School, Ann Arbor, Michigan, United States
Joe Thomas*, Mayo Clinic, Emergency Medicine, Rochester, Minnesota, United States

Background: A year ago the Association of American Medical Colleges (AAMC) convened a panel of experts to delineate the Core Entrustable Professional Activities (EPAs) that any MD entering residency should be able to do on day one without direct supervision. EPAs are work activities that professionals engage in on a day-to-day basis. They are observable and measurable, have a defined outcome, and require the integration of competencies. The Drafting Panel developed a set of 13 core EPAs for entering residency that were mapped to competencies and their respective milestones. This mapping allowed the development of expected behaviors and clinical vignettes for each EPA describing two learners: one ready and one not ready to be entrusted in the activity. Throughout the process, the EPAs were vetted through a Reactor Panel consisting of students, residents and medical educators from the United States and Canada. A final draft was then made available for feedback on the AAMC iCollaborative website. The Drafting Panel took the feedback and created a final version for posting in March of this year. This session will introduce the resultant 13 Core EPAs for Entering Residency, their descriptions, critical competencies, and behavioral vignettes. Participants will engage in a discussion about the merits/disadvantages of applying the EPA concept in undergraduate medical education, and then will go through an exercise to identify gaps between current performance and expectations for residents on day one of their residencies.

Intended Outcomes: Participants will: 1) Develop a working knowledge of EPAs; 2) Discuss application of the EPA concept in UME; 3) Think about the relative urgency of UME curriculum design related to the EPAs.

Structure: First half hour- Introduction of the Core EPAs; Second half hour- Discussion; Third half hour- Exercise to prioritize EPAs most in need of attention at the UME level.

Who should attend: Educators, Residents, Students, Curricular Leaders.

Level: Introductory
5S CONFERENCE WORKSHOP:
Simulation: Integrating Clinical Science and Basic Sciences in Pre-clinical Years (21585)
Location: Workshop Room 3, Level 0, MiCo

David Pederson*, Ross University, Clinical Medicine, Miramar, United States
Robert Sasso*, Ross University School of Medicine, Clinical Medicine, Portsmouth, Dominica
Nancy Selfridge*, Ross University School of Medicine, Clinical Medicine, Portsmouth, Dominica

Background: A hands-on patient simulation experience introducing participants to successful integration of simulation into the basic sciences curriculum. The framework will highlight the incorporation of adult learning principles with the overarching goal of demonstrating simulation’s role in the enhancement of knowledge retention. Participants will focus on preparation, testing, deployment and evaluation of student learning outcomes. A strong emphasis will be placed on the importance of interdisciplinary participation in the integration of simulation into the pre-clinical curriculum. As medical simulation technology has advanced it is increasingly used as a tool in resident and junior physician training. Its utility and advantages are not as well understood in undergraduate medical education. The purpose of this workshop is to introduce the concept of using simulation to improve basic science retention while promoting collaborative teaching by basic science and clinical faculty. A main objective is to demonstrate the feasibility of integrating a comprehensive simulation based curricula into the pre-clinical years by stressing the application of basic science knowledge in the implementation and assessment of simulation activities.

Intended Outcomes: Attendees will:
A) Participate in an airway management simulation reinforcing anatomy principles.
B) Participate in a high fidelity simulation on medical ethics, medical errors, and healthcare systems.
C) Identify 4 opportunities for collaborative simulation-based teaching at their home institution.
D) Develop 4 learning objectives from a basic science lecture that could be incorporated into simulation at their home institution.

Structure: 1 Brief Presentation
2 Hands-on Simulation and Debriefing Exercises
2 Small Group Discussions
1 Small Group Presentation

Who should attend: Basic Science Faculty, Medical Faculty, Allied Health Faculty
Level: Introductory

5T CONFERENCE WORKSHOP:
iEthics: An integrated curriculum for teaching ethical practice (20740)
Location: Suite 9, Level Mezzanine, MiCo

Lesley Bainbridge*, University of British Columbia, College of Health Disciplines, Vancouver, Canada
Lynda Eccott, University of British Columbia, Pharmacy, Vancouver, Canada
Paddy Rodney, University of British Columbia, Nursing, Vancouver, Canada
Bethan Everett, University of British Columbia, Physical Therapy, Vancouver, Canada
Anne Townsend, University of British Columbia, Occupational Therapy, Vancouver, Canada
Michael Burgess, University of British Columbia, Medicine, Kelowna, Canada

Background: Ethical practice is an area of curriculum across professional programs that is deemed to be critical for new practitioners. In most post-secondary institutions, however, ethical practice is taught in professional silos and rarely is it explicitly surfaced during supervised clinical practice. At the University of British Columbia an integrated ethics curriculum (iEthics) has been developed to address (a) a blend of discipline specific, multiprofessional (flexible or distributed) and interprofessional learning and (b) a continuum of learning that includes academic and practice-based contexts. This workshop presents an overview of the integrated ethics curriculum and allows participants to adapt it through small and large group discussions to meet their local needs.

Intended Outcomes: • Greater understanding of how to approach an integrated ethics curriculum in health;
• Ability to adapt an iEthics framework for local use;
• Personal action plans for furthering iEthics in health professional education.

Structure: • Introductions and overview of the integrated ethics (iEthics) curriculum including principles, exit competencies and learning milestones;
• Small group work to discuss (1) what can only be taught within professions and the rationale for uniprofessional learning; (2) how flexible or technology enhanced learning may be cost effective and efficient for common didactic ethics content; and (3) how to engage students in shared or interprofessional ethical decision making in complex cases, including the inclusion of the patient’s voice.
• Large group discussion on shared lessons related to teaching of ethical practice.
• Take home messages and personal action plans for iEthics curricula.

Who should attend: Academic and clinical educators in any health profession; students.
Level: Advanced
**5U CONFERENCE WORKSHOP: How our students develop (21655)**

*Location*: Suite 8, Level Mezzanine, MiCo

Ian Wilson*, University of Wollongong, Graduate School of Medicine, Wollongong, Australia
Iman Hegazi*, University of Western Sydney, School of Medicine, Campbelltown, Australia

**Background**: This workshop will explore the development of medical students as persons and professionals. While there has been much research on the development of knowledge and clinical skills and to a lesser extent professionalism there has been less research into the development of empathy, moral judgement, professional identity and social exclusivity. For many years it has been accepted that empathy declines across the undergraduate curriculum. Recent research, including ours, has questioned this and we will explore in more detail why this difference may occur. In our recent research we looked at the development of moral judgement. We, as have others, demonstrated that there is a decline in moral judgement across medical education. What we have demonstrated is that moral segmentation underlies this change. Moral segmentation will be explored and debated. Professional identity has been subject to debate for a number of years. Its importance has been accepted, but its measurement has been limited. Our preliminary studies suggest that early exposure to the clinical aspects of medicine have a profound impact on the development of medical professional identity. Combining early clinical exposure with the early development of social exclusivity results in the development of professional identity from an early stage.

**Intended Outcomes**: At the completion of this workshop attendees will have greater knowledge of the research in the four areas outlined above and will commence a discussion about the impact of these issues on student progress and development.

**Structure**: The workshop will be a mix of presentation and small group work

**Who should attend**: Medical educators responsible for student progress and development

**Level**: Intermediate

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**5V CONFERENCE WORKSHOP: The ACGME Next Accreditation System: An introduction to three key elements of this new competency- and outcomes-based accreditation approach (20998)**

*Location*: Suite 7, Level Mezzanine, MiCo

Ingrid Philibert*, Accreditation Council for Graduate Medical Education, Field Activities, Chicago, United States
Eric Holmboe*, Accreditation Council for Graduate Medical Education, Milestones Development and Evaluation, Chicago, United States
Kevin Weiss*, Accreditation Council for Graduate Medical Education, Institutional Accreditation, Chicago, United States

**Background**: The session will describe the change to a new competency- and outcomes-based accreditation model for postgraduate medical education in the United States. The presentations will detail the use of educational milestones, an institutional review to enhance quality and safety in the learning environment, and use of a self study process to facilitate continuous improvement.

**Intended Outcomes**: At the completion of the session, attendees will be able to:
1. Describe key elements of a data- and outcomes-focused Next Accreditation System (NAS) as it is currently being implemented in the United States by the Accreditation Council for Graduate Medical Education (ACGME).
2. Discuss the use of competencies and milestones in competency based education and assessment of residents, and in the evaluation and improvement of residency programs.
3. Identify the important role of clinical competency committees and the critical elements and processes of effective group decision making.
4. Identify the aims of the Clinical Learning Environment Review (CLER) as an formative evaluation approach used by ACGME to drive improvement in six focus areas, including the quality and safety of care in the learning environment and preparation of physicians for safe and efficient practice, how CLER differs from accreditation, and some early observations on the findings from piloting of this new program.
5. Identify the aims of the ACGME self-study and self-study site visits, and the envisioned impact on improvement efforts within accredited programs and sponsoring institutions.
6. Apply selected attributes of an ongoing focus on program improvement and competency and outcomes based education to local efforts to enhance education and professional development of physicians in training.

**Structure**: Lectures with audience interactivity

**Who should attend**: Post graduate training program directors and faculty, institutional leaders, faculty working in assessment and quality improvement

**Level**: Intermediate
5W CONFERENCE WORKSHOP:
Taking the Mystery Out of the Interprofessional Objective Structured Clinical Examination (IOSCE): A Tale of Two Models (21537)
Location: Suite 6, Level Mezzanine, MiCo

Susan J. Wagner*, University of Toronto, Speech-Language Pathology, Faculty of Medicine, Toronto, Ontario, Canada
John Tegzes*, Western University of Health Sciences, Interprofessional Education, Pomona, California, United States
Sheree Aston*, Western University of Health Sciences, Office of Academic Affairs, Pomona, California, United States
Brian Simmons, University of Toronto, Standardized Patient Program and Pediatrics, Faculty of Medicine, Toronto, Ontario, Canada
David Dickter, Western University of Health Sciences, Office of Academic Affairs, Pomona, California, United States
Scott Reeves, University of California, San Francisco, Social and Behavioural Sciences, School of Nursing, San Francisco, California, United States

Background: Interprofessional education (IPE), when different professions learn about, from and with each other to promote collaboration and improve patient/client care, is a current trend in health care education. IPE competency frameworks have been developed that provide a description of the knowledge, skills, behaviours and attitudes required to achieve these goals and to improve health outcomes. Assessing the outcomes for these IPE competencies, however, remains a challenge. The Objective Structured Clinical Examination (OSCE) is used to assess performance of individual learners and has been developed to assess IPE competencies in groups. This workshop will focus on defining the intended outcomes, development and delivery of the IOSCE to assess IPE competencies based on research findings and experiences from the University of Toronto, Canada and WesternU, U.S.A.

Intended Outcomes:
1. Define interprofessional outcomes
2. Identify challenges in assessing IPE performance
3. Design an OSCE station that incorporates several IPE competencies
4. Create an OSCE blueprint to assess multiple IPE competencies
5. Describe a model of IOSCE delivery

Structure: Using didactic presentation and interactive small and large group discussion, participants will obtain skills to define intended outcomes, develop IOSCE scenarios and blueprints relevant to IPE and determine delivery options for their own contexts. Following a brief overview of IPE competencies and the IOSCE, participants will observe, analyze and score simulated IOSCE scenarios. Participants will then design and discuss OSCE stations that incorporate IPE competencies. Finally, they will examine delivery options that are key to this process.

Who should attend: Health profession educators interested in assessment, competencies and interprofessional education.
Level: Intermediate

5X CONFERENCE WORKSHOP:
Moving your Residents as Teachers program forward: Strategies to assess teaching skills and evaluate Residents as Teachers programs (20204)
Location: Suite 4, Level +2, MiCo

Anna Oswald*, University of Alberta, Edmonton, Canada
Farhan Bhanji*, McGill University, Montreal, Canada
Ming-Ka Chan*, University of Manitoba, Winnipeg, Canada
Linda Snell*, McGill University, Montreal, Canada

Background: Post-Graduate medical trainees have important roles as teachers of junior colleagues and medical students yet few are assessed in this role and even fewer Residents as Teachers program are evaluated regarding their effectiveness. This workshop will build on previous experience in Residents as Teachers programs by reviewing strategies for assessing residents’ teaching skills and by providing practical advice on evaluating a Resident as Teachers program at participants’ local institutions.

Intended Outcomes: By the end of this workshop participants will be able to:
1. Review key steps to setting up a Residents as Teachers program.
2. Select/develop appropriate tools for assessment of residents’ teaching skills.
3. Apply a program evaluation framework to a Residents as Teachers program.

Structure: This highly interactive workshop will begin with a brief review of key steps for setting up a Residents as Teachers program and then will move to interactive activities to help participants explore tools for assessing their residents’ teaching skills and help tailor them to their local setting. We will then introduce a program evaluation framework. In small groups, participants will be encouraged to apply the framework to the evaluation of exemplar programs and examples from their local setting. Strategies for using the framework to build organizational capacity for evaluation and education scholarship will then be discussed.

Who should attend: Medical educators, residency program directors, (chief) residents and faculty developers interested in: 1) further developing their Residents as Teachers programs, 2) assessing postgraduate trainees’ teaching skills and 3) evaluating their program/interventions.
Level: Intermediate
5Y CONFERENCE WORKSHOP: Why Doctors Go Bad (20983)
Location: Suite 3, Level Mezzanine, MiCo

Michael O'Connor*, Health Education South West, Severn Postgraduate Medical Education, Bristol, United Kingdom
Davinder Sandhu*, University of Bristol, Medical School, Bristol, United Kingdom
Alan Cook*, Health Education South West, Severn Postgraduate Medical Education, Bristol, United Kingdom

Background: About 3.5% of students and trainees struggle to complete their training and require additional targeted time or an extension of training. Some leave the profession. The learning environment can be complex, chaotic and overstretched. Even with the introduction of ‘never events’ and increasing assessment of professional standards, doctors performance can (at the extreme end of the spectrum) sadly include wilful neglect and assault. Dealing with such problems can be a huge drain of resources for faculty, who often feel underprepared to deal with such occurrences. Failure to address problems early can lead to bitterness, huge remedial costs and legal challenges to educational institutions and employers.

Intended Outcomes: 1. To gain an understanding of why trainees/doctors struggle and/or fail 2. To be able to analyse the causes of poor performance 3. To know how to pick up these issues early and raise them. 4. To know how to deal effectively with this and get good outcomes

Structure: An initial presentation and discussion will focus on why trainees struggle or fail. This will be followed by group work reviewing written and filmed case studies and challenging situations. The workshop will conclude with advice based on researched best practice and guidance on how to develop focused action plans with struggling trainees/doctors.

Who should attend: Medical Trainers/Educators who have to deal with performance issues.

Level: Intermediate

5Z CONFERENCE WORKSHOP: Mindfulness Based Stress Reduction (MBSR) in residencies: A tool for making more compassionate doctors (20681)
Location: Suite 2, Level +2, MiCo

April J. Kam*, McMaster University, Pediatrics, Division of Pediatric Emergency Medicine, Hamilton, Canada
Anne Niec*, McMaster University, Pediatrics, Hamilton, Canada

Background: Mindfulness-Based Stress Reduction (MBSR) protocol has over 250 peer-reviewed publications proving its efficacy in alleviating stress and improving well-being. MBSR can increase empathy, self-regulation and compassion, while reducing anxiety in nursing, medical and premedical students. MBSR resources promote foundational intra and inter-personal capacities in reflection/mindfulness, compassion, trust and communication. Compassion fatigue develops in physicians with regular exposure to situations of moral distress, suffering, pressures to do more with less, and constant change within the medical field. There is plenty of literature describing how soon after medical school graduation, physicians lose their vicarious empathy. Residents establish patterns of behavior, with overall empathy levels dropping, as burnout and depression rises. MBSR in post-graduate education is an innovative concept and can enhance resilience, promote reflective practice and lifelong learning skills for the physician’s career.

Intended Outcomes: An opportunity to be introduced to and to experience a unique means to improve compassion and communication for post-graduate trainees. Workshop attendees will:
- Discover evidence behind mindfulness based interventions
- Find out what MBSR course entails and the various formats it can take to fit your particular residency program
- Learn strategies to implement successful MBSR programs in post-graduate education

Structure: A hands-on interactive workshop providing attendees with the latest evidence on establishing MBSR for post-graduate trainees. There will be a brief background provided, followed by break out small group discussions and practice.

Who should attend: Program directors, educators, clinical teachers, learners interested in addressing negative aspects of the hidden curriculum while providing tools for residents to decrease compassion fatigue and increase self-regulation.

Level: Intermediate
5AA  MEET THE EXPERT: @meeOnline
Salmaan Sana
Location: Suite 1, Level +2, MiCo

A chance to meet with one of AMEE’s Social Media Consultants to find out how to connect with @mee Online.

5BB  MEET THE EXPERTS:
Assessment, Measurement and Mobile Technology
Location: Suite 5, Level Mezzanine, MiCo

Godfrey Pell, Richard Fuller, Matthew Homer
(Assessment Research Group); Gareth Frith (Technology Enhanced Learning Manager), Leeds Institute of Medical Education at the University of Leeds, UK

Our philosophy is born of a continuous, quality improvement process that has seen ongoing improvements within assessment in our undergraduate Medicine degree programme and informed a programme of research in key areas of Assessment & Measurement. Our main areas of expertise relate to the OSCE (including quality improvement), the theory, design and delivery of successful sequential testing, the use of item response theory in relation to written testing, and workplace assessment, including application of assessment for learning theory. The Learning Technology team’s areas of expertise relate to the support of students in clinical practice through an innovative programme which helps them to develop their learning skills from clinical experience alongside a programme of workplace assessment delivered by smartphones. Come and see us to discuss your assessment and mobile technology related issues. No appointment necessary!
5CC POSTERS: Assessment 3: Work based / Self-Assessment
Location: South Hall, Level 0, MiCo

5CC1 (19256)
Technology and Workplace-based Assessment of Medical Learners: A Literature Review

Tarek Kazem*, Western University, Family Medicine, London, Canada
Eric Wong, Western University, London, Canada

Background: Workplace-based assessments of medical learners are critical for determining competence and mobile and electronic technologies may enhance workplace-based assessments. This study provides a descriptive review of how such technologies are applied in workplace-based assessment of medical learners.

Summary of Work: A search of PubMed and Scopus databases using keywords and medical subject heading (MeSH) terms relating to technology and workplace-based assessment yielded a total of nine articles that met inclusion and exclusion criteria.

Summary of Results: The majority of reviewed articles addressed the usage of Personal Digital Assistant (PDA) technology in the assessment of medical learners. Technology could be applied to workplace-based assessment in diverse ways with several likely benefits: increased efficiency, facilitation of assessments, and feedback enhancement. Drawbacks included compliance issues and the need for evaluator education.

Discussion and Conclusions: There is some evidence for the beneficial effects of technology on workplace-based assessment. Firm conclusions are limited by the paucity of published studies. Studies reviewed did not systematically assess the effect of technology based on the criteria of a good assessment system: feasibility, educational effect, catalytic effect, validity, and compliance. Technology may enhance efficiency and facilitate workplace-based assessments and feedback. Further studies addressing the effect of technology on assessment process and outcomes are needed.

Take-home messages: The usage of technology in workplace-based assessment carries promise but is no panacea at the present time.

5CC2 (19798)
Factors associated with effective feedback by mini-clinical evaluation exercise

Yeu-Jhy Chang*, Chang Gung Memorial Hospital, Linkou; College of Medicine, Chang Gung University, Department of Medical Education, Department of Neurology, Taoyuan, Taiwan
Chin-Song Lu, Chang Gung Memorial Hospital, Linkou; College of Medicine, Chang Gung University, Department of Neurology, Taoyuan, Taiwan

Background: Specific and accepted feedback given timely are more effective and helpful for the clinical teaching and formative assessment. To explore possible associated factors of effective feedback for improvement of faculty development, we analyzed the contents of written feedbacks in mini-clinical evaluation exercise (CEX) records.

Summary of Work: We retrospectively analysed 386 records of mini-CEX performed in two years with written feedback from trainers and trainees related to 6 ACGME competencies. Specific or both positive and negative feedback was defined as effective feedback. Contents were coded as specific or not, and as positive, negative or both for comparison between groups.

Summary of Results: There were 306 (79.3%) records given by trainers and 213 (55.2%) by trainees. Trainees gave more specific (73.2% vs. 40.8%) and negative (82.2% vs. 26.8%) feedback than the trainers’. Feedback contents were in the majority focused at the ACGME competencies ‘practice-based learning and improvement’ (99.7% vs. 99.1%), and ‘patient care’ (84% vs. 96.7%) by both trainers and trainees. Trainers who gave more specific feedback gave lower mean scores on all mini-CEX items (p<0.001), spent more time (p=0.029), and received higher satisfactory scores from trainers (p<0.001) and trainees (p=0.016).

Discussion and Conclusions: Effectiveness of feedback is associated with trainers’ scoring, teaching age and time spent, and with satisfaction of trainers and trainees by mini-CEX.

Take-home messages: The results further underscore the central importance of faculty development in the quality assurance of workplace-based assessment and feedback.
5CC3 (21322)
Aiming for excellence in medical education: The Pediatrics Mini-CEX project at Kuwait University (A survey of students’ experience and perceptions of the Mini-CEX)

Dalia Al-Abdulrazzaq, Kuwait University, Pediatrics, Kuwait
Amani Al-Fadhli*, Kuwait University, Pediatrics, Kuwait
Entesar Husain, Kuwait University, Pediatrics, Kuwait
Mayra Al-Saeid, Kuwait University, Pediatrics, Kuwait

Background: The Mini-CEX is a clinical assessment. Our aim is to investigate the medical students’ experience and perception of the tool after it was introduced to the pediatrics curriculum.

Summary of Work: The first group of students rotating in Pediatrics was surveyed using a self-administered questionnaire. We gathered information on process of administration, feasibility, reliability, validity, and educational effect.

Summary of Results: The present study is the first report of students’ experience with the Pediatrics Mini-CEX in the Arabian world. Twenty-four (75%) students participated. Majority (91.7%) were able to submit the required number of assessments. Most students preferred assessments done with in-patients (62.5%), school-aged children (83.3%), and on physical examination (79.2%). Most found counselling to be the most difficult (70.8%). Majority received feedback (79.1%) and agreed that it improved their future encounters (70.8%). Just more than half perceived the tool to be convenient and practical. However, when asked if the tool interrupted their clerkship and if it was time-consuming, they had a variable response. Only 12.5% found the tool to be reliable and a split response to the tool being valid. The Majority perceived the tool to measure their medical expert and professional competencies in a reliable and valid way. Lastly, 66.7% of the students found the tool to be overall educational especially in improving their medical expert and professional competencies. Majority of the students (79.2%) viewed the tool as a preparation for the clinical examination in Pediatrics.

Discussion and Conclusions: The initial experience and perceptions of medical students with the Pediatric Mini-CEX were promising. However, at this career stage, medical students have an incomplete grasp on the Mini-CEX’s usefulness as both an assessment and an educational tool.

Take-home messages: Medical educators should guide their students to appreciate the value of the Mini-CEX in assessment and pediatrics education.

5CC4 (22664)
Use of DOPS as an educational tool to change medical students’ compliance with hand hygiene

Maria Moirasgenti, Aristotle University of Thessaloniki Medical School, Laboratory of Hygiene, Clinical Skills Center, Thessaloniki, Greece
Emmanouil Smyrnakis*, Aristotle University of Thessaloniki, Laboratory of Hygiene, Clinical Skills Center, Thessaloniki, Greece
Kostantinos Toufas, Aristotle University of Thessaloniki, Clinical Skills Center, Thessaloniki, Greece
Elli Tsiranidou, Aristotle University of Thessaloniki, Laboratory of Hygiene, Clinical Skills Center, Thessaloniki, Greece
Maria Ntoumpara, Aristotle University of Thessaloniki, Clinical Skills Center, Thessaloniki, Greece
Alexios Benos, Aristotle University of Thessaloniki, Laboratory of Hygiene, Clinical Skills Center, Thessaloniki, Greece

Background: Health-care-associated infections are a major threat to patient safety worldwide. Published literature reveals poor compliance with standard precautions among healthcare workers and students worldwide. Assessment and raising awareness of hand hygiene standards during undergraduate education may affect the behavior of medical students upon entering professional life and contribute to the reduction of infection rates.

Summary of Work: Second year medical students’ compliance with hand hygiene standards was measured at their first contact with clinical settings using a Direct Observation of Practical Skills (DOPS) instrument. Key intervention consisted of an 8 hour one-to-one tutoring and feedback programme in the wards. After the programme, DOPS was repeated.

Summary of Results: A paired-samples t test was conducted to evaluate whether students’ compliance to hand hygiene improved after the intervention. The results indicated that the mean compliance after the programme (M=3.58, SD=.72) was significantly greater than the mean compliance before (M=2.30, SD=.71), t(79)=-11.2, p<.01. The standardized effect size index was .61, indicating large effect of the intervention.

Discussion and Conclusions: Success of current intervention shows that direct observations of practices are fundamental to confront medical students with their actual behaviour and responsibilities and to call for accountability with regard to patient safety. Hand hygiene training sessions need to be conducted frequently, with individual monitoring and performance feedback to encourage medical students to follow correct hand hygiene standards.

Take-home messages: DOPS can facilitate medical students’ practical skills teaching while improving patient safety.
**5CC5 (20603)**

**Are higher workplace-based assessment scorers also more lenient towards competitors?**

LS Ou*, Chang Gung Memorial Hospital, Department of Pediatrics, Kwei-Shan, Taiwan  
TW Wu, Chang Gung Memorial Hospital, Department of Pediatrics, Kwei-Shan, Taiwan  
CC Jenq, Chang Gung Memorial Hospital, Department of Nephrology, Kwei-Shan, Taiwan  
JL Huang, Chang Gung Memorial Hospital, Department of Pediatrics, Kwei-Shan, Taiwan  
HJ Tseng, Chang Gung Memorial Hospital, Biostatistical Center for Clinical Research, Kwei-Shan, Taiwan  
SJ Yeh, Chang Gung Memorial Hospital, Department of Cardiology, Kwei-Shan, Taiwan

**Background:** Workplace-based assessment (WPBA) is the “assessment of day-to-day practices undertaken in the working environment”. The purpose of the current study is to explore the relationship between horizontal WPBA and the WPBAs from supervisors.

**Summary of Work:** Nine third year pediatric residents from Chang Gung Memorial Hospital received different assessments in their training course. Six different training scores including 3 different WPBA scores were compared to each other.

**Summary of Results:** The scores from different WPBAs showed no significant correlation to the other three assessment scores (multiple choice question written test, scores of chart writing, and attendance rate of clinical meeting). All the WPBA scores showed very high correlation to each other (continuous variables data with Pearson’s correlation coefficients: 0.822 to 0.926, all p<0.01 and ordinal data with Kendall’s Tau-b coefficients: 0.743 to 0.857, all p<0.01). The horizontal assessment scores (assessment from the other same level colleagues) showed highest correlation to the other WPBA scores including assessment by three chief residents and assessment by attending staffs. Interestingly, we found that those who received higher scores from their supervisors and colleagues also tend to give more favorable evaluations to others of the same training level (Kendall’s Tau-b coefficients: 0.479, 0.551, and 0.704; p=0.075, 0.044 and 0.009).

**Discussion and Conclusions:** The horizontal assessment has strong correlations to the other WPBA scores by supervisors.

**Take-home messages:** The horizontal assessment is a valuable method of WPBA for evaluation of resident doctor performance.

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**5CC6 (21112)**

**Workplace-based assessment in Irish postgraduate medical training: Who is using what and how?**

Aileen Barrett*, Royal College of Physicians of Ireland, Education and Professional Development, Dublin, Ireland  
Rose Galvin, Royal College of Surgeons in Ireland, Department of General Practice and HRB Centre for Primary Care Research, Dublin, Ireland  
Ann O'Shaughnessy, Royal College of Physicians of Ireland, Education and Professional Development, Dublin, Ireland  
Albert Scherpbier, University of Maastricht, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands  
Yvonne Steinert, McGill University, Centre for Medical Education, Montreal, Canada  
Mary Horgan, University College Cork, School of Medicine, Cork, Ireland

**Background:** In 2010, workplace-based assessment (WBA) was formally introduced in 26 national basic and higher specialist training (BST/HST) programmes. The aim of this study was to explore patterns of WBA use and to examine if WBAs are being used formatively as originally designed.

**Summary of Work:** A retrospective cohort study was conducted and approved by the institution’s Research Ethics Committee. Fifty percent of BST and 70% of HST ePortfolios registered for the academic year 2012-2013 were randomly accessed and data extracted anonymously.

**Summary of Results:** Data were extracted from 255 (BST = 144; HST=111) ePortfolios in 24 specialties. DOPS/OSATS requirements ranged from 0-19 observations during the training programme; the greatest Mini-CEX/Cbd requirement was 4 per year. The average number of weeks a trainee was in post before a WBA was completed for BST was 31.3 (95%CI; 29.7-33) (DOPS/OSATS); 32.65 (95%CI; 30.8-34.4) (Cbd) and 33.74 (95%CI; 31.7-35.7) (Mini-CEX). Feedback – of varied length and quality, was documented on 29.6% (HST)/63% (BST) DOPS/OSATS; 21% (HST) / 37% (BST) CbDs; 67.5% (HST) / 56% (BST) Mini-CEX.

**Discussion and Conclusions:** This is the first study to profile WBA use in an Irish context. Further work with trainers and trainees is needed to explore understanding of the formative element of WBA; documented feedback may not reflect that given verbally.

**Take-home messages:** The majority of WBAs were completed in the second half of the training year, suggesting WBAs are not being used formatively, with limited time for performance improvement and re-evaluation.
ABSTRACT BOOK: SESSION 5
MONDAY 1 SEPTEMBER: 1600-1730

5CC7 (20416)
Video-assisted self-assessment of basic life support performance for Thai medical students

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Anantachote Vimuktanandana, Faculty of Medicine, Chulalongkorn University, Anesthesiology, Bangkok, Thailand
Atikun Thonnagith, King Chulalongkorn Memorial Hospital, Anesthesiology, Bangkok, Thailand
Surunchana Lersdisarippon, King Chulalongkorn Memorial Hospital, Anesthesiology, Bangkok, Thailand
Oraluxan Rodanant, Faculty of Medicine, Chulalongkorn University, Anesthesiology, Bangkok, Thailand
Danai Wangsaturaka, Faculty of Medicine, Chulalongkorn University, Pharmacology, Bangkok, Thailand

Background: Basic life support (BLS) is the crucial component of cardiopulmonary resuscitation (CPR). Observation and feedback is the fundamental principle employed in a practical BLS class with the increased use of the video to assist the debrief session. However, we believed that Thai students would not be at ease when being video-recorded because of their shyness. We, therefore, evaluated the utility of video-assisted self-assessment in BLS class in Thai medical students.

Summary of Work: Seventy-four fifth year students participated in the study. After BLS demonstration and some practice, we video-recorded each participant’s performance. They, then, assessed themselves using standard checklists; viewed their own videos; received instructor’s feedback; and performed self-assessment with the checklists again. Questionnaires were used to obtain the participants’ comments.

Summary of Results: Only 9% of the participants felt uncomfortable being video-recorded. 98% agreed that they could identify their own pitfalls from the video. Comparing the self-assessment scores obtained before and after watching videos, 58% of the participants underestimated their own performance. The students who participated in this study had statistically significantly higher scores in the end-of-course BLS OSCE station than the non-participants (19.39 vs 18.60; p = .003) with the effect size of 0.65.

Discussion and Conclusions: Video-assisted self-assessment can be utilised to promote student learning of procedure. It has an additive role even in Thai culture.

5CC8 (22302)
Discordance of students’ self-perceived level of knowledge and academic performance score in Pediatrics Surgery

Chira Trairongchitmoh*, Department of Surgery, Sanpasitthiprasong Hospital, Ubonratchathani, Thailand

Background: Students’ perception of their knowledge is important for active learning and continuous improvement. This study aimed to examine the correlation between students’ self-perceived level of knowledge, their paper-based assessment score and the overall performance.

Summary of Work: Sixteen 5th year medical students were asked to rate how much knowledge they had on four different topics of Pediatric Surgery, using 5-level Likert scale questions. Their knowledge was also assessed using a paper-based summative assessment before and after lectures on these topics. Before-after difference in assessment scores was computed. The correlation between student’s self-perceived level of knowledge, assessment score and overall performance as measured by GPA, using Pearson’s correlation.

Summary of Results: Poor correlation between self-perceived knowledge and actual assessment score was observed (r= 0.117). This was similar for both sexes. The difference between perceived score and actual assessment score was associated with before-after changes in the assessment scores (r=0.627, p<0.01). Students who underestimated their performance score (actual score higher than the level they perceived) were more likely to have high GPA (higher than the median GPA of 3.1) than those who overestimated the performance score (66.7% and 28.6% respectively).

Discussion and Conclusions: Students’ self-perceived level of knowledge did not correlate well with that actually performed in the assessment. Formative assessment might help improve students’ perceived level of knowledge and hence active learning.
5CC9 (21522)  
Development and initial use of the self-accomplished, self-assessment tools iCAN!/theyCAN!-Treating Pain specially designed for medical students studying the selected component «Treating Pain»

**Maria Ntalouka**, University Hospital of Ioannina, Department of Anesthesiology and Postoperative Intensive Care, Ioannina, Greece  
**Ioannis Dimolitis**, School of Medicine, University of Ioannina, Department of Hygiene and Epidemiology, Ioannina, Greece  
**Anastasios Petrou**, University Hospital of Ioannina, Department of Anesthesiology and Postoperative Intensive Care, Ioannina, Greece  
**Petros Tzimas**, University Hospital of Ioannina, Department of Anesthesiology and Postoperative Intensive Care, Ioannina, Greece  
**Sofia Kontou**, University Hospital of Ioannina, Department of Anesthesiology and Postoperative Intensive Care, Ioannina, Greece  
**Eleni Arnaoutoglou**, University Hospital of Ioannina, Department of Anesthesiology and Postoperative Intensive Care, Ioannina, Greece

**Background**: As we are currently moving from medical school level outcomes to outcomes of specific courses, we developed a self-accomplished, self-assessment tool for students. Students and the professors were asked to use this tool before and after attending the special study module (SSM) “Treating Pain”.

**Summary of Work**: First a SSM’s guide was prepared, where the outcomes that should be met, the teaching/learning activities, the students’ workload, etc. were addressed. Then the SSM’s outcomes were transformed into the iCAN!/theyCAN!-Treating Pain questionnaires, completed by students/professors during the first and last day of the course, declaring their agreement in statements like “I/They can diagnose the neuropathic pain” etc.

**Summary of Results**: A 49 question tool was developed. All 37 students participated. On average, students scored 36% the first day compared to 75% of the last day, while their professors’ average first and final marks were 32% and 77%. Their worst first-day competence was “I can explain the neuroplastic process giving examples” (17%), whereas their best “I can distinguish whether the pain is acute or chronic” (64%), which improved to 69% and 84%, respectively.

**Discussion and Conclusions**: Students were enthusiastic about having clearly understood from the beginning of the course what they should be able to achieve in the end and enjoyed the immediate feedback. They did not overestimate (rather underestimate) their competences, as their average final mark was 93%. The tools differentiated well strengths and weaknesses.

**Take-home messages**: Specific learning outcomes and formative-assessment tools iCAN!/theyCAN!-Treating pain were very useful to both students and professors in their effort regarding further development of the course.

5CC10 (21208)  
Development of 21st Century Skills Self-Assessment Tool for Siriraj Medical Students

**Lokachet Tanasugarn**, Siriraj Hospital Mahidol University, Bangkok, Thailand  
**Supasaek Virojanapa**, Siriraj Hospital Mahidol University, Bangkok, Thailand  
**Nuttagarn Jantanapornchai**, Siriraj Hospital Mahidol University, Bangkok, Thailand  
**Panom Ketumarn**, Siriraj Hospital Mahidol University, Department of Psychiatry, Bangkok, Thailand  
**Supawadee Likitmaskul**, Siriraj Hospital, Department of Pediatrics, Bangkok, Thailand  
**Supinya In-Iw**, Siriraj Hospital Mahidol University, Department of Pediatrics, Bangkok, Thailand

**Background**: A new set of skills has been stated to be essential for students in this age of digital revolution. This study aimed to create a self-assessment tool regarding the proposed skills for Siriraj medical students.

**Summary of Work**: The self-assessment tool was a structured questionnaire containing 65 items using a 10-point-Likert scale. Content validity was conducted by the research team during questionnaire design. A cross-sectional study was carried out in Siriraj medical students with 792 students voluntarily participated. Cronbach’s alpha was calculated for internal consistency. Exploratory Factor Analysis was used to identify construct of the interested components.

**Summary of Results**: Internal consistency of the questionnaire was high (Cronbach’s alpha = 0.97). Three domains with eigen value >1 were identified from factor analysis (70% of total variance). The three domains were named “Life and Career skills”, “Information, Media and Technological skills”, and “Learning and innovative skills”.

**Discussion and Conclusions**: The structure representing 21st Century Skills in our tool was categorized into three domains. With rigorous validation during questionnaire development and high level of internal consistency, it is very likely that the self-assessment tool is suitable for this population. Further correlation studies between the scoring and actual performance are warranted.

**Take-home messages**: The newly designed 21st Century Skills self-assessment tool is valid and reliable to assess those skills in medical students.
Self-perception and real performance in a simulated scenario for emergency orotracheal intubation among medical students

Cristóbal Cuadrado*, Universidad de Chile, School of Medicine, Santiago, Chile
Jose Peralta, Universidad de Chile, School of Medicine, Santiago, Chile
Ignacio Solar, Universidad de Chile, School of Medicine, Santiago, Chile

Background: Emergency orotracheal intubation (EOTI) is a complex competency, difficult to teach and assess in real life conditions. Physicians working in emergency settings need to be prepared to establish a safe airway in life-threatening conditions. Adequate competency self-perception allows to take best clinical decisions. Lack of confidence could delay to establish a safe airway when needed; excess of confidence could lead to unsuccessful attempts deteriorating patient’s status.

Summary of Work: 87 medical students were enrolled in a EOTI simulation-based activity. Participants answered a pre-survey focused on competence self-perception. During simulation, objective measures were recorded by senior clinicians. Statistical analysis were conducted to clarify both the objective and self-perceived competency and their relationship.

Summary of Results: General analysis shows that performance of medical students is poor with a mean score of 6.32 (0-10 scale), matching with subjective assessments made by senior clinicians (63.2%). Steps with lowest success were aspiration (20.5%) and intubation maneuvers (20.9%). Groups sub-analysis showed no correlation between level of confidence and the real performance.

Discussion and Conclusions: Competency driven curriculum requires to ensure learning opportunities for complex skills as EOTI. In our experience more efforts need to be done in that direction. The results raise doubts of the pertinence of students’ competence self-perception assessment. Senior physician subjective evaluation agree with objective structured clinical assessment.

Take-home messages: Focus on learning opportunities for complex competencies as EOTI should be ensured during medical curriculum. Self-perception correlates poorly with real performance in EOTI. External senior subjective assessment could be useful in EOTI.
5DD1 (23048)
The utility of clickers: A randomised controlled trial

Stuart Fergusson, University of Edinburgh, Biomedical Teaching Organisation, College of Medicine and Veterinary Medicine, Edinburgh, United Kingdom
Justine Aka, University of Edinburgh, Biomedical Teaching Organisation, College of Medicine and Veterinary Medicine, Edinburgh, United Kingdom
Catherine Hennessy, University of Southampton, Centre for Learning Anatomical Sciences, Southampton, United Kingdom
Andrew Wilson, University of Edinburgh, Medical School, Edinburgh, United Kingdom
Thomas Gillingwater, University of Edinburgh, College of Medicine and Veterinary Medicine, Edinburgh, United Kingdom
Gabrielle Finn*, Hull York Medical School, Centre for Education Development, York, United Kingdom

Background: Digital voting during lectures using “clickers” is a common educational approach. We investigated the effect of clicker use on short- and long-term formative assessment performance and student perceptions of the educational experience.

Summary of Work: Medical student volunteers were randomised to receive a related lecture either with or without the use of clickers; stratified by performance on a pre-lecture multiple choice question (MCQ) test. All lecture conditions except clicker use were identical. A second MCQ was completed immediately following the lecture, as was an attitudinal survey. A final MCQ test was completed 10 weeks later.

Summary of Results: 70 students were randomised. Scores from the immediate post-lecture MCQ test differed between groups: 87% (standard deviation – 12%) in the group taught with clickers and 78% (15%) among those taught without clickers (p=0.01; 2-sample t-test). There was no difference in final MCQ scores: 87% (standard deviation – 12%) in the group taught with clickers and 78% (15%) in the non-clickers group (p=0.01; 2-sample t-test).

Discussion and Conclusions: Clicker use improves short-term formative assessment performance but not long-term. Clicker use did not affect self-perceived knowledge scores but students perceive them to positively affect their learning experience.

Take-home messages: Students consider clickers to positively affect their learning experience but their benefits do not extend to improvements in long-term knowledge retention.

5DD2 (19792)
Use of Humour in Classroom Teaching: Students’ Perspectives

Reem Abraham*, Melaka Manipal Medical College, Manipal Campus, Manipal University, Physiology, Manipal, India
Varsha Hande, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, India
Maria Elena Jude Sharma, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, India
Sonia Kaur Wohlrath, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, India
Chee Chen Keet, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, India
Siyaamala Rav, Melaka Manipal Medical College, Manipal Campus, Manipal University, Manipal, India

Background: The present study was conducted to explore students’ perspectives on use of humour in classroom teaching. It was also aimed to determine students’ perspectives regarding teachers using humour in classroom teaching.

Summary of Work: Students (n=164) were requested to respond to a questionnaire focusing on items related to the use of humour in classroom teaching, and regarding teachers using humour in classroom teaching respectively, on a 4-point Likert scale. Data was summarized using median grade with interquartile range. Frequency analysis of responses was performed and agreement to each item was calculated by adding the frequencies of strongly agree and agree responses. Disagreement to each item was calculated by adding frequencies of strongly disagree and disagree responses.

Summary of Results: Students (97.5%) opined that humor if incorporated appropriately in classroom teaching is a good thing and also helps in better retention of the topic being taught (75-15%). Majority of students (98.12%) responded that use of humor in classroom teaching provides a good teacher-student relationship. Students (90.67%) also felt that having a good sense of humor is an attribute of an effective teacher.

Discussion and Conclusions: In the present study, students felt that humor has a positive impact on learning and the reason could be its ability to gain students’ attention in classroom. The present study revealed that students prefer humor to be integrated into classroom teaching.

Take-home messages: The judicious use of humor in classroom can increase teacher effectiveness and student learning.
5DD3 (21908)
What factors Ensure the Flipped classroom does not Flop? And will patient care improve by such learner engagements?
Ranjana Acharya, National Healthcare Group, General Internal Medicine, Singapore
Nai Keng Koh, National Institute of Education, Humanities and Social Studies Education, Singapore
Pei Xuan Koh, National Healthcare Group, General Internal Medicine, Singapore
Presenter: Jennifer Ting*, National Healthcare Group, Singapore

Background: Attempting to teach fresh graduating doctors core acute medicine has been a challenge due to time constraints and service obligations. This has led to the development of an on-line interactive module followed by a face-to-face session. To build upon the blended method of learning, we are interested to study further what contributes towards successful flipped classroom learning and if this form of learning improves knowledge acquisition and later translates into better patient care.

Summary of Work: Fresh residents will complete the online modules, post questions on an active online forum and then meet with faculty to discuss areas of uncertainty. This study investigates the factors in the learning environment that contribute towards a successful flipped classroom teaching model. Mixed mode approaches will be used to obtain data. Both quantitative and qualitative data will be analysed for investigating the impact of using the flipped classroom model. The constructs used in this study on the impact of using a flipped classroom experience are
- e-learning experience,
- learner factors
- facilitator factors

Summary of Results: Quantitative data using a questionnaire and qualitative data from focused group discussions with both learners and facilitators will provide useful insights in evaluating effectiveness and the change in attitudes and knowledge of learners. Ongoing annual hospital quality data will be used to assess improvements in patient care.

Discussion and Conclusions: Understanding which factors contribute towards a successful flipped classroom experience will better help educators concentrate and enhance on some of these factors for a more meaningful learning experience.

5DD4 (22393)
Promoting interactivity in large group interdisciplinary case-discussions through the use of an audience response system
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Background: Additional to clinical rotations, interdisciplinary case-based discussions are compulsory once a week for fifth year students at the Medical University of Vienna. To promote interaction, attention and self-assessment in class, an audience response system (ARS) is used. This study assesses whether these objectives have been achieved.

Summary of Work: An online questionnaire was administered to 540 course participants at the end of winter term 2013/14, 122 replied (response rate 22.5%). The survey instrument included 7 items regarding students’ attitudes toward ARS (Cronbach’s alpha = 0.895). A 4-point Likert scale was used.

Summary of Results: About three quarters of the study participants (73.0%) strongly agreed or agreed that using the ARS improved the course and that it is an effective tool to promote active participation in class (81.1%). The responding students also strongly agreed or agreed that due to the voting system they participated more actively in the class than they would normally do (59.0%), it helped them to maintain their attention and motivation throughout class (57.0%) and to identify their strengths and weaknesses in understanding the material presented (59.2%). 63.1% of the students found the comparison with their peers interesting and 82.6% appreciated the anonymous responding to questions.

Discussion and Conclusions: Between two thirds and four fifths of the students affirmed that by the use of the ARS interaction, attention and self-assessment in class was enhanced.

Take-home messages: The ARS proved the potential to foster higher learning efficacy through positive motivation.
The powerpoint presentation versus student-owned technique for studying Clinical Pathology

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Background: The powerpoint presentation is used to review the content of the parasites in clinical pathology lecture, which requires a great deal of time and effort to study, and yet the score outcome is still lower than the estimation.

Summary of Work: The research was carried out during academic year 2013 – 2014 at Faculty of Medicine Vajira Hospital. There were 2 groups of the 3rd year medical students, which group A studied and reviewed knowledge by powerpoint presentation, while group B used their own selected techniques such as creating poem and song. Provided 30-minute review time equally for each group and the study styles were assessed by using summative examination score.

Summary of Results: The summative score was collected from 157 of 3rd year medical students in academic year 2013 and 2014. The average score of group B students, who used their own study techniques was higher than group A, who used powerpoint presentation. A p-value <0.001 was taken as statistically significant.

Discussion and Conclusions: The study styles of medical students have varied due to the basic lifestyles and how they learned in the high school. Study styles are associated with reviewing the content of the basic knowledge and the success of the examination. The powerpoint presentation may not be helpful for students to study and review since they need more techniques and strategies to help them memorize. It is encouraged that the powerpoint presentation is not preferred. Medical teachers should ensure that the teaching style is appropriate with students’ study style.

Take-home messages: The teaching strategies need to be improved in parallel with the student learning style.

Preventing lecturalgia by using mixed learning strategies when teaching undergraduate medical students

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Background: ‘Lecturalgia’, a term coined by McLaughlin & Mandin from the University of Calgary, Canada, refers to a painful lecture experience. Earlier feedback from junior medical students at the University of the Free State, South Africa, regarding an introductory clinical skills module, stated lack of organization, lengthy lectures and unnecessary detail as the sources of their painful experiences. In an attempt to prevent ‘lecturalgia’, recommendations from Calgary were combined with innovative active learning strategies, including games, audio-visual aids and role-play, to develop a teaching session on cardiovascular history-taking skills.

Summary of Work: In 2013, 3rd year students (n=115) received an introductory tutorial on cardiovascular history-taking skills. They were then allocated to six groups, each group attending the newly developed three-hour practical teaching session. Students evaluated this intervention using a questionnaire containing a Likert rating scale and open-ended questions.

Summary of Results: The questionnaire response rate was 94%. Students agreed that the purpose of the session was made clear (99%), the content was appropriate for the length of the session (100%), material was organized well (100%), the lecturer had a good relationship with the group (100%), interest was stimulated and maintained (99%), participation was stimulated (99%), and that the session’s main points were summarized effectively (95%). Suggestions to improve the session included incorporating additional visual aids, i.e. pictures, videos and real patients.

Discussion and Conclusions: Students’ acceptability of a teaching format with mixed learning strategies was high.

Take-home messages: The approach by McLaughlin & Mandin to retrospectively diagnose and resolve ‘lecturalgia’ is useful in the prospective planning of pain-free teaching sessions.
**5DD7 (22431)**
The Importance of visual presentations: The “Say-it-better” Project

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**Background:** Visual presentations play an important role in medical education. The use of properly presented visuals can augment a presentation and increase the learners’ retention of information. Poorly presented visuals can detract from an otherwise well-organized presentation. Regardless of the presentation format used, quality visuals support a quality presentation.

**Summary of Work:** We conducted audits of 300 presentations delivered at small, medium and large scale meetings over a 3 year period. A standardized audit tool was used. The audit addressed 1. Overall quality of oral presentation, 2. Characteristics of text, 3. Preparation of images and 4. Presentation of charts and tables. The results were compared to benchmarks established by literature survey and our previous analysis of smaller audits.

**Summary of Results:** Overall, the majority of presentations showed flawed visuals (68%). Text size, font style and background were commonly flawed (60, 72%); images were frequently not optimized (45 – 60%); charts and tables were poorly presented (55 – 70%). The findings were independent of meeting size or the presenter’s experience. Even in presentations rated as ‘high quality’, 30% were marred by sub-optimal visuals. Previous work suggests that presentations can be improved by training at all levels.

**Discussion and Conclusions:** Oral presentations in medical education are marred by poor quality visuals. Benchmarks for optimizing visuals can be used to analyze presentations and train presenters. Addressing this issue is a requirement of medical education and of faculty.

**Take-home messages:** Presentations are often degraded by flawed visuals. Planned training can improve the quality of visuals and should be part of the medical education curriculum.

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**5DD8 (21351)**
Teaching acute medicine using flipped classroom model

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**Background:** We have introduced a half day workshop in Acute Medicine with the aim of transitioning to residency program easier for our students. The flipped classroom model combined with interactive group discussion is used.

**Summary of Work:** Pre-recorded video lectures are sent to the students on acute medicine topics and they attend interactive case-scenario based workshop where students are divided into teams. Multiple case scenarios related to the videos are discussed. Each team takes turns to diagnose, manage and ensure safe transition out to community for the patients in case-scenarios presented to them. Feedback is collected after the workshop in an anonymous manner.

**Summary of Results:** Feedback was collected from 59 students. 59.3% agreed & 37.2% strongly agreed that this interactive workshop is more helpful to them than traditional presentations. 72.8% agreed and 16.9% strongly agreed that they are confident in managing patients with the problems discussed in the workshop better than before. 50.8% agreed and 25.4% strongly agreed that the video tutorials with case-scenario based workshops are more beneficial.

**Discussion and Conclusions:** Most students agree that flipped classroom model with interactive group discussion is effective and helps them in dealing with medical issues in the real world.

**Take-home messages:** Sending video tutorials before the workshop helped the students watch them at their own pace and understand the concepts. Classroom sessions are used to focus on the practical aspects. We believe that this model should be introduced early in medical school to encourage active participation, develop teamwork and critical thinking ability.
Do research findings on schema-based instruction translate to the classroom?

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Background: Schema-based instruction is associated with improved performance and reduced cognitive load in research conditions. Classroom settings may have increased cognitive load because of increased distractions, larger group sizes, and decreased internal motivation, which may limit generalization of education research studies. It is unclear whether schema-based instruction in a large classroom setting will maintain its beneficial effects on cognitive load optimization and performance.

Summary of Work: One hundred and one first year medical students at Western University were randomized to receive a traditional lecture (n=48) or a schema-based lecture (n=53) using cardiac auscultation as a model. Students completed 4 written questions to test performance and a cognitive load assessment at the end of the lecture.

Summary of Results: Schema-based instruction was associated with increased performance on written questions (64 vs 44%, p<0.001) and reduced intrinsic cognitive load (mean difference=15%, p<0.001). There was no significant difference in reported extraneous (p=0.36) or germane (p=0.42) cognitive load.

Discussion and Conclusions: The reduced intrinsic cognitive load can explain the observed increase in performance. Similar reported extraneous load assessments were expected, as both experimental conditions would be subject to the same sources of extraneous load (e.g. distractions from internet or classmates). The reduced intrinsic load, similar extraneous load and improved performance replicate the findings of schema-based instruction in a research setting.

Take-home messages: Schema-based instruction was associated with improved performance and a reduction in intrinsic cognitive load in a classroom setting. The benefits of schema-based instruction were maintained in a classroom environment.

The use of mock trial in teaching health policies

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Background: The stimulus to discuss themes of health policies is a constant challenge in the medical-school teacher’s practice. Among the strategies that attempt to involve and engage students, one was used in a medical school in northeastern Brazil. It is Mock Trial, originally created in the law course, used in the medical course in medical law and bioethics, but little used in the teaching of health policies.

Summary of Work: The technique separates two groups of five students with the function to accuse or defend a previously announced topic. Immediately before the court, seven students are selected for the jury, who, after exposure of arguments and drafting of questions by both teams, vote defining which team "won" with their arguments. The session lasts 50 minutes, tightly controlled. Some controversial issues in Brazil were discussed, with good arguments, built with solid references, which helps in positioning the students. Teams are assessed by the teacher using a structured questionnaire with items that ask about the quality of argumentation, presentation and coordination among team members.

Summary of Results: After application of this technique is realized greater involvement of students in the discussion of the issues. Even in the competition environment, the groups are collaborative, which increases motivation and learning. In the future, the authors will request the students' arguments in writing in advance and ask the jury which factors were important in their decisions.

Discussion and Conclusions: Mock trial is innovative technique, easy to apply, low cost and improves student involvement in teaching of health policies.

Take-home messages: Mock trial is effective in teaching of health policies.
Interaction analysis of a practical course in “meat hygiene” to increase the activity of students

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Background: In the practical course “meat hygiene” it was noticed that the ratio of theoretical lecturing to practical activity was unfavorable. Therefore the practical activity of students should be increased to higher the quality and learning effect of the course.

Summary of Work: The experimental design included two parts. In both parts four groups (n=4) were video-analyzed by the teacher and educationalists using a scheme designed by Flanders 1961 (Flanders Interaction Analysis; FIA). First practical courses were done without any intervention prior to the course (status quo). After the analysis of the first part was completed and discussed, course was held again and analyzed afterwards.

Summary of Results: All aspects concerning the indirect influence by teachers talk (accepts ideas, accepts feelings, praises and encourages) increased by approximately 9, 12 and 13 % respectively. The direct influence “lectures” and “gives directions” was nearly constant while “asks questions” increased from 29.66 ± 2.14 % to 50.04 ± 5.02 %. Thereby answers of the students to questions of the teacher increased from 22.55 ± 3.49 % to 46.54 ± 5.28 %. The talk initiation by students increased from 25.73 ± 8.66 % to 63.84 ± 12.07 % and the practical activity from 45.05 ± 4.91 % to 72.1 ± 18.34 %.

Discussion and Conclusions: Using the FIA to analyze practical courses is an effective tool to increase the interaction between students and teacher and the activity of students in practical courses.

Take-home messages: Intensive observation and analysis of teaching units by the teachers and educationalists influence teaching skills.

Video concept maps in medical education

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Background: Recording and publishing video lectures (full version) are appropriate only for distance learning courses. But it is ineffective in case of blended model in medical school as all students must present at lectures. Creating concept maps (CMs) and recording short video with CMs constructing (video-CMs) may help to present lecture materials in more effective way.

Summary of Work: The main aim of this study was to understand the students’ attitude and acceptability of the video-CMs in blended leaning strategy. Online course “Nutrition” was developed for second-year medical students. The course consisted of 18 modules. Each module contained a lecture presentation (graphics, images), video-CMs, ready to print CMs, games, tests of different levels and some additional materials. An anonymous, online, end-of-course survey was developed.

Summary of Results: 110 students took part in this course. The survey response rate was 64.5% (71/110). Most of the students (98.6%) agreed or strongly agreed that the course enhance learning. 41 students (58.6%) reported that video-CMs must be mandatory components of the online courses and 9 students (12,6%) answered that video-CMs were the most useful learning tool.

Discussion and Conclusions: The video-CMs are an effective way of presenting lecture materials in blended learning courses. They may enhance learning, foster better understanding, show how to construct CMs and therefore increase probability of using CMs in clinical practice.

Take-home messages: Video-CMs may enhance learning.
On Your Phone in Class? Piloting the use of Smart Devices to Encourage Active Learning

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Background: As personal smart technology has become more accessible, medical students are increasingly using it to supplement their medical education. Recent studies have demonstrated the effectiveness of these devices as reference and learning tools[1], however, their utility in encouraging active learning is a potential area for further study.

Summary of Work: During two peer-led teaching sessions, students were emailed a link to a free smart device based polling system “Pinnion”, where they responded to topic specific questions. Poll results were displayed and discussed to facilitate active learning, and students were then surveyed about their experience with smart devices.

Summary of Results: N=31 students attended/responded. 100% (n=31) students owned a smart device and 81% (n=25) report regularly using it to study. 94% (n=29) felt smart devices contributed to learning compared to lecture based teaching and 74% (n=23) considered smart devices easy or very easy to use. 19% (n=6) found they were more easily distracted using devices.

Discussion and Conclusions: The widespread ownership and use of smart devices presents an opportunity to enhance active learning. Most students considered smart devices easy to use and felt they enhanced learning. The major barriers were the potential for distraction and further ensuring ease of use.

Take-home messages: This pilot suggests smart devices are effective in enhancing active learning and should be considered for further implementation and study.

1. Payne K et al. Smartphone and medical related App use among medical students and junior doctors... BMC Medical Informatics and Decision Making 2012, 12:121
Summary of Results:

Whitney U test and Kruskal-Wallis H test. by Kirkpatrick’s model in level of reactions, learning, know the effectiveness of faculty development course

Take-home messages:

1. The learner will be able to know the effectiveness of faculty development course by Kirkpatrick’s model in level of reactions, learning, and behavior.

2. The learner will be able to understand the differences between subjective and objective reports in behavior level.

Discussion and Conclusions:

Our experience showed CIPP model provides step-by-step systematic guidance for evaluation of undergraduate medical programs.
**Take-home messages:** complex nature of medical programs demands for a well-aligned evaluation models akin to CIPP.

### 5EE3 (19900)

**CIPP Model for Evaluation of Pediatric Training Program: Residency Perspective**

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**Background:** Program evaluation is an integral process for achieve program objectives and enhance the quality of learning. CIPP model represents assessment of context, input, process and product of the evaluated program. This model helps to identify strengths and weakness with better integrity and applicability. This study utilizes the CIPP model to explore the residents’ perceptions about Pediatric training program.

**Summary of Work:** Twenty Pediatric residents, training at Chonburi hospital, Thailand during academic year 2011-2013 were enrolled. The assessments of context, input, and process were evaluated every three months for improvement-focused purpose. The product was assessed at the end of the training for final evaluation. The questionnaire was designed in view of CIPP model. The quantitative items were ranked on a five-point rating scale and qualitative questions were used in focus-group. The content validity was congruent with the program objectives and reliability test showed Cronbach’s alpha score 0.77. Analysis of variance and qualitative descriptive analysis were used to analyze the data.

**Summary of Results:** The quantitative scores of all elements were 4.31, 4.48, 4.51, and 4.05 respectively. The consecutive improvement of context, input, and process scores were found in higher-level residents (p=0.00, 0.06, 0.00 respectively). Scientific knowledge, procedural skills and health supervision were stated as strength while continuous professional development especially doing clinical research was the weakness. The obstacles to achieve the outcomes were high amount of patients and less time for relaxation.

**Discussion and Conclusions:** Results indicate an overall satisfaction in the training objectives and methods. The residents’ feedback is important to identify the barriers and the better solutions.

**Take-home messages:** Proper program assessment need to ensure trainee's satisfaction.

### 5EE4 (22573)

**SWOT analysis as a tool for curriculum evaluation**

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**Background:** In curriculum evaluation and development, there are internal and external views to be considered and compared, particularly when it comes to benchmarking. This kind of benchmarking is requested from the universities in the process of professionalization. In traditional quality management, a SWOT analysis is used regularly to meet this purpose. The aim of this study was to examine if those tools can also be useful in the evaluation of (veterinary) medical curricula, although quality management tools are deemed not suitable for educational purposes.

**Summary of Work:** In this work seven different curricula of all German speaking veterinary universities were compared using the format of a SWOT analysis on the reports of the accreditation agency (EAEVE).

**Summary of Results:** To perform the SWOT analysis, the curriculum parts of the self-evaluation reports of seven veterinary education establishments were compared to the findings of the accreditation body in its final reports, produced after the site visits of the respective establishments, and clustered to topics of interest. Different Strengths, Weaknesses, Opportunities and Threats could be found in each curriculum. By this analysis specialties of the universities could be shown and hints for further curricular development could be given.

**Discussion and Conclusions:** Comparing and synthesizing internal and external views is the genuine character of SWOT analyses and, therefore, it can be used in the same way to identify topics crucial to the field. Still, applying quality management tools in "uncommon" surroundings requires sound knowledge of quality management.

**Take-home messages:** Using a SWOT analysis is an adequate tool to compare different curricula on a qualitative basis.
5EE5 (19864)

Transcultural validation in Spanish of the Maastricht Clinical Teaching Questionnaire (MCTQ) as a Valid and Reliable Instrument for the Evaluation of Clinical Teachers

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Background: Instruments for evaluating and providing feedback to clinical teachers must be theory based, valid and reliable. The MCTQ has these characteristics.

Summary of Work: We designed a study for validating the MCTQ in Spanish and in the post-graduate setting. The original English version of the MCTQ was translated to a Spanish version and later back-translated to English. This version was compared to the original wording and was found to be valid. Between 2012 and 2013, residents of different specialties of two University hospitals in Buenos Aires, Argentina, were asked to evaluate their clinical teachers by using the (Spanish version) MCTQ. To assess construct validity, we performed a confirmatory factor analysis of the evaluation data, and estimated reliability by calculating the generalizability coefficient and standard error measurement.

Summary of Results: At least four or more MCTQs were filled out for 151 teachers, leading to a total of 1031 filled out MCTQs. Confirmatory factor analysis yielded a five-factor model which fit the data, similar to the original validation of the MCTQ. Generalizability studies showed high relative and absolute G coefficients (0.97 and 0.92, respectively), and 56.5% of the variance attributed to teachers, which confirms an excellent discrimination power.

Discussion and Conclusions: The Spanish version of the MCTQ is a valid and reliable evaluation instrument for evaluating and providing feedback to clinical teachers in the post-graduate setting.

5EE6 (20078)

Enhancements in the HIT-tool (“How I Teach”) as advanced instrument for curricular development in the Aachen medicine curriculum

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Background: Lecturers in the Aachen reformed curriculum provide confidence only in students’ surveys in order to evaluate their teaching. There is much more data collected within the faculty to be analysed and considered for an evidence-based course evaluation.

Summary of Work: During the development process of our IT-based system providing the lecturers with a clear and well-structured aggregated overview of course and progress test results, student’s survey results and structured course data, we put emphasis on the close collaboration with the lecturers. As part of this cooperative work, an evaluation of the first prototype of the system based on personal interviews was conducted to measure the usefulness of the tool for lecturers in the evaluation of their courses.

Summary of Results: According to the results of the conducted lecturer survey the tool allows the evaluation of the curricular development of courses in a very intuitive and easy to perceive manner. In particular, the influence of personnel and curricular changes onto the knowledge development of the students can be tracked. As an improvement, the requirement of the implementation of further views targeting the special lecturers’ interests was mentioned.

Discussion and Conclusions: As the lecturer survey has indicated, the consistent provision of information on relevant course data leads to a better transfer of ideas and development into the curriculum. The main objective of lecturers and the faculty, to enhance knowledge and provide the best possible formation to students, is facilitated in this way.

Take-home messages: The more significant information you have on your course, the better is the facility to increase your course’s quality.
5EE7 (20642)
The UK validation process and how it works for entirely clinical new programmes

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**Background:** Required for all new programmes in the UK, there are strict quality assurance processes that are rather more extensive than those in Australasia, the US or Canada. The demand for early detail of programmes and the rather restrictive nature of some of the requirements are such that may impact negatively on creativity for curricular development.

**Summary of Work:** A novel curriculum was developed for the new veterinary school at the University of Surrey but had to be modified and constrained to fit into a rather restrictive module construct; i.e. 8 modules per year over a 5-year period despite being an intercalated masters. Similarly, assessment modes have been somewhat prescriptive in a way that makes originality and clinical orientation more difficult. Many of the assessment strategies are not ideal for clinical assessment and the use of peer and 360 degree assessment has been somewhat difficult to implement.

**Summary of Results:** The final curriculum has been divided into modules in a way not entirely optimal for the content, and are thus somewhat disjointed because of this imposition. The examination period restrictions are also not conducive to creativity and the most appropriate timing of assessment. The numbers of assessments per module are also restricted in a way that makes small frequent assessment touch points in a clinical setting more difficult. The distributive model is made harder by somewhat prescriptive and infrequent assessment periods. Whilst the University itself is both progressive and energetic, the system of QA imposed means that the levels of creativity enabled in new curricula is somewhat compromised in a way that may be detrimental to the clinical professions.

**Discussion and Conclusions:** Whilst the QA process is evidently very necessary, there are circumstances where this process may potentially have a negative impact of the truly novel development of clinically, oriented curricula.

5EE8 (22546)
Consequences of revising the comments section of a teacher evaluation form

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**Background:** In July 2011, our postgraduate medical education program adopted a common clinical faculty evaluation form for use by residents. Preliminary research prompted a revision: The area for comments was reduced from two boxes (one to explain ratings of “Outstanding” and one to explain ratings of “Major Concerns”) to a single box (“Comments”). Residents were no longer asked to explain ratings of “Outstanding”, but were more strongly asked to explain ratings of “Major Concerns”.

**Summary of Work:** All evaluations submitted since July 2011 were counted and comments were graded as to quality. In the case of the revised form, each comment was first determined to be positive or negative (or both) and then each aspect was graded as to quality. All evaluations with a “1” (Major concerns) were examined to determine if the associated comments actually reflected that rating.

**Summary of Results:** The percentage of evaluations with comments, both negative and positive, decreased significantly with the revision. The percentage of evaluations with at least one rating of “1” but with no negative comment did not change. The percentage of evaluations with a rating of “1” that were unrelated to the associated comments seems to have decreased, although the sample size is very small.

**Discussion and Conclusions:** In switching from segregated comments to a general comments box, the number of comments in evaluations has been reduced. The actual cause of this is uncertain; further revision and analysis is warranted.

**Take-home messages:** Separately requesting positive and negative comments on evaluations is likely to increase the number of comments by residents.
5EE9 (22689)
The analysis of the ASPIRE student engagement criteria by students and medical graduates

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Background: Student engagement is one of the keys to success in medical education. However, the degree to which students can engage in the curriculum is strongly influenced by each culture's norm. With the hierarchical culture rooting in many conservative Southeast Asia countries, it is interesting to study how much engagement Thai students have had in the medical curriculum.

Summary of Work: Of the students who matriculated from 2002 till 2011 at Chulalongkorn Medical School, we purposefully selected two students/graduates in each batch, resulting in 20 interviewees in total. Each of them was asked if our medical school achieved each of the twenty-one ASPIRE student engagement criteria. If not, would it be possible to attain that criterion soon?

Summary of Results: Of the 21 criteria, the interviewees’ agreement ranged from 1 to 20 with the median of 18. There were four criteria all participants (100%) agreed that Chulalongkorn medical school had already achieved: peer assessment, research carried out by faculty members, support for participation at local/regional/international meeting, and arranged extracurricular activities. The four criteria with least agreement were: school’s vision and mission development (5%), school committee representatives (55%), involvement in policy/guideline establishment (55%) and active participation in faculty development activities (55%).

Discussion and Conclusions: The degree to which Chulalongkorn medical students have engaged in our medical curriculum was greater than anticipated. It would be exciting to see if other Thai medical schools yield similar results.

Take-home messages: The use of students and graduates, instead of faculty executives or teachers, to scrutinise ASPIRE student engagement criteria should result in more valid interpretation.

5EE10 (22963)
Does the quality of the final assessment of a course correspond to the evaluation of this course?

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Background: At Hannover Medical School the curriculum of the first five years consists of 46 modules with at least one summative assessment. In total 165 assessments were conducted within these five years. Each module is evaluated by the students immediately after the assessment, but before the resulting grades are communicated to the students.

Summary of Work: We analysed the student evaluation of 180 modules between 2009 and 2013. For each of the 660 assessments during that time the defined quality of the assessment was judged. Finally we correlated the evaluation means of the modules with the deduced assessment quality and compared their development over this period.

Summary of Results: Specific efforts to improve the teaching quality lead to a significant increase in student evaluations for these modules. On the other hand the general quality of the assessments is becoming better from year to year according to several aspects. The assessments give more differentiated feedback to the students without an increase in failure rates. Unexpectedly, the increasing assessment quality correlated negatively with the mean student evaluation of the modules.

Discussion and Conclusions: Our data confirm that the teaching quality has an impact on the mean student evaluation of a specific module. And the cumulating range of grades is subjectively recognized as an increase in assessment difficulty although there was no objective increase. These opposing short-term trends involve an increasing mean evaluation of the modules in the long run.

Take-home messages: The student evaluation of a specific module and the measured assessment quality are sensitive instruments to monitor a medical curriculum.
**5EE11 (21995)**  
**Evaluation of Level-1 Procedural Skills in Recent Graduates Among Different Teaching Hospitals of Thammasat Medical School**

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**Background:** Thammasat medical students spend their clinical experience in five teaching hospitals. The majority learns in Thammasat university hospital (TUH) and others in affiliated hospitals: Saraburi, Suratthani, Chumphon and Chachoengsao. All hospitals have similar learning objectives and assessment but differences in learning opportunities depend on instructors, resources and environment. Facilities of university and affiliated hospitals are different and probably influence students’ performance, particularly procedural skills. The Medical Council of Thailand categorizes procedural skills into 4 levels according to complexity. Level-1 skills are mandatory for graduate.

**Summary of Work:** To evaluate the level-1 procedural skills of 2013 graduates by self-assessment and comprehensive OSCE scores. Questionnaire using 1 to 5 rating scale on 46 skills was used. Mean scores of self-assessment and comprehensive OSCE of different groups were compared by ANOVA.

**Summary of Results:** From 130 of 158 (82.28%) graduates, self-assessment mean scores of all graduates were above 70%. Mean score of Saraburi, Chumphon, Suratthani, Chachoengsao, TUH and all groups were 4.160, 4.158, 3.930, 3.855, 3.649 and 3.896, respectively. Mean score of TUH was not significantly different from non-TUH group (mean 4.04, p 0.23) but mean score of TUH was significantly different from Saraburi (p <0.001).

**Discussion and Conclusions:** Self-assessment and OSCE performance are satisfactory and not different between university and non-university hospital groups.

**Take-home messages:** University or non-university level of teaching hospital is not the substantial factor on graduates’ procedural skills. Further study about skill training in medical school is required.

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**5EE12 (21140)**  
**Developing learners – evaluating the impact of curricular changes designed to enhance generic skills experience**

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**Background:** Curricular revision was undertaken to meet enhanced and changing educational and medical practice, as well as to provide opportunities for enhancing of optimal generic skills underpinning effective learning. This study aimed to determine the extent to which the revised curriculum impacted on experience in necessary generic skills at first year students.

**Summary of Work:** Students provided annual formal end of module evaluation in addition to focus group interviews. Evaluation by teaching staff was conducted by individual in-depth interviews. A validated generic skills questionnaire completed at the end of each academic year monitored the impact on the students’ generic learning skills experience.

**Summary of Results:** Feedback from these different evaluation methods identified immediate curriculum intervention needs. Annually minor curriculum changes and an educational capacity building programme resulted. These responsive curricular changes after evaluation have the intended positive effect. This study indicates the value of curricular evaluation that goes beyond monitoring output only in terms of content outcomes. It has also evaluated impact on student learning and specifically how they are equipped with generic learning skills to support their expected success in university.

**Discussion and Conclusions:** This curricular evaluation aimed not to monitor content output only, but also the acquisition of crucial generic learning skills. Implementation of a revised curriculum, with ongoing responsive changes aligned with careful multi-modality monitoring ensured an approach focused particularly on key generic learning skills development of the students.

**Take-home messages:** The impact of curricular changes designed to enhance generic skills experience at students can be monitored by a careful multi-modality approach.
5EE13 (22915)
The turning point: Using feedback technology for quality improvement

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Background: TurningPoint software produced by the Turning technologies company allows for instant polling of people’s views, opinions and experiences.

Summary of Work: TurningPoint has been used by Health Education East Midlands to obtain feedback from doctors in training about the quality of their education and training. It has helped to identify good practice, highlight areas for development, and improve education and training quality. During feedback sessions with trainees, junior doctors have used TurningPoint devices to respond to a series of questions. The results have been displayed to the group instantly on a large screen. Education providers have been required to respond to issues raised.

Summary of Results: The TurningPoint sessions have demonstrated advantages over traditional quality management activities. Both quantitative and qualitative data are generated, while the views of more vocal trainees are not able to dominate the feedback provided. The anonymity afforded also allows more sensitive issues (e.g. bullying) to be raised by trainees in a face-to-face group setting. Examples of subsequent quality improvement have been evidenced and will be presented as case studies.

Discussion and Conclusions: The TurningPoint software has proven a useful addition to the mechanisms for quality management.

Take-home messages: Polling technology helps to identify areas for quality improvement, which might not be captured by other methods such as group discussion or questionnaires.

5EE14 (18468)
Analysing the implementation of a new curriculum at medical school: A qualitative study

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Background: According to the Ministry of National Education regulation, the Faculty of Medicine, Universitas Indonesia has implemented the competency based curriculum with student-centered learning as a learning strategy since 2005. Problem-based learning (PBL) is one of learning approaches chosen. The aim of this study is to analyze the preparation, implementation and evaluation of the new curriculum at institutional and faculty level.

Summary of Work: This study is a single case study with a multiple unit of analysis. Participants were selected using purposive sampling method. Participants were the former dean and vice dean, the curriculum developers (5 persons), program coordinator and module organizers (4 persons). Data were collected by conducting a structured in-depth interview. Recorded data were transcribed, coded and analysed based on emerging themes. Other supported documents regarding students’ assessment and program evaluation were utilized.

Summary of Results: At institution level, the organizational structure was more complex. Changes were focused on education management and staff organization. At faculty level, education management was shifted to a multidisciplinary integration. The strong leadership and commitment of the leaders and medical education unit members have an important role in a new curriculum development. Nevertheless, some limitations were identified, such as unclear job description, lack of staff commitment and understanding of PBL; poor communication and coordination among module organizers; and limited of qualified resources availability. However, based on students’ assessment results and program evaluation, the outcomes of the new curriculum were in good shape.

Discussion and Conclusions: A strong leadership and commitment of the leaders is the key to success of a new curriculum implementation.

Take-home messages: Various aspects should be considered when one develops a new curriculum.
5EE15 (19941)
Assessing the Validity and Reliability of "self assessment tool for primary health care providers questionnaire" in Iran

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Background: Due to Globalization and increase in cultural diversity, health care providers should deliver culturally competent services. Nova Scotia department of health in 2005 published a questionnaire for evaluating items in effective intra cultural communication accordingly; the purpose of this study is to assess the validity and reliability of that questionnaire.

Summary of Work: This is a psychometric, cross sectional study to assess psychometric properties of the questionnaire by 1) applying the questionnaire with permission gained from main developer. 2) Translating by two knowledgeable translators in the field of English and Medical Education. 3) approving validity by determining Content Validity Ratio (CVR) and Content Validity Index (CVI) in two rounds. According to the Lawshe tables (1975), the minimum value of CVR was 0.7. CVI score in this work was 0.79 and higher for items reception based on CVI score. The reliability of the tool will be assessed through test-retest approach for reproducibility of the tool with computing kappa coefficient test. The Cronbach-alpha will be calculated for internal consistency of the questionnaire.

Summary of Results: Results for quantitative content validity showed that all 24 items had CVR score higher than 0.70. Then CVI determination is performed, and all 24 items had scored higher than 0.79. Accordingly, the number of expressions in the questionnaire remained 24. Based on the mean of CVI scores the average CVI of the questionnaire was as reliability confirmation is in progress.

Discussion and Conclusions: The validity of this instrument is approved in an Iranian context, and it can be used to measure inter-professional cultural competency of health care providers.

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5EE16 (22643)
Quality management of residency training programs through continuous evaluation and follow-up: Experiences and achievements after four years in a teaching hospital in the Netherlands

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Background: Many efforts to improve the quality of residency training have been taken recently. Systematic evaluations of training programs and clinical teachers have become usual practice, including yearly measuring the learning climate with the Dutch Residents Educational Climate Test (DRECT) and individual qualities with the Systematic Evaluation of Teaching Qualities (SETQ). In the Netherlands all residency training programs have to implement a quality control cycle. However, it is often not self-evident which follow-up actions can and should be taken following an evaluation, and does this lead to an improvement over the years?

Summary of Work: The training programs exist of three main domains with subdomains: supervisors/content, supervisors/organisation and development, and residents. Over the period 2009-2013 we investigated with the SET-Q for 16 disciplines the outcomes as well for the individual faculty members (n=146) as the disciplines, while for the DRECT 108 residents could be evaluated.

Summary of Results: Through 4 years consecutive results for faculty members and less for residents (training in academic and teaching hospitals) demonstrate how engagement for the quality improvement program was created and functioned at the different domains. Overall the learning climate remained stable and good, however for some disciplines, e.g. teaching goal-setting, testing and giving feedback seemed progressed, while some disciplines consolidate and some even diminished.

Discussion and Conclusions: Our residency training program showed measurable improvements, although some training programs achievements were less convincing. By describing these examples we provide a practical example on how to design, organize and manage a quality improvement program in residency training in an efficient and effective manner.

Take-home messages: Only yearly controlled residential training programs can lead to acceptable changing patterns.
5EE17 (21685)
Educational Outcomes of Recent Graduates from Different Teaching Hospitals

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Background: Thammasat Medical Curriculum is a six-year program. Medical sciences in year 1-3 take place at the main campus Thammasat, Pathum Thani. Clinical sciences in year 4-6 are provided by five teaching hospitals. Students at Thammasat campus were admitted by national admission while students at other hospitals were directly admitted from regions in central, east, and south of Thailand under the project to increase rural doctors. Nine curricular educational outcomes were established. All teaching hospitals use the same educational outcomes, strategies, syllabi, and teaching and learning methods, assessment, and student activities.

Summary of Work: To investigate the difference of educational outcomes perceived by recent graduates from different teaching hospitals. A survey by questionnaire on graduation day asking students to rate their perceived educational outcome level was employed. Rating scale 1-5 was used.

Summary of Results: Results from 130 of 158 (82.28%) graduates of academic year 2013 were analyzed. Numbers of graduates were 44 for Thammasat and 86 for affiliated hospitals (27 central, 26 south, 14 upper south, and 19 east). For the entire cohort, the mean of nine outcomes is 4.01. The highest is professional knowledge and skills (4.23) while the lowest is self-directed and lifelong learning skills (3.83). There was no statistical difference in nine major outcomes between Thammasat University Hospital and affiliated hospital groups. Graduates from Thammasat hospital have statistically higher self-development skills (p=0.38) but graduates from affiliated hospitals have statistically higher good professional attitude towards community practice (p=0.04).

Discussion and Conclusions: Medical school can set the identical educational outcomes and processes in various teaching hospitals. Good educational management can achieve same level of outcomes. Learning and clinical practice in affiliated provincial hospitals have lead to higher good professional attitude towards community practice.

Take-home messages: Medical school can achieve same standard of main educational outcomes from various teaching hospitals by good educational management.

5EE18 (23098)
Semiology: Interactive methodologies to facilitate module integration

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Background: The integration of curriculum is accepted as an important strategy for medical education; however, it has been a constant challenge. There is no uniformity among teachers about the concept, necessity of inclusion of integrated activities and its operations.

Summary of Work: The aim was to promote the integration of the module human semiology through the deployment of interactive methodologies that can be subsequently used by the School of Medicine to change the existing curriculum to an integrated one. Analysis of qualitative and quantitative data from questionnaires sent to students about their perception of the human module semiology after the implementation of interactive methodologies was done. The analysis of the performance of students in the 3rd year of medical school was made by comparing the results of their tests with those obtained in the previous year.

Summary of Results: The evaluation by means of a questionnaire carried out by 125 students (100%) showed that they consider the module as important, and it is eagerly awaited because it represents in the introduction to medical practice. The joint analysis of the categories of the questionnaire showed that there was positive impact on the course of symptomatology and cognitive practices (p <0.001).

Discussion and Conclusions: The analysis of the assessment resulted in a critical reflection of the teachers and made evident the need for joint planning of activities and continuity of the joint.

Take-home messages: Integrated and continuous teacher activities lead to better student learning.
Evaluation of teachers' perceptions regarding the curriculum into practice in a medical school in Brazil

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Background: The medical course of PUC-SP, founded in 1949, followed the Flexner model until 2006, which was then modified to active methodologies, answering the national curricular guidelines, oriented towards the demands of the Unified Health System. However, given the current national context, with shortage of doctors in primary health care, redesigning of curriculum guidelines, and questioning the Programa Mais Médicos (More Doctors Program), bringing in foreign doctors to work in Brazil, the need to re-evaluate the curriculum, aiming at possible adjustments, became evident.

Summary of Work: As part of the project, a questionnaire was answered by one third of the teachers. In this communication the answers to two open questions were evaluated, regarding the most important factor that has either hindered or favoured the progress of the current curriculum.

Summary of Results: The 62 people answered the questionnaire were representative of the faculty. The answers were grouped in categories. For the factors that have hindered the curriculum progress, the lack of faculty commitment (12 citations), difficulties in students' assessment (11) and lack of program for faculty development (9) were the most commonly reported. Among favouring factors, pedagogic model (29), faculty commitment (14) and students' motivation (4) were the most cited.

Discussion and Conclusions: The questionnaire evaluated the response of teachers about the reform, being favourable to the pedagogical model, with caveats to the methods of student assessment and the lack of teacher training.

Take-home messages: Constant evaluation of the process, continuous training of teachers and institutional decision-making are necessary to keep the curriculum alive.
**5FF1 (23108)**
The relationship between extrinsic motivation and metacognitive skills of medical students

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**Background:** Motivation can be divided into intrinsic motivation and extrinsic motivation. The four dimensions of extrinsic motivated behaviour are external, introjected, identified and integrated regulation. Extrinsic motivated behaviour is often associated with external factors such as rewards, promotions, family and peer influences among others. Metacognitive Skills revolves around the term metacognition which was first introduced by John Flavell in the 1970s who described metacognition as the knowledge concerning one’s own cognitive processes or anything related to them and identified two dimensions of metacognition; regulation and knowledge of metacognition. These skills also referred to learners’ automatic awareness of their own knowledge and ability to understand, control, and manipulate their cognitive processes. Metacognitive skills is essential and should be prioritised to teach future doctors to be independent and lifelong learners who are able to continuously assess the outcome of their actions to build new knowledge.

**Summary of Work:** Two inventories, Extrinsic Motivated Behaviour Inventory and Metacognitive Skills Inventory has been adapted from Metacognitive Skills Inventory (MAI) by Schraw & Dennison (1994) and further developed to be administered to the first year medical students (n=200) of University of Malaya. Pearson Correlation was used to study the correlation of the students’ extrinsic motivated behaviour and metacognitive skills.

**Summary of Results:** 165 (80.49%) first year medical students completed both the inventories. The correlation revealed that the extrinsic motivation does have an effect on students’ metacognitive skills.

**Discussion and Conclusions:** Extrinsic motivation does have an effect on students’ metacognitive skills and are essential components to be included in selecting medical students.

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**5FF2 (20898)**
Motivating students to study every day

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**Background:** For decades, students attended classes without having read the topic and professors lead classes by holding a conference. Later, at best, students check the topic in house and so they consider to have done the necessary to learn. Reality is that most of what students hear is forgotten and what they manage to learn does not have a clear meaning of its usefulness and remains in his/her mind as isolated knowledge.

**Summary of Work:** We designed a course based on clinical cases. Previous to the lesson, students receive a clinical case with questions. Next day, they must have these questions answered in order to participate in their discussion. In this way, students have a guide to study that helps them to focus on the most important facts and learn how to apply this knowledge to solve clinical problems, developing their clinical reasoning.

**Summary of Results:** This methodology has been used for the last two courses. During the class, students participate actively in discussions regarding the answers and they learn about its usefulness to solve health problems and its importance in their future clinical practice. At the end of the course it is notable how students face clinical problems by using clinical reasoning and have learned to study looking for how to apply the facts learned in the clinic.

**Discussion and Conclusions:** Giving students a case to be solved is more motivating to study than if they only have to read a subject without a well-defined immediate objective.

**Take-home messages:** The learning of medicine is more effective when students face clinical cases.
The Correlation Between Achievement Goals, Learning Strategies, and Motivation in Medical Students

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Background: The purpose of this study is to investigate the pursuit of achievement goals in medical students and to assess the relationship between achievement goals, learning strategy, and motivation.

Summary of Work: Two hundred seventy freshman and sophomore premedical students and sophomore medical school students participated in this study, which used the Achievement Goals Scale and the Self-Regulated Learning Strategy Questionnaire.

Summary of Results: The achievement goals of medical students were oriented toward moderate performance approach levels, slightly high performance avoidance levels, and high mastery goals. About 40% of the students were high or low in all three achievement goals. The most successful adaptive learners in the areas of learning strategies, motivation, and school achievement were students from Group 6, who scored high in both performance approach and mastery goals but low in performance avoidance goals. Performance approach goals are related to the deep, metacognition, time management, and task value categories, and are the best predictor of academic achievement. Performance avoidance goals were negatively associated with academic self-efficacy and action control. Mastery goals were the best predictor for most of the learning strategies and motivation.

Discussion and Conclusions: Based on the results of groups of students who have high levels of performance approach and mastery goals, those who have a low level of performance avoidance use diverse learning strategies and have the best academic scores, and the mastery goal is the strongest predictive variable for learning strategy and motivation; such a result strongly suggests how medical students' parents and instructors should adjust students' achievement goals.

Take-home messages: Instructors should closely observe students' achievement goal orientation and at the same time enhance performance approach goals or mastery goals and drop the level of performance avoidance goals.

Does Emotional Intelligence imply better academic performance?

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Background: Several reports have established a strong association among the intellectual quotient and the academic performance. However, during the last two decades, a growing body of scientific evidence has begun to establish a relationship between emotional intelligence and the results obtained in different areas of the social environment of people, including academical performance.

Summary of Work: Objective: To research about the relationship between emotional intelligence and academical performance.

Methods: 31 students, aged between 18 and 27 years, were enrolled in the present study. The Emotional Quotient Inventory EQ-1 (IE) was applied to all the students; the results obtained were correlated with their aggregated mean of academic qualifications. The correlations were validated by the tests of Pearson and Spearman.

Summary of Results: Only the domains of Intrapersonal and General Mood showed a significant correlation with academic performance.

Discussion and Conclusions: In relation to these results, emotional intelligence appears to be only a part of the factors related to academic success.
**5FF5 (21230)
Communication Skills and Emotional Intelligence**

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**Background:** Emotional intelligence (EI) is a kind of intelligence of people’s self-perceptions of their emotional abilities together with an awareness of the emotions in others and the ability to manage them. EI with respect to a number of issues related to relationship between the physician and patient including patient satisfaction and medical education and academic performance. In this study we aimed to determine the relation between communication skill scores of phase 2 medical students and emotional intelligence.

**Summary of Work:** The study is conducted in Gazi University School of Medicine in November 2013. Totally 366 (%89.3) phase 2 students participated, after controlling of data 290 (70.7%) of them were included to the study. We used Turkish version of TEIQue-SF (Trait Emotional Intelligence Questionnaire- Short Form) to measure global trait intelligence. Turkish validity and reliability of the scale was conducted. We got the students’ communication skill scores from the Communication Skill Council of the Medical School.

**Summary of Results:** The study group comprised 290 students whose ages are between 19-22 years old and 49.5% of them were female. The mean scores of TEIQue-SF and subscales well-being, self-control, emotionality, sociability, and also communication skill scores were 94.6±16.1 (min37-max134), 19.4±4.7 (min4-max28), 18.2±4.5 (min4-max28), 18.9±3.6 (min8-max28), 19.1±4.1 (min4-max28), and 94.1±7.9 (min61-max100), respectively. The emotionality and communication skills scores of female students were higher than male students (p<0.05). The Pearson correlation coefficients between communication skills score and TEIQue-SF total, well-being, self-control, emotionality, sociability scores were 0.04, -0.06, 0.07, 0.04, and 0.03 respectively.

**Discussion and Conclusions:** The definition and measurement of EI deserves attention because this essential humanistic aspect of medicine and communication. Female students have higher communication skill scores.

**Take-home messages:** In communication skills education developing emotional intelligence of the participants is important.

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**5FF6 (21938)
Emotional intelligence and academic performance in the first year of undergraduate degree programmes**

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**Background:** Links between Emotional Intelligence (EI) and academic performance have been reported. This study aims to explore the relationship between Emotional Intelligence (EI), academic performance, and module type in the first year of undergraduate radiography programmes.

**Summary of Work:** All first year undergraduate students from the BSc Diagnostic Radiography and BSc Radiotherapy at an UK university and the BSc Radiography programme at an Irish university were invited to complete an online Trait EI questionnaire on three time-points during the 2012-2013 academic year. Associations between EI scores and assessment scores, awarded across all modules, were then explored using Spearman’s Rank correlation.

**Summary of Results:** No strong correlations between assessment scores and Global EI score or the Well-being, Self Control, Emotionality or Sociability sub-domains were evident for any of the core modules across the three programmes. The strongest positive association between assessment scores and Global EI (r=0.52) was found for one of the BSc Radiotherapy modules while the strongest negative association was in the Sociability domain for the BSc Diagnostic Radiography programme (r=-0.38). While the lack of a strong correlation for academic / theoretical modules was not an unexpected finding the lack of any strong correlation between EI and assessment in clinical modules was more surprising and may be due to the fact that such early exposure to clinical teaching and assessment may not impact on EI as much as clinical immersion in later years.

**Discussion and Conclusions:** No evidence of a strong association between EI and academic performance was found in the first year of these undergraduate degree programmes. The suggested link between EI and clinical performance remains uncertain.
Achievement goals of medical students: Is there any difference between first year students and graduates?

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**Background**: First year medical students and graduates completed a short questionnaire about their achievement goals including learning goals, challenge goals, outcome goals, ability goals, normative outcome goals, and normative ability goals. The questionnaire (Grant & Dweck, 2003) contains 18 items using a 7 point scale from 1 “I do not agree at all” up to 7 “I totally agree”.

**Summary of Work**: Students in their first year (n = 58) as well as students who had just passed their final exams (n = 63) were included in this examination. Means were compared by using multiple t tests.

**Summary of Results**: Graduates compared to first year students showed significantly lower normative ability goals (p < .001), normative outcome goals (p < .05), and ability goals (p < .05). However, they did not differ significantly regarding learning goals, outcome goals, and challenge goals. Interestingly, those goals differing between both groups were characterized by lowest average scores, while those goals without group differences scored higher on average.

**Discussion and Conclusions**: Longitudinal research is needed to investigate if students adapt their achievement goals according to the demands of their studies. Moreover, the relationship between specific learning goals and performance should be examined.

**Take-home messages**: Comparing first year medical students and graduates, learning goals are widely used achievement goals, followed by outcome goals. Normative goals, showing lowest average scores, are pursued to a lesser extent by graduates compared to first year students, probably because relating oneself to other students becomes less important during the course of studying.

Learning Style Preferences among Undergraduate Students of a Medical College in South India

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**Background**: Medical Curriculum not only involves theoretical learning, but also includes gaining skills in practical and clinical aspects which makes it unique. The present study was carried out among the undergraduate Medical students to find out the learning style preferences and the factors influencing it.

**Summary of Work**: The crosssectional study was carried out among 180 first and final year students of Kasturba Medical College, Mangalore, South India. The data was collected using self administered semi structured questionnaire. The students’ learning preferences were assessed using VARK questionnaire. The collected data was analyzed using SPSS Version 11.5. The study was approved by the Institutional Ethics Committee.

**Summary of Results**: A total of 180 students were assessed for their learning preferences of whom 61.7% were females and the mean age of the study subjects was 20.2. Majority (63.9 %) of the students preferred reading as a method of learning followed by 40% who preferred hands on approach. Based on the VARK assessment 47.8% of the students preferred single modality of learning and 21.1% of the students preferred quadrimodal approach.

**Discussion and Conclusions**: Students preferred a combination of all four modalities of learning like Aural, Reading, Writing & Kinesthetic.

**Take-home messages**: For effective learning it is recommended to employ multiple teaching modalities.
Learning style and Grade point averages

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Background: Learning styles are likely to vary among medical students. However, little is known whether learning style would be associated with academic performance.

Summary of Work: The Index of Learning Styles (ILS) questionnaire was assessed during orientation when entering the new academic year. Last academic year’s GPA was obtained from registry records. Association between different type of learning style by domain and student year was tested using chi square test. Association between learning style and High GPA (GPA ≥ 3.0) were tested using logistic regression adjusting for student year and sex.

Summary of Results: Most learning style domains did not vary by year except for Domain 1 (active/reflective). Students at higher years of medical school have more active learning style and less reflective learning style. Controlling for year and gender, most learning style domains were not associated with high GPA except for Domain 3 (Global/Sequential). Sequential learning style was associated with higher GPA compared to balance and global learning style (p-value trend=0.02).

Discussion and Conclusions: All types of learning style were present among medical students. Most learning style domains did not vary by year in medical school except where higher year in medical school was associated with more active learning style than reflective. This may correspond to increasing hands-on clinical rotations during later years. Most learning styles were not associated with higher GPA, except for sequential learning style. As learning style in this domain may not change though medical school, teaching methods to suit more balanced and global learning style should also be incorporated.

Take-home messages: As many types of learning styles exist, a variety of teaching methods should be considered to meet the diverse learning needs.
**5FF11 (23176)**
Changes in Self-Directed Learning During the First Two Years of Training Process in a Chilean Medical School

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**Background:** Several educational organizations emphasize that self-directed learning is critical for the future of healthcare professionals. However, no studies were found on changes occurring in self-directing learning during the training process. Therefore this study (sponsored by FONDECYT 1140654) analyzes the evolution in self-directed learning, during the first and second year of medical training in a Chilean university.

**Summary of Work:** A longitudinal study was performed. A sample of 116 first year medical students (51.72% women) was surveyed applying Fisher’s Self-Directed Learning Scale (validated in Chile by Fasce et al.). Students were asked to complete the scale in 3 different opportunities: at the beginning of their training process (measurement 1), at the end of the first year (measurement 2) and at the end of the second year (measurement 3). To evaluate the average variation of students’ scores in these 3 applications of the scale, a Repeated Measures ANOVA was performed using STATA 11.0 SE.

**Summary of Results:** Significant variations in Planning skill and Desire to learn sub-scales were found. Intra-subject contrast was statistically significant for a quadratic relationship between time and self-directed learning. Significant differences were also identified between three measures, for Self-Confidence and Self-Evaluation, however for these cases intra-subject contrast showed the existence of a linear relationship. Finally, no significant changes were identified for Self-management sub-scale.

**Discussion and Conclusions:** This is a first evidence that, during the training process, changes occur in self-directed learning of medical students.

**Take-home messages:** Self-directed learning decreases during medical students training process. How harmful could be training programs for students’ skills?

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**5FF12 (23181)**
Students’ Satisfaction with Lecture vs PBL at Medical School with Traditional Curriculum

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**Background:** Since 1999, Kyungpook National University School of Medicine (KNUSOM) which has a traditional curriculum has conducted PBL for the second-year medical students. This study is to evaluate the students' satisfaction level with the lecture vs PBL using questionnaire.

**Summary of Work:** The target students in the survey were the second, the third, and the fourth year medical students who experienced PBL. Among 327 target students, 283 students participated in the survey. We analyzed survey data of 262 students excluding the invalid survey materials of 21 respondents. The questionnaire included 13 items. 11 questions were measured on the scale of 7 and the 2 questions were descriptive ones. The questionnaire showed very high coherence with the coefficient of Cronbach’s α 0.993. The survey was conducted in April 2012, and the data was analyzed using SPSS version 19 in terms of frequency, independent sample t-test, and two-way ANOVA.

**Summary of Results:** This study showed that the overall satisfaction with lecture was 5.37 and that of PBL was 5.50, which was statistically insignificant. There was a higher satisfaction score in lectures in terms of frequency, independent sample t-test, and two-way ANOVA.

**Discussion and Conclusions:** The results show that more students were satisfied with PBL than lecture-based teaching in the domains of clinical reasoning with knowledge application, problem solving with communication, and self-directed learning. At medical school with traditional curriculum, PBL could work as a very useful tool for nurturing students’ ability of acquiring effective reasoning, collaboration,
communication and team skills if PBL program is designed to run to match the ongoing traditional curriculum content.

5FF13 (23186)
Supporting Students using a Q&A Forum
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Background: In 2013 Manchester Medical School introduced a new module focused on Quality Improvement (QI). This groundbreaking module was designed to give students an insight into QI in modern healthcare in the context of a clinical environment. Critical to the module’s success was the provision of accessible academic support. It was recognised that many students would require specialised advice about research skills, audits and statistics. Around 20 Advisors such as hospital librarians, Audit team managers and statisticians were identified, scattered across numerous teaching hospitals and the University. There were too few Advisors to directly supervise over 400 students, especially as the students themselves had been assigned to clinical placements across the North-West of England.

Summary of Work: The solution was to provide students with an online Question and Answer forum during the module. Students were able to post questions to which students and Advisors could respond.

Summary of Results: Engagement exceeded expectations. Within two weeks over 90 questions had been posted by students with over 300 contributions from students and Advisors. Over 97% of the cohort visited the forum, viewing an average of 13 questions. The quality of the questions and the responses was notable; students asked a wide range of in-depth questions that were relevant and probing, whilst the Advisors provided insightful and supportive responses.

Discussion and Conclusions: This method of delivering student support proved very effective for a geographically dispersed group of students and Advisors.
Take-home messages: Forums can be highly effective in delivering support to medical students.

5FF14 (20445)
in-Training, the online magazine for medical students: An innovative approach to medical student community building
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Background: The socialized hierarchy and ‘hidden curriculum’ of medical education promote student burnout and sap medical students of their optimism for the profession of medicine. Medical students must be empowered to communicate with their peers to advocate for improvements in medical education and to build a collective sense of self-worth as part of the profound transformation they undergo as physicians-in-training.

Summary of Work: To achieve these goals, we created in-Training (http://in-training.org), a dedicated student-written, peer-edited online publication that promotes community building among medical students worldwide. As a virtual community for students to reflect on their experiences and share their passions with their colleagues, in-Training helps students to cope with the rigors of medical education and to build a culture of open discourse among fellow physicians-in-training.

Summary of Results: Over the past 18 months, in-Training has met the pressing need for a communal gathering place for the medical student body. Over 260 articles by 130 medical students at 60 institutions across the United States, Canada, India, Ireland, United Arab Emirates, and Netherlands have been published on in-Training.

Discussion and Conclusions: in-Training has become a forum for medical students to share their thoughts on medical education and healthcare, showcase their literary and artistic endeavors, and discuss the arts, politics, science and literature with their peers across the globe.

Take-home messages: in-Training is an online publication that overcomes the current geographic isolation of medical schools to encourage self-reflection, communication and collaboration among medical students and promote the authenticity and independence of the medical student voice.
Correlation between academic record of high school students and achievement of the First year Pre-medical students

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Background: There are three projects for admission to study medicine in the Faculty of Medicine Thammasat University; 1) national admission via Consortium of Thai Medical Schools (COTMES), 2) the Collaborative Project to Increase Production of Rural Doctor (CPIRD) and 3) the distributed medical program; One District One Doctor (ODOD). Even the first year medical students came from different projects and different background, they studied pre-medical science together in the same class and were assessed by the same evaluation.

Summary of Work: The first objective is to study the differences in pre-medical academic achievement of 3 projects. The second objective is to study the correlation between academic records of high school level and pre-medical academic achievement of 3 projects. We reviewed data of 162 first year medical students of Thammasat University of academic year 2011. Grade point average (GPA) from high school and GPA from pre-medical year were reviewed and compared for correlation by using SPSS.

Summary of Results: The medical students from COTMES had the highest GPA compared with the students from CPIRD and ODOD with the mean GPA of 3.55, 3.42, and 3.34 respectively (p=0.05). The GPA of Mathematics, Science and English has a positively significant statistical correlation with pre-medical GPA. (p=0.05).

Discussion and Conclusions: Student from CPIRD and ODOD had lower GPA or academic achievement than COTMES project. Mathematics, Science and English GPA from high school positively correlated with pre-medical achievement.

Take-home messages: High school academic background is important for achievement in medical school. This would bring to consideration of student admission criteria.
Projects for improvement of the clinical psychiatric education at Sahlgrenska University Hospital. Means to influence and improve the education of interns.

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Background: All medical interns at the Sahlgrenska University Hospital are since 2004 required to participate in a project directed at improvement of the medical education or the health care organization. Some of these projects are aimed to improve the clinical psychiatric education.

Summary of Work: Project for improvements are acknowledged by interns, the intern council and the administrative staff. The intern council responsible for monitoring the psychiatric clinical rotation will present some of the efforts for improvements made by the interns.

Summary of Results: Projects for improvements: Initiation of lecture series regarding the goals for psychiatric care in Sweden, within the aims of the National Board of Health and Welfare. The creation of a pamphlet for the introduction of new interns at psychiatric clinics, containing routine documents, relevant and important legislations and information on evaluation of suicide risk etc. Memorandum document: Treatment of acute intoxication. Memorandum document: Treatment of abstinence in hospitalized persons with alcoholic dependence.

Discussion and Conclusions: Interns are interested in influencing their clinical education, and have many ideas for improvement. The projects are valuable for both the interns and for the hospital. The inspiration and concern among interns has to be captured and these improvement projects are a suitable way to do so, at minimal cost and investment to the hospital.

Take-home messages: The interns have many ideas for improvement – make use of that systematically!

The doctor as psychotherapist: The impact of psychotherapy in psychiatry residency

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Background: In 2010, Singapore saw a transition in graduate psychiatry training, from the UK-based Basic and Advanced Specialty Training, to the American-based residency. The introduction of formal psychotherapy training, namely psychodynamic psychotherapy (PDP) and cognitive-behavioural therapy (CBT) was one of these key changes. This study aims to investigate the development of PDP and CBT competencies in residents and how they relate to patient care as well as perceptions and attitudes of residents towards psychotherapy training.

Summary of Work: Data were extracted from administrative records of all psychiatry residents (n=15) who underwent psychotherapy training in their 3rd year of residency. Residents’ PDP and CBT knowledge, skills and attitudes and performance in patient care were assessed periodically by their clinical supervisors through structured checklists. Attitudes and perceptions towards psychotherapy training were collected via open-ended questions at end of posting surveys.

Summary of Results: Residents were assessed an average of 3 times for both PDP and CBT in their 1-year posting. PDP and CBT knowledge, skills and attitudes showed a steady improvement throughout their 1-year posting. Changes across time in overall PDP competence is positively related to changes across time in patient care in the same period. Changes across time in overall CBT competence, however, does not seem to be related to changes across time in patient care.

Discussion and Conclusions: Through formal psychotherapy training, residents showed improvement in their PDP and CBT competence. These competencies, especially PDP, were positively related to patient care.

Take-home messages: Competence in psychotherapy allows residents to appreciate psychological aspects in holistic patient management.
**Development and Evaluation of an Innovative Reflective Peer Supervision Group for Child and Adolescent Psychiatry Trainees On-call**

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**Background:** In Northern Ireland, Psychiatry Trainees provide on-call provision to the regional Child and Adolescent Psychiatry (CAP) Inpatient Unit. This unit is discrete from trainee’s daytime placement. Feedback highlighted the need for an additional form of supervision within a supportive group setting.

**Summary of Work:** A pilot survey confirmed the need to establish a group. Incoming trainees were invited to attend a focus group where they discussed their views on setting up a group and completed a questionnaire. This survey again confirmed the trainees’ wish to attend a reflective peer supervision group, and established trainees’ opinions on the focus, logistical arrangements, limitations, ground rules and agreed aims of the group. Meetings were held once monthly for six months and facilitated by two senior trainees.

**Summary of Results:** On finishing their posting all trainees surveyed found this group useful, and felt the group had met the agreed aims. All trainees felt attending the group had assisted them with on-call duties. All would recommend the group to others and were satisfied with the frequency, timings and venue. Only one trainee had experience of peer reflective supervision but all trainees surveyed would now avail of it in future posts. Trainees valued the support and practical advice given as well as the shared learning with peers and informal nature of the group.

**Discussion and Conclusions:** This group was successfully established and will continue as an integral part of trainees’ placement in CAP. All trainees surveyed felt this peer reflective supervision group had been useful, and had improved their on-call experience.

**Take-home messages:** Reflective supervision groups may provide a novel approach for the transmission of knowledge and moulding of professional identity for trainees working in relative isolation across multiple sites.

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**Psychiatric Trainee Perceptions of the Effectiveness of Communication Skills Training**

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**Background:** Poor communication skills are an important cause of clinical exam (CASC) failure in Psychiatry training, with an impact on patient care. Communication skills training is compulsory but varies widely. This study examines what aspects of such training trainees find most beneficial.

**Summary of Work:** 198 psychiatry specialty trainees in the North Western deanery completed the questionnaire (response rate 98%). They identified the types of communication skills training they had received and the effect on their communication skills. The data were analysed using paired t-test.

**Summary of Results:** 89% trainees had received feedback on direct patient contacts. 30% had training with simulated patients and 38% had used role-play with colleagues. 95% had received didactic teaching on communication skills. Observed direct patient contact was significantly more effective than other teaching methods at improving trainee’s self-perception of their communication skills (p<0.001). Didactic teaching was less effective than observation. Although simulated patient contacts were significantly more beneficial than didactic teaching (p<0.05), role plays with colleagues were not (p=0.18)

**Discussion and Conclusions:** Trainees recognise the importance of feedback on direct patient contact. Ensuring feedback is given on how trainees can develop their communication skills, rather than focusing on other aspects of the consultation, will facilitate trainees in developing the skills required for effective practice and exam success. Role-play with colleagues was not considered equivalent to simulated patient contact, possibly due to a lack of authenticity.

**Take-home messages:** Communication skills sessions should focus on delivering feedback on direct patient contact rather than providing didactic teaching sessions or trainee-trainee role-play in order to support trainees in their development.
5GG5 (18708)
Development of Student in Family Health Strategy Clerkship

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Background: The medical training includes as a graduation integrating clerkship, curriculum mandatory in-service training. The Family Health Strategy (ESF) clerkship was introduced in January 2007 and it was offered in the first year of internship, during the tenth period of the Federal University of Alagoas’ School of Medicine (FAMED -UFAL).

Summary of Work: This study aims to analyze the development of students for Basic Attention during internship in ESF under FAMED-UFAL students’ perceptions, it was structured as a qualitative research with an explanatory case study. Data collection was conducted through focus group technique and treated using the content analysis tool proposed by Bardin.

Summary of Results: Four thematic categories emerged: autonomy as recognition of value; relationship with users and professionals from the service; medical student frustration about the health services reality; skills and abilities acquisition during the clerkship. Many of the factors analyzed are required to compose a comprehensive framework for specific skills and abilities development, predicted in the DCN. In the end,

Discussion and Conclusions: We understand that it is up to medical schools to continue to think about the training process of their graduating students. Strategies for qualifying preceptors to attend medical students is highly recommended.

Take-home messages: This research was developed and presented as a requirement for the Health education Master degree.

5GG6 (22972)
Evaluating Field Notes in a Family Residency Program

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Background: To support the assessment of competence, regular use of field notes is a new accreditation requirement of the College of Family Physicians of Canada. These are narrative forms documenting resident formative feedback and direct observations. The 2-year University of Ottawa Family Medicine residency program, graduating 70 residents annually, introduced a paper-based field note in 2011.

Summary of Work: The quality of field notes can vary significantly between clinical supervisors and are dependent on faculty development, but evaluating them requires a scoring rubric. We created a 5-parameter scoring tool based on whether there were: 1) CanMEDS roles mentioned and 2) specific examples of proficiency, elements for improvement and recommended plan as well as an overall word count. The tool was validated and we reviewed all 4300 available written resident observations (field notes and all other direct observation forms) retained by the department since 2008, comparing the results based on the document format.

Summary of Results: To date, of the 3443 forms currently reviewed, out of a maximum of 9, Field Note scores were significantly better (5.30; Std. deviation 1.76) than other forms (4.47; Std. deviation 1.52) documenting resident observations.

Discussion and Conclusions: We have demonstrated that the use of a Field Note results in improved quality of documentation in resident formative assessment. This is likely due to a form that encourages narrative categorized comments complemented with associated faculty development.

Take-home messages: Field notes, a new requirement for assessing competence and providing written feedback in Canada, encourage better documentation and have a potential for building a competency portfolio for each trainee.
A new family medicine residency program at a remote regional site inspires local medical community

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**Background**: Fort McMurray is a remote municipality (population 73,000) in northeast Alberta. Prior to 2012, only 4 of the local physicians were involved in clinical teaching. Through efforts of a local champion and the Office of Rural & Regional Health at the University of Alberta, a new family medicine residency program was implemented in July 2012. It began with 2 residents with a further 4 residents entering in July 2013. Being a new residency training site, local teachers did not have preconceived notions of what a residency program should look like. This allowed for the CFPC Triple C Competency Based Curriculum principles to be built into the program from its inception.

**Summary of Work**: The curriculum for this residency training program is fully integrated over the course of 20 months with 4 months designated to a rural community placement. Residents work with physicians of multiple disciplines each week. Faculty development sessions have been embraced enthusiastically by local physicians.

**Summary of Results**: The program has had a direct positive impact on the medical community. Currently 39 local physicians are involved in teaching, nine of which are family physicians who act as the primary preceptors. Preceptors attend the residents’ structured learning sessions to further their own continuing professional development. Residents present weekly grand rounds for health care professionals; these are available by videoconference to other physicians across northern Alberta. Family physicians have become more involved in the hospital. A new after hours clinic provides further learning opportunities and has increased the availability of urgent care in the community.

**Discussion and Conclusions**: This program has produced significant positive changes in the medical community in Ft McMurray, in particular the increased involvement of family physicians in hospital work.

**Take-home messages**: New community based training programs inspire local physicians.

Reflections on a year-long rural clinical exposure: What do junior doctors have to say?

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**Background**: The Faculty of Medicine and Health Sciences at Stellenbosch University launched the Rural Clinical School (RCS) to provide final year medical students with an extended rural exposure to better equip them for possible practice in a rural setting. In 2011 the first cohort of eight medical students completed a year-long, comprehensive rural placement at the RCS.

**Summary of Work**: Two years after graduation and now at the end of their two year internship, this cohort of junior doctors was followed up to determine their attitudes towards rural placements and retrospective perceptions of their RCS experience. Individual semi-structured telephonic interviews were conducted.

**Summary of Results**: The RCS was described as an enabling space that provided a sound platform for internship and the imminent Community Service (COMSERVE) year. Graduates felt confident in their clinical skills and ability to treat patients holistically. Four had chosen a rural placement for their COMSERVE electing to work in a rural location and hoping to stay in rural communities after completing COMSERVE. They felt that the rural placements would round them off as doctors.

**Discussion and Conclusions**: The results suggest that the RCS provided an important platform for student learning, clinical skills development and for gaining confidence as doctors. Furthermore, the results highlight that rural exposure can influence placement choices. This study confirms that an extended rural clinical experience may offer quality clinical experiences and lead to the retention of healthcare workers in rural areas.

**Take-home messages**: Extended rural exposure may influence choices for practice locations.
5GG9 (20524)
Pilot GP training posts in a UK prison: A positive learning experience?

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Background: Doctors who deliver primary care in UK prisons are required to be general practitioners (GPs). In the West Midlands, England, there was an absence of GP training posts for this non-traditional area of GP clinical practice. In 2011 Health Education West Midlands piloted a 12 week prison GP training post integrated within a second year community GP training post. The aim of the study was to evaluate this innovative GP training post.

Summary of Work: The two GP registrars who undertook this voluntary learning experience and prison healthcare staff (n=2) and community GP educators (n=8) involved with the delivery of this training post were invited to take part in a follow-up audio-recorded face-to-face semi-structured interview 18 months later. The interviews were transcribed verbatim and thematic content analysis used.

Summary of Results: The GP registrars agreed that this training post had offered them an opportunity to increase their expertise in an area of personal interest of substance misuse, sexual health and mental health issues; an experience they felt was hard to replicate outside the prison environment. The prison healthcare staff reported a positive interchange of clinical knowledge between themselves and the GP trainees. All participants considered 12 weeks was the optimum length for this learning experience and GP registrars needed community GP experience prior to managing this challenging patient population.

Discussion and Conclusions: The participants’ positive attitude towards this learning experience contributed to the success of this GP training post.

Take-home messages: However, the high turnover of the small UK prison GP population may affect the sustainability of these GP training posts.

5GG10 (22129)
Course for trainers in specialty training programme for family medicine in Croatia

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Background: The new competency-based specialty training programme for family medicine in Croatia entails development of a trainers’ network important for specialty training programme implementation.

Summary of Work: The two-days course was organized once per year in 2012 and 2013. During the first day, the structure of the speciality training programme as well as principles of continuous development follow-up and assessment of competencies were presented. Activities in the second day enabled trainers for workplace-based assessment (CbD, COT) and for mentoring the trainees in preparing the portfolio as a self-reflective tool. The course also enabled trainers in preparing trainees for the written test and basics in writing a research paper.

Summary of Results: In the last two years 63 trainers finished the course which enabled them to provide mentoring for the trainees in concordance with the new competency-based specialty training programme for family medicine. By reaching the total number of 63 trainers in the network, the current needs for mentoring 73 trainees in the new competency-based specialty training programme have been met. However, in order to obtain sufficient number of trainers in the network that would provide mentoring for approximately 35 trainees/year, the course for trainers needs to be organized once per year.

Discussion and Conclusions: Strong and enabled trainers’ network represents an important element of the specialty training process.

Take-home messages: Maintaining the sustainable trainers’ network is essential for successful specialty training programme implementation.
Panel Management: Practice-Based Learning and Improvement in Action

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Background: Panel management, a key tenet of the Patient-Centered Medical Home model, is shown to be an effective practice strategy for improving patient outcomes (Feldstein, Perrin, et al, 2010). There is little guidance about how best to connect panel management to a curricular framework. The Practice-Based Learning and Improvement (PBLI) competency connects well with an integrated Panel Management/Quality Improvement curriculum.

Summary of Work: As one of five Centers of Excellence in Primary Care Education funded to develop new models for training healthcare professionals, we are piloting a program that provides resident trainees with 4 three-month outpatient blocks and co-learning experiences with nurse practitioner trainees. Within this program, we developed a longitudinal curriculum – Quality Care Improvement (QCI) – that provides experiential learning in QI using real-time access to trainee panel patient data. Trainees are given a dedicated panel management block each week to use a web-based registry tool that allows them to systematically analyze groups of patients for selected criteria then apply QI methods to make evidence-based improvements to care.

Summary of Results: Trainees complete short evaluations as part of QCI. These sessions have received an average rating of 4.55 out of 5 (1-5; 5=high; n=405) for usefulness and average rating of 4.35 out of 5 for increased confidence. Also, preliminary focus group and exit survey results show that this QCI/Panel Management component of the overall program is highly valued.

Discussion and Conclusions: PBLI emphasizes systematic analysis of practice by using information technology resources to optimize learning and effect improvement change. Incorporating panel management into the curriculum can achieve these goals.

In search of effective discharge summaries to inform medical education

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Background: Effective clinical handover at transition points of care, including discharge information, is crucial for safe and continuous patient care. In Australia, there are concerns amongst primary care practitioners about the quality of patient records and discharge information received from hospitals. Despite this, training for effective written communication between clinicians at transition points of care receives little systematic attention and it is an area of clinical communication that remains under-investigated.

Summary of Work: Using discourse analytical methods, we investigated discharge summaries from medical and surgical wards from one teaching hospital. The discharge summaries from seventy medical records were analysed for content, structure, and language features. In addition, fifteen clinicians were interviewed about their perspectives of the purpose and critical content of discharge summaries as well as the training required.

Summary of Results: Discharge summaries can lack critical information for continuous patient care. Although many are based on a proforma, the information is frequently not appropriately prioritised. The findings on clinician perspectives of the purpose and features of discharge summaries as well as the analysis of their content, structure, and language features will provide a substantial evidence base to inform relevant communication skills teaching for writing effective discharge summaries.

Discussion and Conclusions: The findings from this study suggest training for effective written communication between clinicians at transition points of care warrants greater attention.

Take-home messages: Investigating clinician practices, perspectives and training needs for effective discharge summaries is an important step in addressing this shortcoming in medical education.
**5GG13 (21674)**
**Evaluation of Pediatric Residents’ Knowledge of Patient Education Resources**

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**Background:** Patient health literacy is associated with improved clinical outcomes. The ability of pediatric patients and their caregivers to understand health information is enhanced through utilization of patient education resources that are available from major Canadian academic pediatric sources. As resident physicians are often first line providers, their knowledge of these resources is important in educating patients and families.

**Summary of Work:** McMaster University Pediatric residents completed a survey designed to assess their knowledge of available local and national patient education materials. Participation was voluntary with implied consent. Participant demographic data was obtained (e.g. PGY level). Answers were recorded either dichotomously or categorically.

**Summary of Results:** 25 participants completed the survey. Knowledge of patient education sources increased from postgraduate year one to year four (43% vs. 75%; mean 52%). The most commonly used resources by residents were national online education tools. Awareness of local online resources was low. The most commonly cited barriers to access resources were language barriers and an inability to quickly locate resources.

**Discussion and Conclusions:** Overall, the results suggest that our resident group lacked awareness of where to find patient education resources. This identifies a key patient education / knowledge translation gap that needs to be addressed, potentially via a formal resident training curriculum.

**Take-home messages:** The results of this survey suggest that our pediatric residents have poor awareness of patient education resources. Given that patient health literacy is associated with improved clinical outcomes, and given that resident physicians are often first line patient educators, it is important to address this gap in our residents’ education.

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**5GG14 (19492)**
**Perceptions, Experience and Attitude of the Mentor in Pediatrics Residency Program in Qatar**

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**Background:** Mentoring provides opportunity for adopting academic value; helps shape education and career development for residents. Mentorship was implemented early 2007 in our paediatrics residency program but faculties never had a chance to evaluate the process. This study aims to assess pediatricians’ perception, attitudes and expectations towards mentoring of residents and to explore potential recommendations that can improve program effectiveness.

**Summary of Work:** We surveyed 25 faculty members working at tertiary teaching hospital, using a questionnaire that included questions on mentor-mentee relationship in academic achievement, psychosocial support, different strengths and weakness and suggestions for improvement.

**Summary of Results:** Response rate was 75%; staff satisfaction with mentorship process was 50%, nearly 62% of participants said direct interview with monthly summative evaluation was the main tool to assess mentee performance. Frequency and duration of contact between residents and mentors varied while gender and ethnicity had no effect. 65% of mentors offered help with clinical, research, problem solving skills and advice for future careers. Overall 60% reported mentoring as a valuable education and professional development experience.

**Discussion and Conclusions:** Our finding highlights the importance of establishing comprehensive mentorship opportunities for pediatrics residency programs and faculty members by preparing them for academic and leadership positions.

**Take-home messages:** Mentoring is a beneficial tool assisting residents’ achievement of competencies which result in better health care delivery. Challenges to mentorship included limited experience, time constraints and inconsistent evaluation of mentorship programs. Clarifying mentor roles, recognition and supporting their academic promotion, providing staff development; monitoring and ongoing evaluation of the process can overcome those obstacles.
**5GG15 (19385)**

**Pediatric resident medical records: Points to improve**

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**Background:** The quality of medical records depends on the knowledge and skills of the doctor. As medical records are very important tools, it is one of the items in the resident’s competency evaluation. This study aimed to determine which, if any, parts of the residents’ medical record writing skills required improvement, and associated factors.

**Summary of Work:** Inpatient medical records written by 2nd and 3rd year pediatric residents in our department at Songklanagarind Hospital in 2013 were reviewed.

**Summary of Results:** 506 inpatient medical records were reviewed. The components identified as having the highest rates of unacceptable completion were “initial investigations” (5.3%), “summary of investigations” (4.5%) and “progression of clinical conditions” (4.3%). The reasons for unacceptable evaluation were “incomplete documentations” (65.0%) “lack of follow up” (26.7%) and “incorrect clinical reasoning” (8.3%). The 3rd year residents’ records had better scores than the 2nd year residents. No significant difference in scores was noted between the ICU and non-ICU wards, nor among genders, GPA and in-training examination scores.

**Discussion and Conclusions:** Although most pediatric residents of Songklanagarind Hospital were found to write acceptable medical records, in those whose records were not acceptable, details of investigations and clinical progressions were the most common components identified as unacceptable, because of incompleteness, lack of follow up and incorrect clinical reasoning.

**Take-home messages:** Residents should be careful while completing their records, and staff should pay special attention to their supervisory role in seeing that the documentations of the residents, especially in the areas of investigations and clinical progression.

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**5GG16 (19622)**

**Three-hour meetings – junior doctors creating educational and organisational changes in a paediatric department in Denmark**

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Susanne B. Nøhr, Aalborg University Hospital, Department for Postgraduate Medical Education, Aalborg, Denmark

**Background:** At Aalborg University Hospital Denmark, the 3-hour meeting is an established process to engage junior doctors in generating educational initiatives supported by management. Records of the junior doctors’ reflections, action plans and blue print for action on important educational issues have been collected in a annual electronic report since 2006.

**Summary of Work:** We made a thematic analysis of written reports (n=7) from our paediatric department covering the years 2006-2012. In all, 67 (7-13 pr. session) junior doctors participated. Data consisted of the junior doctors’ experiences and views on the educational opportunities in the department, initiatives for change from the junior doctors themselves, and follow up on initiatives suggested the year before.

**Summary of Results:** The issues found could be categorised into three main themes: “Organisation of postgraduate medical education (PGME)” (including responsibility, planning, organising and participating in PGME). “Learning climate” (including workload, feedback and supervision, availability of senior doctors, working in teams, and lack of time). “Formal learning activities” (including ‘Case of the day’, conferences, allocation of learning activities, training of practical skills). The junior doctors suggested 46 initiatives in total. More than half of the initiatives were implemented in the department; especially changes in organisation of PGME (61%) and learning climate (52%) were successfully implemented.

**Discussion and Conclusions:** Junior doctors’ initiatives can create changes in the organisation and learning climate of PGME.

**Take-home messages:** The 3-h-meeting process helps junior doctors to engage in educational issues and to generate concrete initiatives and increases awareness of the organisation of educational opportunities and activities.
5HH POSTERS: Context for Clinical Training
Location: South Hall, Level 0, MiCo

5HH1 (21569)
Improving Clinical Encounters in Undergraduate Medical Education

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Kate Kendrick
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Laura Talbot

Background: One of the best ways to learn medicine is by meeting patients; it is what most medical students look forward to throughout their pre-clinical years. Students are keen to speak with patient, examine them and learn more about how to recognise and treat diseases. Despite this, initial ward based placements can be daunting and students may feel out of place or in the way. In addition many patients do not have a clear understanding of the role of medical students.

Summary of Work: Initial data was collected from medical students and patients at a primary teaching hospital using focus group meetings and Likert Scale questionnaires. Based on this a number of interventions are being trialled to facilitate encounters between students and patients. These include measures to make patients, who have agreed to meet students, easily identifiable and a patient leaflet to provide information about the role of medical students.

Summary of Results: Results from focus group discussions and questionnaires from before and after the implementation of each change will be presented.

Discussion and Conclusions: Although it can be difficult to integrate medical students into the day-to-day activities of a ward, simple measures can help facilitate learning opportunities for students. It is equally important to make patients aware of the presence of medical students and their role on the ward.

Take-home messages: Ward based teaching is an essential part of medical education and this project aims to provide guidance on how to create a good learning environment for students whilst improving patient satisfaction of encounters with medical students.

5HH2 (22879)
The impact of a national cardiotocography teaching program; Interpretation skills and the correlation to profession, subspecialty, years of obstetric experience and size of maternity ward

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Background: To reduce the incidence of hypoxic injuries among newborns a national obstetric intervention was initiated in 2012. As part of the intervention all physicians and midwives working at Danish maternity wards participated in a mandatory standardised cardiotocography (CTG) teaching program. The aim was to improve CTG interpretation skills and to explore whether interpretation skills were correlated to profession, subspecialty, years of obstetric experience and size of maternity ward.

Summary of Work: All participants attended a seven-hour CTG course, consisting of both classroom teaching and small group teaching. The course addressed foetal physiology, CTG interpretation and clinical management. At the beginning of the course each participant answered 10 out of 30 questions of a validated CTG multiple choice question test (pre-test). At the end of the course participants answered all 30 questions in the test (post-test). Items emphasized CTG interpretation and clinical management. Information on profession, subspecialty, obstetric experience and workplace were obtained during the course.

Summary of Results: A total of 1718 (95%) participants answered both pre-test and post-test. Seventy were excluded due to their participation in the pilot-testing of the CTG test. The remaining 1648 consisted of 1243 (75%) midwives and 405 (25%) physicians. Using regression analyses it will be examined whether interpretation skills were improved and whether skills were correlated to the selected variables.

Discussion and Conclusions: This study will clarify if a comprehensive national obstetric intervention has an effect on CTG interpretation skills, and will illuminate whether specific prerequisites influence these skills. Future planned studies will examine the effect of the national intervention on neonatal complications.
5HH3 (20026)  
The effect of an active intervention by clinical teaching fellows on increasing the number of patients students clerk

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Background: Clerking and presenting patients is a key part of medical education. Students benefit from experiential learning and the valuable feedback that can be provided by senior colleagues.

Summary of Work: We initially surveyed 34 students asking how many patients they clerked per week, how many were presented to a clinician, how useful they found both of these activities and what barriers existed to this. We then implemented 2 sessions for students giving clerking tips, feedback and encouraging clerking and also informed students of the value of clerking and presenting. We then repeated our survey with a second cohort after implementing these sessions.

Summary of Results: In the first cohort the mean number of patients clerked was 2.1 per week, the mean number presented was 1.1. Barriers existed for 78% of students for both clerking and presenting. Barriers identified included; busy or full student timetable, a lack of clinician time and inadequate student to patient ratio. Following our intervention the mean number of patients clerked per week was 2.8 (P= 0.048); 1.6 per week were presented (P =0.1). The impact of busy clinical staff remained the main barrier.

Discussion and Conclusions: Our simple strategy increased the number of patients clerked, however the number of patients presented did not significantly increase. Clinician availability to listen to presentations formed the main barrier to improvement.

Take-home messages: Simple strategies can significantly increase experiential learning through patient clerking, however improvement may require the development of new strategies by clinicians to incorporate student clerking into daily clinical practice.

5HH4 (22083)  
Unravelling the mystery of the ward round: Student perception of factors affecting the quality of teaching and learning on ward rounds

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Background: Ward rounds constitute a significant part of medical students’ time in the clinical environment. There is a paucity of evidence as to what factors most affect the teaching and learning that students receive. Students’ experiences of rounds vary considerably: they may become part of the team with defined roles, they may receive teaching from team members as the round progresses, on some they are expected to observe only. Most of the research literature investigating these differences is based outside the UK, furthermore the majority is focused on teacher’s perceptions, or the training of junior doctors as opposed to medical students.

Summary of Work: The study utilised a nominal group technique in conjunction with a questionnaire to develop consensus on the factors affecting ward rounds and identify examples of best practice. Interviews will be conducted to explore emergent themes, issues and ideas in more depth.

Summary of Results: The results are currently being analysed, initial impressions suggest some unexpected emergent themes and we intend to generate practical advice for students and their teachers.

Discussion: The results of this study can be viewed in the light of Vygotsky’s Zone of Proximal Development, Lave and Wenger’s Legitimate Peripheral Participation and Maslow’s hierarchy of Needs. Results are comparable with other studies investigating expert teaching practice in ward rounds, with some notable differences.

Discussion and Conclusions: Ward rounds are highly variable in their approach and under researched. This study identifies students’ perceptions of factors affecting teaching and learning on ward rounds, adding to the literature and generating practical advice.
"Either you do not swim at all or you are drowned": Exploring workplace-based learning opportunities for undergraduate and postgraduate medical students

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Background: Medical students and residents as future doctors need to be involved in patient care. This study aimed to capture current learning opportunities for medical students and residents and to identify relevant factors influencing the quality of learning opportunities. Students had limited access to patient care and management, whereas residents were overloaded with patient care duties. Therefore, it was very challenging for students to learn from their involvement in the community of practice. On the other hand, residents had to learn through work but did not have time to reflect the experience for their individual learning.

Summary of Work: This qualitative study was conducted in four departments: internal medicine, neurology, surgery and ophthalmology. Document analysis, non-participant observations of workplace based learning and assessments, focus group discussions (FGD) of students and academics, and individual interviews of program coordinators and heads of department were completed. Narrative data were transcribed verbatim and analyzed accordingly based on the agreed coding and framework.

Summary of Results: A total of 50 observations, 25 FGDs, 17 interviews were conducted. Several issues on the hospital policy, academic staff assignment, competency milestones, supervision, scheduling and characteristics of clinical cases were identified as factors influencing the quality of learning opportunities. Students had limited access to patient care and management, whereas residents were overloaded with patient care duties. Therefore, it was very challenging for students to learn from their involvement in the community of practice. On the other hand, residents had to learn through work but did not have time to reflect the experience for their individual learning.

Discussion and Conclusions: This study highlighted that a lot of factors should be considered to assure learning opportunities at the workplace for residents and students.

Take-home messages: Balancing the opportunities of involvement in the patient care, supervision, and reflection of the clinical experience are deemed important to enhance the quality of workplace-based learning for students and residents.
**5HH7 (21197)**
The Examining Fellow Student [EFS] questionnaire predicts perceived utility of Peer Physical Examination (PPE) in medical students

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**Background**: A consistent minority of medical students questions the appropriateness of PPE, but the effect of this belief on its educational usefulness is unknown.

**Summary of Work**: We performed a cluster analysis on the results of the EFS questionnaire (Consorti et al, BMC Med Educ. 2013;13:111) in 92 medical students (66% females) after a clinical clerkship program and compared the perceived usefulness of three PPE activities (examination of the chest, spirometry, and walking test) with that of similar activities performed on patients. After dimensionality reduction of the EFS data through principal component analysis, 3 retained components were subjected to non-hierarchical cluster analysis yielding three mutually exclusive clusters.

**Summary of Results**: Cluster A included 52% of the students, with less females (54%), low scores for embarrassment and high scores for appropriateness of PPE. Cluster B included 26% of the students, with more females (87%), and high scores for both embarrassment and appropriateness. Cluster C included 22% of the students, with sex distribution similar to the whole set (68% females), and low scores for both embarrassment and appropriateness. The scores for the perceived usefulness of the three clinical activities performed on patients were similar in all the three groups. By contrast, the scores for all the 3 PPE activities were significantly lower in cluster C, without differences between clusters A and B.

**Discussion and Conclusions**: We conclude that beliefs about the appropriateness of PPE is a major determinant of its perceived usefulness, while embarrassment alone, mostly in females, can be overcome by student’s beliefs about its appropriateness and educational value.

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**5HH8 (19634)**
Medical students’ emotions at graduation about becoming medical doctors are related to their clinical experiences

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**Background**: Various experiences in professional communities are known to be necessary in order to become competent and self-directed professionals who possess desired attributes, values, identity, and confidence. Medical programs have to design appropriate experiences for human development as medical doctors.

**Summary of Work**: To reveal the relationships between medical students’ experiences and their emotions, 43 6th-year medical students, who had finished all courses of the undergraduate medical program, completed a questionnaire asking about the frequency of certain experiences during formal clinical training and other informal opportunities. These experiences included contributing to clinical outcomes, ethical considerations, attendance upon relaying bad news, delivery, patient death, observation of doctors’ and other health professionals’ dilemmas, experiences of patients’ words of gratitude to students, and joy at their own achievements. Students also described their current emotions about becoming a doctor. The students’ descriptions were classified based on the types of emotion, and were analyzed among groups with experiences at different frequencies (none, 1-4 times, 5 or more times), as well as academic performance.

**Summary of Results**: No students expressed confidence, but they did express anxiety (62.8%), hopes (55.8%), and both positive and negative feelings (34.9%) about working as a medical doctor. The students’ emotions were not related to their academic performance. There were fewer students with negative emotions in the groups with more frequent experiences of positive contributions and patients’ words of gratitude.

**Discussion and Conclusions**: Medical students’ formal and informal clinical experiences are related to their emotions at graduation.

**Take-home messages**: Medical students’ positive relationships with patients during clinical training may reduce their anxiety about becoming doctors.
How a structured debrief helps medical students make the most of opportunistic clinical learning

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Background: Opportunistic, experiential learning is a fundamental element of clinical education. Informal feedback suggests that some students struggle in relatively unstructured learning environments and fail to identify or make the most of learning opportunities.

Summary of Work: Small group Debrief sessions, facilitated by clinicians, were introduced to give students opportunities to share experiences with peers and newly qualified doctors to ‘unpick’ how successful learning manifests through (re)conceptualizing what learning possibilities and opportunities exist in clinical settings.

Summary of Results: At the end of each session, evaluation comprises a simple, effective classroom assessment technique (CAT), the ‘minute paper’ (McKeachie, 2006), which records responses to two questions. Data are analysed qualitatively. We provide thematic data from four student cohorts (n=240).

Discussion and Conclusions: This educational model enables students and ‘near peers’ to share best practice in a safe environment to maximise opportunistic learning. Students enjoy the Debrief sessions, reporting great benefit from talking with trainees, finding reassurance that peers shared negative as well as positive experiences.

We continue to work with students to build an environment of trust so that the difficulties of ‘sharing in public’ are minimised. We plan to provide additional training for group facilitators and reduce group size to encourage participation of all group members.

Negative feedback is used to improve subsequent sessions.

Take-home messages: Timetabled debriefs, facilitated by ‘near peers’, help to support students and enhance the learning from unstructured clinical placements.

Patient Satisfaction In Bedside teaching

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Background: Bedside teaching was one of the most important modalities in medical teaching and has shown to improve certain clinical diagnosis skills in medical students. The effect of bedside teaching on patient satisfaction in Sawanpracharak Hospital was unknown.

Summary of Work: The objective of this study was to determine the patient satisfaction with bedside teaching at Sawanpracharak Hospital, Thailand. A cross – sectional descriptive analytic study was done in 350 patients. Patients' satisfaction was assessed by a modified satisfaction questionnaire. Bedside teaching was classified into clinical skills, communication skills and procedural skills teaching.

Summary of Results: Overall satisfaction with bedside teaching was 62.4%; clinical skills and communication skills teaching 73.0% each and procedural skills teaching 51.2%.

Discussion and Conclusions: Most patient were fairly satisfied with bedside teaching. The patients’ satisfaction in bedside teaching was associated with listening, patient attention, and provide explanation of patient treatment procedure.

Take-home messages: Bedside teaching is an important for medical education.
5HH11 (20491)
Patient-centred attitudes of undergraduate medical students: Using the Patient Practitioner Orientation Scale in a South African context

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Background: Patient-centred care is acknowledged as important to achieving improved patient outcomes in health care. Therefore it is vital that medical schools foster this attitude. Studies report students becoming less patient-centred between entry to medical school and graduation.

Summary of Work: We wanted to determine the shift in attitude towards patient-centeredness in a group of South African undergraduate medical students. Simultaneously the reliability and validity of the Patient Practitioner Orientation Scale (PPOS) in our context were measured. A cross sectional survey was undertaken. The mean score for each cohort and the Cronbach’s alpha and confirmatory and exploratory factor analysis were calculated.

Summary of Results: The average return rate across all six years of study was 81%. The results indicated low initial scores on the PPOS as well as a decrease in scores over the years of study, with the most dramatic drop being from year one to year two. The PPOS showed poor validity and reliability in our context.

Discussion and Conclusions: The study showed the same decrease in patient-centeredness in our students as has been shown in other studies using this tool. However, the low reliability and validity in our environment means that this result should be interpreted with caution. Factors such as our medical students’ not having had first-hand experience of the doctor-patient relationship, second language issues, etc. may play a role.

Take-home messages: It is recommended that the PPOS not be used in our context without further exploration of the factors contributing to this loss of reliability and validity.

5HH12 (19763)
“...so with that he broke the nose of [the junior doctor]”: Carer’s narratives and requirements for Tomorrow’s doctors

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Background: The General Medical Council provides guidance to UK medical schools on preparing students for practice. While multiple studies have explored preparedness for practice, a recent rapid review of the literature revealed that none had consulted carers. There are around 6.5 million carers in the UK, who play a vital role in caring for the population. Drawing on a subset of data from a UK-wide study investigating graduates’ preparedness for practice, we answer the following: “What do carers need from junior doctors?”

Summary of Work: A qualitative narrative interview study. Patient representatives, including carers, participated in four individual and six group interviews (total n=25). A thematic framework for analysis was developed inductively.

Summary of Results: Carers’ experiences provide valuable insight into preparing doctors to deal with important issues such as patient diversity, breaking bad news, and the constraints of healthcare services. Awareness, listening and respect were prominent themes. Carers addressed their own needs as well as those of the patients that they care for.

Discussion and Conclusions: Carers provide recommendations, based upon lived experiences, of what junior doctors need to know to positively influence patient care. Their narratives illustrate the communication skills, knowledge and “life experience” that are needed from trainees. Carers are important contributors to patient care. Though there are no “quick-fix” solutions, medical education must prepare doctors of tomorrow to engage with and support carers.

Take-home messages: Medical training should alert junior doctors to the hardships that carers face and what is required from them; carer involvement is invaluable.
Complex stroke care – educational programme in Stroke Centre Faculty Hospital Plzen

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Background: Stroke care in Czech Republic is centralised to stroke centres. Stroke centre Faculty Hospital Plzen provides acute stroke care for 600,000 inhabitants of West Bohemia. The vital importance in stroke management is nursing care.

Summary of Work: Special educational programme “Complex stroke care for nurses and paramedics” was constituted in Faculty Hospital Plzen and was certified by Ministry of Health of the Czech Republic in 2009. The duration of the course is 9 days divided in two parts. First (3 days) – includes lectures and discussions on main topics – pathophysiology of stroke, diagnostics and imaging, stroke treatment, thrombolysis, mechanic recanalisation, neurosurgery, stroke and heart, stroke and diabetes, neurointensive care, speech problems, complications of stroke, depression, primary and secondary prevention, nursing, specificity of care for stroke patients, communication with patients and caregivers, legislation and regulatory, stroke care organisation, physiotherapy and occupational therapy, social assistance, ethics, education. The second part (6 days) – practice mainly in Stroke Unit.

Summary of Results: Number of 214 nurses, occupational therapists and paramedics from the whole country completed these courses within the last 4 years. The course quality evaluation (usefulness, complexity, importance in daily practice) by participants is high (9.2 out of 10 points).

Discussion and Conclusions: Multidisciplinary educational programme “Complex stroke care for nurses and paramedics” consisting of lectures, discussion and practical training brings new quality to stroke care.

Take-home messages: The complex education on stroke and stroke care for nurses, occupational therapists and paramedics is of critical importance and is useful tool for improving stroke care.

Investigating healthcare student clinical placements in psychiatry: What is actually happening and how can we improve student experience?

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Background: While there is a large body of literature regarding the clinical placement in medicine as the environment where academic learning is translated to clinical skills and expertise, the experience of healthcare students specialising in mental health has been studied rather less. Given this dearth of literature, we wish to investigate this in order to inform our training for clinicians who support this learning. Given the evidence base for the benefits of interprofessional learning for healthcare students to prepare them for interprofessional working, this project will take an interprofessional approach.

Summary of Work: Qualitative methods will be used to investigate the clinical learning experience of both students and teachers. Methods include student and clinical staff focus groups and observations of student learning in the clinical setting.

Summary of Results: Initial results from the focus group and teaching observations will be presented as will the framework for how these results will be used to develop guidelines and resources.

Discussion and Conclusions: There is little guidance for clinical staff and undergraduate healthcare students on how learning occurs in the clinical mental health placement. Conclusions on the elements of the experience that constitute good learning from the perspective of medical and nursing students and clinical staff will help us to develop guidance and resources to support an interprofessional model of learning.

Take-home messages: This investigation will lead to a better understanding of factors that contribute to good teaching and learning experiences. The findings of this project will lead to the development of evidence based guidance and resources for clinicians who support student learning.
5HH15 (20732)
Changing attitudes: The impact of teaching recovery principles to medical students during a psychiatric attachment

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Background: In mental health, ‘Recovery’ is “living well in the presence or absence of mental illness and the many losses that may come in its wake”. As a key priority for most western mental health services, medical students need training in this approach. SG, a consumer academic (a person with experience of mental illness with academic qualifications in mental health), developed two tutorials for medical students in their final year psychiatric attachment to introduce these concepts, aiming to achieve attitudinal change.

Summary of Work: Students were allocated between intervention and control groups. All completed the 2-factor Recovery Attitudes Questionnaire-16 anonymously, on commencing and on completing the attachment. The first tutorial described service-user conceptualisations of recovery and how to support recovery during clinical assessment, formulation and management planning. The second tutorial sought students’ reflections on use of this model in their clinical placements.

Summary of Results: 84 students participated; baseline scores were similar between control and intervention groups. The intervention produced significant positive change in factor 1 of the measure (Recovery is possible and needs faith) but not in factor 2 (Recovery is difficult and differs between people). Neither factor changed significantly in the control group.

Discussion and Conclusions: The measure had a significant floor effect in this group. The impact of this limited amount of teaching is encouraging, but the lack of change of attitudes within the control group, despite immersion in allegedly recovery-focused clinical practice, is concerning.

Take-home messages: Brief focused teaching on recovery can change student attitudes. This needs to be linked to workplace practice.

5HH16 (20457)
Standardized patients VS trained medical students in history taking training

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Background: History taking is one of training process for 4th year medical students to improve experience and confident before perform history taking in general practice. Standardized patients (real SPs) are simulated patients or actual patients who have been carefully coached to present their illness in a standardized way. Standardized patient is one of strategy for this practice but there are difficulties to prepare and manage the real SPs, trained medical student (student SPs) is used instead of the real SPs.

Summary of work: To compare the real SPs and the student SPs for history taking training

Methods: 32 Medical students at Ratchaburi Hospital Medical Education Center were training skills in history taking lesson in May 2013. The real SPs and the student SPs were used to perform history taking practice. Evaluation efficiency and satisfaction were measured from questionnaires.

Summary of results: We enrolled 4th year medical student at Ratchaburi Hospital Medical Education Center, median efficient of history taking in students was 21(14-24) vs. 20(14-24) (p=0.29), median of satisfaction was 3(2-3) vs. 3(2-3) (p=0.53) in the student SPs and the real SPs respectively.

Conclusions: The student SPs is useful for history taking practice and not different in efficient and satisfaction compare to the real SPs

Take-home message: More convenient for medical student to use student SPs
Undergraduate medical education: The transition to e-learning platform delivery

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Background: Undergraduate medical education is distinctive. It sees a transition from pre-clinical teaching to clinical learning part way through the course. We measure and analyse the amount of direct and online teaching students receive during a five-year undergraduate medicine course and consider the implications of cost pressures and technological opportunities for future provision.

Summary of Work: We analysed the full content delivery over the five-year undergraduate MBBS programme at a traditional medical school in the UK.

Summary of Results: Over the course of the two pre-clinical years each student receives 875 hours of direct teaching and 11 e-modules. Over the course of the three clinical years, each student receives lecture time of 352 hours, 382 hours of clinical teaching and 150 e-modules. There is a clear reduction, by ~45%, of direct teaching time received as students progress from pre-clinical to clinical years. In addition, there is a rise of ~730% of the number of e-modules available to clinical when compared to pre-clinical students. We consider logistical factors, a change in learning requirements and a shift in student preferences as the underlying reasons for the shift in teaching methods.

Discussion and Conclusions: Content delivery advances to a more electronic approach as a medical student progresses. Institutions must address the challenges of the clinical learning environment.

Take-home messages: The future of UME is directed towards e-learning platform delivery. Institutions must embrace new technologies to avoid incumbents superseding existing courses.

Students' Perception of an Interactive Multimedia Application as a Support for Teaching of Breast Semiology

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Background: Medical education based on informatics technology promotes significant innovations that complement the traditional education.

Summary of Work: This work aimed to evaluate the acceptance of a didactic application in teaching mammary semiology using computational resources. After the students have interacted with the application, they should answer six questions on a Likert scale with five levels of appreciation, ranging from "totally disagree" to "totally agree".

Summary of Results: Seventy seven students filled the Likert scale. As for ease of application usage, 98.4% agreed or totally agreed with the statement. In relation to the application being enjoyable to use, 94.7% fully agreed or agreed. When it was stated that the application provides immediate feedback, 71.3% of the students agreed or totally agreed. Regarding the assertion that the application was didactic, 92.7% of the students agreed or totally agreed with the statement. Asked if applications with other similar topics should be created, 90.8% partially or totally agreed. When asked if this type of application is enough to replace teachers, 69.5% of the students disagreed partially or totally disagreed.

Discussion and Conclusions: The application was well evaluated by the students. However in the students' opinion, the presence of the professor is still important in the teaching of mammary semiology.

Take-home messages: Multimedia applications are important tools in learning and are well accepted by the students, but the teacher is still essential.
5I13 (19416)
UQU experience in E-Surgery for medical students

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Background: The Surgical department in Umm AlQura university (UQU) has introduced E-learning in general Surgery for the final year medical students to run in parallel with the face to face learning in some form of blended learning. Desire to Learn (D2L) system is used as a Learning Management System (LMS).

Summary of Work: Two courses were given to 360 students using E-learning. The learning is divided into 8 modules. Each module cover one major theme in general surgery. The module is divided into: outline, lectures, discussion forum and quizzes. General knowledge module is given at the beginning of the course. The system has its own E-mail facility, and allows to divide the student patch into small groups and take the attendance of each student. There is a notice board for news and announcements, and Feedback can be provided on each activity done by the student on the system. Surveys were done to assess course and staff. The E-learning system is accessible using smartphones with Android or iOS systems

Summary of Results: Students gave positive response to E-learning but wanted early introduction of E-learning in medical course and prolonged period of learning.

Discussion and Conclusions: E-learning should be introduced early in the medical course and is an effective tool in clinical learning.

Take-home messages: E-learning is an effective mode of delivering clinical subjects like surgery and can be better than face to face teaching in some aspects. It saves money and staff time if used properly in blended teaching, and allows medical schools to increase their intake of medical students.

5I14 (21264)
Conduct and assessments of medical ethics education using the World Café and Moodle as a blended learning

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Background: Blended learning is the combination of e-learning and traditional classroom lectures. This study aims to assess the effectiveness of a blended learning for medical ethics education.

Summary of Work: Moodle was used as LMS. The class was done as follows. First, students watched the medical story videos with the ethical theme, such as transplant or abortion. Second, they discussed about the shown topics with the world café style. After each class, a short report homework was assigned to promote reflection about issues discussed in the world café. Questionnaires were given to students to get their opinion about the new learning style.

Summary of Results: Based on the questionnaires, students suggested that the style of the world café could be improved especially from the viewpoint of the learning environment. On Moodle, some students replied to comments from teachers and continued to discuss the theme. However, there were no comments between the students. To improve the effectiveness of this class, we have to devise a more efficient class style such as flipped classroom and theme for the assignments.

Discussion and Conclusions: A blended learning for medical ethics education using world café and Moodle has done. World café was used not only for stimulating discussion among students. Moodle was used effectively not only for handing in assignments but also for setting up a system to comment on each other’s reports.

Take-home messages: A blended learning using world cafe and Moodle can be useful for both students and teachers for medical ethics education.
5115 (22897)
Implementation of an online learning module about Lower Urinary Tract Symptoms (LUTS) at KULeuven: Impact on the learning outcome and the perception of medical students

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Background: The importance of e-learning has increased in higher education over the years. Thanks to online learning modules, students have the freedom to learn at their own pace. Furthermore, feedback is often an essential part of online modules that comes at no cost. Therefore the instructors from our Master in Medicine considered this educational innovation as a tool to stimulate the learning of the students.

Summary of Work: An experimental design with 58 medical students was set up to test the effectiveness of the LUTS module. In the module, students can go through urological cases, they get feedback and access to theoretical study material. Primarily, students had to perform a pre-test to assess their foreknowledge. Thereafter, students were randomly divided into two groups. During 40 minutes, the experimental group was given access to the module, while the control group was offered a paper bundle containing study material from the module. Finally, students had to perform a post-test and complete a questionnaire to assess their perception about the module.

Summary of Results: An ANOVA analysis showed no significant difference in test result between the two groups. The questionnaire revealed a more positive attitude towards the module and it was perceived as ‘easy to use’.

Discussion and Conclusions: Despite the positive attitude towards the module and the perceived user friendliness, no difference in learning outcome was measured. Studying the structured bundle possibly resulted in a learning effect comparable to this acquired while working with the module.

Take-home messages: Online learning modules are an attractive tool for students to gain knowledge in an interactive way.

5116 (21223)
GAMEL® alert system to improve students’ understanding in health system module on medical curricula

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Background: The advancements made in information technology have presented a number of learning methods in medical education. This research proposes a novel, innovative method of tracking students’ learning in Health System module in medical education. GAMEL alert system was used to ensure the students are still on track with the module’s learning objectives and are not blurred by many materials they had to learn. This method was conducted to direct students in fulfilling the learning objectives of the health system module in order to improve their understanding through web-based alert system.

Summary of Work: The alert system was an email reminder using Joomla® application that been sent to each student from the coordinator(s). The email reminder contains an explanation of the learning objectives and provides chosen online website references including GAMEL (Gadjah Mada Medical e-Learning). The alert system was sent twice a day, at eight a.m. in the morning and at two p.m. in the afternoon every day for a period of one week before the module examination. An improvement in students’ understanding was tested by the use of a pre-test and post-test questionnaire. User satisfaction is evaluated with the use of open question survey. There were 194 undergraduate medical students randomly chosen to join this research.

Summary of Results: There was an improvement in the students’ understanding of the module’s learning objectives before and after using alert system. From the open question survey, the students stated that the alert system method was very helpful in providing a more focused understanding of the health system learning objectives.

Discussion and Conclusions: We suggest that alert system can be very helpful tools to increase the level of understanding in the learning objectives of the module in medical curriculum.

Take-home messages: Alert system, which is a novel advancement in learning method on medical education, could improve students' understanding.
**5117 (20638)**
Integrating multimedia eBooks into medical education to support flexible learning

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Background: Recent innovations in anatomy screencasting and podcasting within the School of Medicine have highlighted the benefit of providing multiple ways for students to obtain the desired learning objectives. The impact from these recent innovations has prompted the aggregation of an eBook that can contain all of these resources on a single platform. Importantly, this resource can be accessed away from campus without an Internet connection.

Summary of Work: An eBook based on the anatomy of the abdomen was created and released to year 1 MB ChB students studying this topic. The eBook contained text, screencasts, podcasts, clinical correlates and self-assessment questions. The benefit of producing eBooks is to enable students to access learning resources without an Internet connection, thereby remaining connected anytime and anywhere. Previously, students travelling home or working away from campus would have been restricted from accessing core resources due to variable Internet connections. The use of this type of resource thereby increases the level of student engagement by supporting flexible learning.

Summary of Results: Preliminary results indicate a high level of usage, in a variety of locations, throughout the teaching period that increased before the module’s summative assessment. The screencasts were the preferred media resource used by the student group.

Discussion and Conclusions: This study has shown that using eBooks in medical education to deliver learning resources increases flexible learning.

Take-home messages: The use of multimedia eBooks allows students to access learning resources in a format, and with technology, they are familiar with. This supports the implementation of this teaching method across a wider area of medical education.

**5118 (22922)**
Online review and modification of undergraduate medical curricula in a web-based "Learning Opportunities, Objectives and Outcome Platform" (LOOOP)

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Background: Knowledge, skills and attitudes ("objectives") should be deliberate, deconstructed components of specific competencies rather than isolated, extensive, detailed, fragmented, uncoordinated objectives. In addition, objectives should be aligned with learning opportunities and assessment. However, consideration of this consensus during curriculum development is a great challenge. Therefore, web-based, dynamic "Learning Opportunities, Objectives and Outcome Platform" (LOOOP) was developed at Charité – Universitätsmedizin Berlin to enable development of undergraduate medical curricula including curriculum mapping. One elementary part of LOOOP is a sophisticated tool for review, further development and versioning of objectives. Aim of this study was to evaluate usage of this tool during the last three semesters.

Summary of Work: Data modified by faculty were extracted from LOOOP logfiles and analysed concerning number of reviewed objectives and modified KSA.

Summary of Results: Reviewed objectives increased during the last three semesters: winter 2012/13: N=565, summer 2013: N=1100, winter 2013/14: N=1625. Percentage of modified objectives increased during the same period: winter 2012/13: N=60 (10.6 % of 565), summer 2013: N=274 (24.9% of 1100), winter 2013/14: N=556 (34.2%).

Discussion and Conclusions: Acceptance of review and further development of objectives in LOOOP increases constantly. This acceptance ensures alignment of competencies or outcomes with objectives, learning opportunities and assessment, not only during primary curriculum development, but also during all further developments.
Take-home messages: Online review and further development of learning objectives may be an opportunity for many faculties to ensure curriculum alignment.

5II9 (21513)
Structuring thinking in medicine: Assessing whether an online visual learning tool can meet student requirements for an effective learning package

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Background: Wisdomap Medicine is an online visual learning tool that uses mind maps and flashcards to help consolidate and organise students’ learning. The software is designed to simulate medical practitioner experiences by organising differential diagnoses based on presenting complaints.

Summary of Work: Second, third and fourth year medical students from the University of Southampton participated in this study which aimed to gauge student’s expectations from such a learning tool and whether Wisdomap Medicine met their preferred criteria. Likert scaled questionnaires (n=41), an observational study (n=41), 2 focus groups (n=15) and 7 interviews (n=7) were used to identify student requirements and whether Wisdomap Medicine fulfilled them. Non-parametric statistical tools were used to analyse questionnaire data while focus groups and interviews were analysed using thematic analysis.

Summary of Results: 88% of students desired an interactive learning tool; while 85% of students wanted both a tool centred on their individual needs and favoured one that can be used in their own time. There were no statistical differences between the attitudes of students of different genders or year groups (n=41). Thematic analysis identified these key themes: Wisdomap Medicine was easy to use; it works best as a supplementary learning tool; attaching media (images, pdf files and videos) was appreciated and overall it met the needs of students.

Discussion and Conclusions: Students identified a preference for an interactive, student centred, freely available learning tool and feedback suggests that Wisdomap Medicine satisfied their criteria.

Take-home messages: Wisdomap has the capacity to be an effective, supplementary e-learning tool through its combination of flashcards, mind maps and multimedia capabilities.

5II10 (20390)
Introducing Hospital Network access to Cloud Based File Sharing: Uptake in education, training and research

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Background: Cloud based computing is increasingly utilized by both businesses and individuals and is now a well established data storage option for personal computing. Its use in healthcare IT networks is limited by concerns regarding confidentiality of patient data. However, with increasing availability of E-Learning to trainees as well as the mobility of trainees between different trust’s Cloud storage can be an important tool in education and training.

Summary of Work: An online application system was developed as part of the trust’s change Champions initiative to allow access to commonly used cloud storage/file sharing sites for approved reasons. The system functioned as follows: An attempt to access the site redirects users to a hyperlink to the online application form and confidentiality agreement. Following submission and approval of the form, which includes details of the user, data and purpose the user’s account is approved for use of the site.

Summary of Results: Following the introduction of this system in November 2013 to January 2014 there have been 60 applications to use Cloud storage websites. Of these applications 41 were from clinical and 19 were from non clinical staff. Approved reasons related to Education purposes in 26, Rota management in 14 and Research in 10. There have been no security issues with the new system.

Discussion and Conclusions: The introduction of this approval-based system allows sharing of teaching resources as well as collaboration between organizations and accurate trainee rota management.

Take-home messages: We feel that allowing access to these services empowers staff involved in teaching and training to create personal solutions in a modern collaborative learning environment.
5111 (21957)
Medical education wiki

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Background: Medpedia, a famous wiki-based medical educational project, is deceased. We would like to review some similar projects, compare their basic properties, content and some metrics of their success.

Summary of Work: Our team runs two wiki projects focused on creating and storing medical study materials, which are based on cooperation of students and teachers at medical faculties. Impact of these two projects differs significantly. While the first of them, WikiSkripta, is in national language and seems to be the most viewed repository of undergraduate medical study materials in our republic, the second project, WikiLectures, is in English and it constantly struggles for survival. What are the differences between the successful and unsuccessful project when the background and maintaining team are the same?

Summary of Results: There are numerous conditions of the project success. We tried to compare them for understanding which are the main prerequisites of successful medical wiki projects.

Discussion and Conclusions: The success of a medical wiki project depends on some visible factors that can be influenced by the maintaining team. However there are factors that cannot be influenced at all.

Take-home messages: Help us to identify factors determining success of medical wiki projects!

5112 (22995)
No longer the ugly sibling: Why Wikipedia must be accepted as a core medical education resource

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Background: As the sixth most visited domain on earth, Wikipedia.org is now a cornerstone of existence. It is structured as a free resource enabling any user to add or edit information. Administration teams now review all articles for authenticity, placing Wikipedia.org amongst the top ten globally trusted websites. With 94% of current medical students using the resource, medical educators must support and promote Wikipedia's rapid growth.

Summary of Work: We analysed internet usage of Wikipedia.org and then considered strategies for integrating Wikipedia more fully into formal medical education curricula.

Summary of Results: Wikipedia outperforms traditional resources in domains of pricing, speed of access and breadth of information. Opportunities for integration of Wikipedia into current medical curricula exist in the form of a) formal didactic lectures b) student led problem-based-learning and c) written assessment components.

Discussion and Conclusions: Wikipedia.org remains a raw resource with significant improvements required prior to full acceptance into formal medical education. Students' current reliance on information ratified by only a small group of 1418 global administrators must be viewed cautiously, due to the large scope for acceptance of incorrect information. We must focus on methods for incorporation of Wikipedia into formal education settings. If this occurs the remit exists for a smooth transition of what was once the ugly sibling, but now a valuable resource, into the education of medical students.

Take-home messages: Wikipedia is a cornerstone of global information sharing and used by 94% of medical students. It must be fully integrated into the education of tomorrow's doctors to ensure its validity as a future educational resource.
Computer skills in first-year students at UNAM Faculty of Medicine in Mexico

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Background: Computational skills are essential in the development of many learning processes, especially in courses that use b-learning (blended learning), since without minimal computer skills participation is compromised. UNAM Faculty of Medicine in Mexico City has a curriculum that includes two courses on Biomedical Informatics and use b-learning. The objectives of this study were to identify the students’ level of computer knowledge (self-assessment instrument) and skills (hands-on exam) on admission to the Biomedical Informatics course.

Summary of Work: A correlational study was conducted with 94 first-year students of the 2013 class at UNAM Faculty of Medicine. Participation was voluntary. We applied first an instrument with documented reliability and validity, that includes 8 categories of computer knowledge, and subsequently a practical exam testing computer skills.

Summary of Results: The psychometric analysis confirmed adequate levels of reliability and validity for both instruments. There was a moderate correlation between the theoretical and the practical exam. The reported theoretical knowledge and the observed practical computer skills of the students turned out to be appropriate for the Biomedical Informatics courses.

Discussion and Conclusions: The observed results suggest that students have the necessary competencies for academic success in undergraduate medical courses that require b-learning.

Take-home messages: It’s important to assess computer literacy before students participate in courses that use b-learning, to document the necessary skills to take advantage of this methodology.

How to drive innovation in (bio)medical curricula

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Background: In 2012, the University Medical Center Utrecht started a four year strategic Educational ICT programme ‘Onbegrensd Leren’ (“learning without limits”) to develop, implement and support the use of digital tools for students and teachers for a broad range of ubiquitous blended learning activities. The programme amounts to 5.5M€, employing 45 persons.

Summary of Work: Six projects were started, focusing on different e-tools: e-lectures, e-modules, e-simulations, e-assessment, video and innovations. Teachers were invited to apply for development of e-tools.

Summary of Results: A total of 54 e-modules, 18 e-simulations, 1424 e-lectures, 27 e-assessments have been produced, which are continuously being evaluated. Most e-tools are developed for the (bio)medical curricula. Based on the support of the program, these curricula have made strategic long term plans to innovate their entire, mainly traditional curriculum into a blended approach. In the next two years the programme will continue to produce e-tools as well as faculty training, including both didactics of blended learning as development of e-tools by teachers.

Discussion and Conclusions: Large scale investment in the development, implementation and support of e-tools, based on teacher initiated projects, is a strong driver for curriculum innovation. It fuels the commitment of teachers and allows curricula to start long term, well evaluated and controlled didactic improvements.

Take-home messages: 1. Ensuring commitment of managers and teachers provides essential focus and direction to a programme.
2. Improving the quality of education is the main goal.
3. Investing in an organisations educational and technical expertise will ensure ongoing and lasting results.
Exploring the healthcare teachers' self-efficacy about web-enhanced teaching in terms of web pedagogical content knowledge

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Background: Web-enhanced learning (WEL) is changing healthcare education, e.g. in the flipped classroom. Understanding healthcare teachers' need on WEL faculty development based on theoretical framework is an emergent need. This study aimed to explore healthcare teachers' perceived self-efficacy about teachers' instructional knowledge of WEL with technology pedagogical content knowledge (TPCK) framework.

Summary of Work: 318 healthcare teachers participated in this study and responded to self-efficacy on Web-pedagogical-content-knowledge (WPCK) questionnaire. Parallel analysis and exploratory factor analysis (EFA) were conducted to validate the questionnaire. Then, ANOVA was done to compare the scores between different disciplines of teachers and the scores between different factors within subject.

Summary of Results: The parallel analysis indicated a five-factor structure of WPCK questionnaire that was coherent with the pre-proposed factor structure based on TPCK theoretical framework. The five factors were web technology general (TG), web technology communicative (TC), web pedagogical knowledge (WP), web content knowledge (WC), web pedagogical content knowledge (WPC). The EFA revealed satisfactory validity and reliability characteristics. Within subject comparison with post-hoc test showed TG>WC>WP>TC, WPC. The clinical nursing teachers had significantly lower confidence on WC and WPC than clinical physician teachers, healthcare-school teachers and other healthcare clinical teachers.

Discussion and Conclusions: The result of this study showed valid theoretical structure of applying TPCK framework on exploring healthcare teachers’ perception about WEL. This was different from a previous study that showed the WP factor failed to retain in the final structure with elementary to high school teachers.

Take-home messages: The teachers need help on using web technology for communicative purpose and the integration of instructional WPCK.
5JJ1 (19601)
Constructing a Focused, One-Week Multidisciplinary Learning Experience for Medical Students

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Background: In this abstract, we propose the integration of a coordinated, one-week, multidisciplinary experience with practicing non-physician professionals into the medical school curriculum. We advocate that such an educational program should be based on current perceptions and issues relevant to interdisciplinary training and patient care.

Summary of Work: We surveyed a variety of key players including medical students, nurses, nurse practitioners/physician assistants, physical therapists/occupational therapists, and other allied health professionals regarding their perceptions of integrating interdisciplinary education into the medical school curriculum and changing professional roles in health care. A one-week curriculum was developed based on these responses.

Summary of Results: Of the 289 responses collected, most respondents agreed that multidisciplinary care is essential in providing quality patient care (82.6%). Furthermore, most stated that medical students should have dedicated exposures to different allied health professions during their education (88.6%). Interestingly, medical students are less likely to understand the roles played by their colleagues on the multidisciplinary team (72.8%) when compared to non-medical students (86.8%).

Discussion and Conclusions: Overall, these are encouraging results that should prompt medical schools to further incorporate multidisciplinary education into their curriculums.

Take-home messages: Medical students and allied health professionals agree that interdisciplinary care is essential to quality patient care. However, they have differing views on the necessity of incorporating interdisciplinary education into the medical school curriculum, even as medical students are less likely to understand the roles played by non-physician colleagues.

5JJ2 (18794)
"Pathological Mechanisms of Disease", an interprofessional module for students from any programme

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Background: Interest in disease processes among university students extends beyond medical and allied professions, although appropriately targeted, structured and accessible learning resources are relatively few. We have developed a novel module that introduces students to disease mechanisms, e.g. metaplasia, neoplasia and inflammation, and then engages students in a group project that allows them to experience working in a team, including giving and receiving constructive feedback.

Summary of Work: Teaching of pathological principles is mostly delivered on-line using interactive eLearning packages that include problem-solving with immediate feedback. Students also undertake a project in which they apply what they have learnt by working in small group sessions (some facilitated), based on principles of peer-to-peer and inter-professional learning. Summative assessment is by a multiple choice paper and the project presentation, which incorporates peer assessment.

Summary of Results: The module has been taken by psychology, criminology, geography, chemistry and anthropology students. Evaluation has been positive, with humanities students commenting that they understood the concepts. The teamwork was also a positive experience ("Working in teams is not something we do anywhere else"). Projects have been imaginative and of high quality. Interestingly, students have not reported any concerns about the peer assessment process.

Discussion and Conclusions: Pathological principles that are taught to medical students can be learnt by students studying a wide range of other subjects. These principles can be applied in creative ways to develop important team-working skills.

Take-home messages: Pathology is not just for healthcare students and can be part of an interprofessional learning experience.
**5JJ3 (20658)**

One or two days of learning integrated care?

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**Background:** As part of a strategic initiative from organisations involved in health care delivery, research and education in Central Norway, an educational activity where all the 3rd year students from different professions meet has been developed. The theme is “Competency in integrated care across professional disciplines”, and the aim is to increase the students’ awareness of each other’s profession and knowledge about integrated health care. The aim of this study was to describe the students’ Readiness for Interprofessional Learning Scale (RIPLS) and satisfaction with a one day version conducted in 2013 and a two day version conducted in 2014.

**Summary of Work:** A total of 600 3rd year students from medicine, nursing, social work, physiotherapy, occupational therapy and social education (welfare nursing) took part in 2013 and 700 students also including students from bioengineer and radiograph took part in 2014. Students were asked to rate RIPLS bot at the start and the end and their overall satisfaction on a 0 to 10 scale at the end.

**Summary of Results:** In 2013 their total RIPLS score was 77.4 at the start and 77.5 at the end. In 2014 this was 76.8 at the start and 77.9 at the end. The students overall satisfaction was 7.4 in 2013 and 7.1 in 2014. There were differences between the different professions.

**Discussion and Conclusions:** The students rated both the one and two day versions as very successful. There was a higher change in RIPLS score in the two day version.

**Take-home messages:** Students really enjoy meeting each other, making the heavy burden of practical work worthwhile.

**5JJ4 (21018)**

Flattening the Hierarchy: An innovative approach to introducing basic human factors training in undergraduate medicine

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**Background:** Inter-professional communication is poorly taught even though it has been identified as a major patient safety issue globally. Interventions to change this have had variable success. Lecturing or the surreal atmosphere of a workshop can create a barrier to realism and therefore engagement.

**Summary of Work:** University of Edinburgh students partake in a student assistantship in their final year. There are workshops, a simulated ward round and this culminates in the induction program for the foundation doctors commencing work within NHS Lothian. Survey results from foundation doctors, 9 months following the training the previous year, found they were all comfortable with the process of escalation. However, they felt there were inter-professional barriers to performing this. Subsequently we used the workshops to introduce basic human factor tools, demonstrated their necessity and use in the simulated ward round then reinforced them within NHS Lothian induction program.

**Summary of Results:** Initial feedback suggests that the sessions were perceived as extremely relevant and there is a hunger amongst the undergraduates for further learning. By using these tools it is hoped that these clinicians will have one less barrier to providing safe, efficient care for their patients.

**Discussion and Conclusions:** On the back of existing escalation training, the addition of human factors tools to final year undergraduate medical students can ease their transition from medical student to junior doctors.

**Take-home messages:** The timely introduction of human factors training to final year medical students to augment the knowledge they possess should lower stress, ease transition and lead to a safer working environment for all.
5JJ5 (20492)
Assessment of team performance in simulation-based team training for undergraduate nursing and medical students

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Martin Wohlin, Inst. of Medical Science at University of Uppsala, Uppsala, Sweden

Background: Interprofessional simulation-based team training is an established method for improving team performance and patient outcomes. However, in undergraduate medical education validated assessment instruments for team-based performance are few.

Summary of Work: In this project an instrument was constructed to assess team performance during interprofessional simulation training with undergraduate nursing and medical students at Uppsala University. The instrument were used by assessors in 12 scenarios with mixed teams and analysed for inter- and intra-rater reliability. Both quantitative and qualitative data and analyses were used.

Summary of Results: The participating assessors found it stimulating to use the instrument. After a few changes have been made in the structure of the instrument they found it easy to use and well corresponding with the learning outcomes for interprofessional simulation training for undergraduate nursing and medical students. They could see it being used for evaluation of team performance along with other areas of use, including measuring teamwork improvements in a team and enhancing students’ debriefing after team training.

Discussion and Conclusions: A measurement instrument is a crucial to create a structured assessment of team performance and can be used as a development tool for both students and instructors during interprofessional simulation training.

Take-home messages: Undergraduate team training gain from using validated assessment instrument.

5JJ6 (21862)
The Interprofessional Visit in Cardiology as a strategy to teach teamwork and interprofessional learning

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Maria Fernanda de Oliveira Carvalho, UFRN, Psychology, Natal, Brazil
Valdejane Saldanha, UFRN, HUOL, Natal, Brazil
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Rosiane Viana Zuza Diniz*, UFRN, Clinical Medicine, Natal, Brazil

Background: The interprofessional education still represents a great challenge for proper health education. The objective of this study was to explore how the interprofessional visit in cardiology (IVC) impacted different healthcare workers and learners as an interprofessional educational initiative.

Summary of Work: Weekly interprofessional meetings involving healthcare professionals, undergraduate medical students and residents from different health area courses were held between April and May 2013. After a brief explanation about one in hospital patients, each health professional commented about their specific assistance and the interface with other professionals. The students and residents were encouraged to participate. At the end, the participants answered a semi-structured questionnaire to explore how this initiative contributed to improve teamwork and interprofessional activities.

Summary of Results: The IVC had 63 participants in three months and obtained 46 responses (73 %) collected from physicians, nurses, dentists, psychologists, nutritionists, physiotherapists, social workers, pharmacists, medical students and medical and multiprofessional residents. The majority (95,7%) considered the specific discussion of each health professional very important for their learning. 89% percent of them considered that the IVC has contributed greatly to their education and professional development and 100 % felt motivated to study further the subject discussed during the activity. The open questions highlighted a better understanding about the role, skills and responsibilities of each health professional. It stimulated interprofessional teamwork and provided high quality of care.

Discussion and Conclusions: The IVC was evaluated as very important for a better understanding about the role, skills and responsibilities of each health professional. It allowed a more efficient practice and benefit to patients.

Take-home messages: This IVC should be useful to promote interprofessional education to healthcare providers.
5JJ7 (21781)
Interprofessional education (IPE) program could be one of the most important strategies for global standards in medical education

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Background: According to the World Federation for Medical Education (WFME), global standards in medical education are required worldwide for better health care. It goes without saying that communication skills and teamwork skills are essential for global standards in medical education. The aim of our study is to investigate whether Interprofessional education (IPE) improves communication skills and teamwork skills.

Summary of Work: Forty-two students from five departments of Medicine (n=11), Nursing (n=10), Occupational therapy and Physical therapy (n=6), Pharmacy (n=9) and Social Work (n=6) participated in the IPE program in Nagoya University School of Medicine. The students were divided into six small mixed groups to discuss and interview the standardized patients. This IPE program is composed of the five group discussion sessions to make care-plans for standardized patients with lung cancer. We assessed teamwork skills using Nagoya Team work Scale (NTwS) and professional perceptions using Interdisciplinary Education Perception Scale (IEPS) before (pre-IPE) and after (post-IPE) the program.

Summary of Results: The mean NTwS and IEPS of all students significantly elevated (pre-IPE 132.9±15.5, post-IPE 140.2±15.9 in NTwS (p<0.001) and pre-IPE 77.8±10.6, post-IPE 87.7±11.1 in IEPS (p<0.001), respectively). Understanding of other professions' role and correction of over-confidence in medical students' professional field were found.

Discussion and Conclusions: Our results suggested that IPE increased not only students' respect for the other professions but also their teamwork skills.

Take-home messages: Interprofessional education (IPE) program could be one of the most important strategies for global standards in medical education.

5JJ8 (22108)
A seminar of Minimal Invasive Surgery for third year students of MD degree presented as a tool to teach interdisciplinarity

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Background: In the 21st century we can’t imagine medical school undergraduates not knowing some basic principles in Minimal Invasive Surgery (MIS). The increasing complexity of medical technology, and specially diagnostic and therapeutic advances in MIS, will modify their future decisions to provide high-quality, patient-centered care. For this reason, an interdisciplinary approach to medical and surgical specialties is necessary even if students are not thinking of becoming a surgeon.

Summary of Work: A seminar in Laparoscopic Surgery (LS) and MIS for third year students of Medical Degree was developed (http://prezi.com/xaslbxduimgk/cirugia-laparoscopica-unizar/) focusing in the following points:
1. MIS contextualization in the Diagnostic and Therapeutic Surgical Procedures Course. Available academic resources for the course.
2. The importance of LS and MIS for undergraduate students.
3. Fundamentals of laparoscopic surgery (FLS), laparoscopic equipment, physiology in laparoscopic procedures and indications for LS.
4. From LS to MIS, technology evolution as an example of interdisciplinarity.
5. Self-assessment and Bibliography.

Summary of Results: Interdisciplinarity was related to the previous points:
1. Information and Communication Technology (ICT) for medical students.
2. Professionalism and Career Development.
3. y 4. MIS and Engineering, Industry and R&D, Interventional Endoscopy, Interventional Radiology, Telecommunication, Robotics, Evidence Based Medicine, Medical Societies, Practice Guidelines, Learning curve, Accountability.

Discussion and Conclusions: Surgeons involved in teaching MIS to undergraduate students are in a privileged position to introduce an interdisciplinary approach in MD curriculum.

Take-home messages: MIS is a good model to teach interdisciplinarity in Medicine.
**5JJ9 (22418)**

**Development of interprofessional communication skills in nursing students: A qualitative research**

**Lorenza Garrino**, University, Department of Public Health and Paediatric Sciences, Turin, Italy  
**Andrea De Franceschi**, University of Turin, Department of Public Health and Paediatric Sciences, Turin, Italy  
**Patrizia Massariello**, Italy  
**Valerio Dimonte**, Italy

**Background**: Promotion of collaboration between health professionals requires competencies to improve interprofessional communication, in order to achieve a holistic approach in response to patients’ needs.

**Summary of Work**: Aim of this study is to explore nursing students’ experience of interprofessional communication during academic educational pathways to provide information for development of the training curriculum. The study was conducted using a qualitative phenomenological approach via the Giorgi method.

**Summary of Results**: A purposive sample of third year students of the nursing degree course in Turin were involved. Thirty subjects were interviewed using semi-structured interviews. Four themes emerged: actors of interprofessional communication, different ways of interacting among different health professionals, ingredients for a successful communication, breakdowns in interprofessional communication approach, and the value of training for developing needed competencies in interprofessional communication.

**Discussion and Conclusions**: The study highlighted the need for including a specific training in interprofessional communication in the undergraduate courses, following available positive experiences.

**Take-home messages**: The planning of an interprofessional communication in basic course could improve communication and collaboration between different professionals in the health care delivery process.

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**5JJ10 (21758)**

**Advanced Cardiac Life Support (ACLS) provider training course in CPR center, Srinagarind Hospital, Khon Kaen University**

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**Sawitree Maneepong**, Khon Kaen University, Division of Nursing, Khon Kaen, Thailand  
**Polpun Boonmak**, Khon Kaen University, Department of Anesthesiology, Khon Kaen, Thailand

**Background**: CPR center held inter-professional ACLS provider training courses for physicians and nurses in order to provide updated practical knowledge and skills in ACLS. We performed pre-test regarding basic principles in CPR prior to conducting simulation training using ACLS Skillmaster Interactive manikin follow by debriefing, feedback and post-test evaluation. We analyzed effectiveness of training in our unit.

**Summary of Work**: We retrospectively reviewed training courses in 2012. We studied pre- and post-test evaluation scores and analyzed course evaluation by trainees. We use Wilcoxon rank sum test, Kruskal-Willis ANOVA, and Wilcoxon matched pair sign rank test to compare score differences between two groups.

**Summary of Results**: There were 656 trainees (627 nurses, 29 physicians). Median score of pre-test of physicians were significantly higher than that of nurses (63% vs. 44%, p = 0.0002). Surprisingly, nurses from general hospitals had higher pre-test median score than those from university hospital (57% vs. 38% p<0.001). All of trainee gained knowledge and experience as they had higher median post-test scores compared to pre-test scores (80% vs. 46%, p <0.001). Approximately 90% appreciated training using high fidelity simulation and 95% satisfied our training program.

**Discussion and Conclusions**: Our training courses achieved goals to provide learning experience in ACLS. Using high fidelity simulation improved learning outcome. Institute administrators should consider regular ACLS training in their own personals in order to achieve high-quality patient care.

**Take-home messages**: Inter-professional training and using appropriate methods include high fidelity simulation enhance learning experience in CPR training.
5JJ1 (20813)
Interdisciplinary and Interprofessional Training in Musculoskeletal Care Improves Learning, Trainees’ Satisfaction, and Clinical Care Delivery

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Background: Through funding from the Office of Academic Affiliations (OAA) of the Department of Veterans Affairs (VA), we developed a Center of Excellence (COE) for patient-centered musculoskeletal (MSK) care. This interdisciplinary and interprofessional program includes an intensive week of training that combines didactics, simulations, and clinical experiences as well as longitudinal interdisciplinary clinics that evaluate patients with complex MSK disorders.

Summary of Work: Over the last two years, 62 physician trainees (42 internal medicine, 5 medical students, 5 physical medicine and rehabilitation, 5 rheumatology, 3 orthopaedic surgery, 1 occupational medicine, and 1 endocrinology) and 23 associated health trainees (10 nurse practitioner, 10 physician assistants, 2 physical therapy, 1 pharmacy) have experienced COE training.

Summary of Results: Trainees reported high satisfaction with the intensive training and COE MSK experiences. The percent of students reporting competency in MSK-related physical examination increased from 16.7% to 90.4% with self-assessment confirmed with Objective Structures Clinical Exam (OSCE). A review of the first 140 patients seen in the COE MSK interdisciplinary clinic documents a rich clinical training opportunity with an average of 2.4 ± 1.5 complaints per visit, and patients being seen by 2.8 ± 1.2 disciplines.

Discussion and Conclusions: This interdisciplinary and interprofessional training model provides trainees a unique opportunity to learn to manage patients with MSK disease in a rich collaborative setting.

Take-home messages: The COE in MSK care provides an innovative and comprehensive training program in MSK care that can be implemented to fulfill a need not achieved by the traditional training experiences.

5JJ12 (19090)
Exploring attitudes and barriers towards interprofessional education in healthcare: An educational evaluation of an inter-professional course on human factors

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Background: Inter-professional education (IPE) is high on the UK educational agenda. Despite this, recruiting participants and supporting their attendance at expensive and faculty-intensive inter-professional courses (IPC) remains a challenge. Attitudinal factors are believed to significantly impact upon the success of IPE. To gain insight into these factors an educational evaluation was conducted at Great Ormond Street Hospital to explore participants’ attitudes towards IPE following attendance at our IPC on human factors called "Defining Moments".

Summary of Work: Thirteen attendees, all senior healthcare professionals (doctors, nurses and a manager) completed a bespoke pre and post-course quantitative and qualitative questionnaire.

Summary of Results: This self-selected group recorded a generally positive pre-course attitude towards IPE. However, doctors expressed reservations about course content, and nurses expressed fears about appearing less knowledgeable and being passive members of the group. A consistent improvement in attitude was seen post-course. Participants reported more personalised views of IPE, identifying advantages in the first rather than the third person and relating learning to their own workplace. Concerns about relevance to their professional group persisted for a minority.

Discussion and Conclusions: These findings help us continue to improve the impact of the “Defining Moments” course on inter-professional collaboration and patient care at our hospital. Identifying barriers to attendance challenged us to include clear descriptions of course content made relevant to all professionals, make available pre-course materials to facilitate a knowledge base for all participants, and improve facilitator awareness of potential inter-professional dynamics during the course.

Take-home messages: Attending an IPC improved most participants’ attitudes towards IPE. Attitudinal barriers can be identified and addressed.
The effect of Interprofessional Education (IPE) activity on the opinions held by Health Care students on IPE

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Gabriel Schreiber, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel

Background: Interprofessional Education (IPE) is a new course, involving the Medical, Nursing and Physiotherapy schools in the Faculty of Health Sciences at Ben Gurion University of the Negev. We wanted to examine the opinions of health care students about Interprofessionalism, before and after one year of IPE workshops.

Summary of Work: The students completed an opinion questionnaire before and after the activity. The questionnaire was translated, and adapted, from the Readiness for Interprofessional Learning Scale (RIPLS) Questionnaire. For the purpose of statistical analysis we created 3 categories: "agree" (which included "strongly agree" and "agree"), "disagree" (which included "disagree and strongly disagree") and "uncertain".

Summary of Results: 131 students from the Health Sciences faculty at Ben Gurion University participated in the study. There were 39 (30%) males and 91 (70%) females. The average age was 26.06 ± 2.65. There were 55 (42%) students from the medical, 46 (35.1%) students from the nursing and 30 (22.9%) students from the physiotherapy schools. Prior to the activity 13 students (10%) agreed with the statement “Communication skills should be learned with other health care students” vs. 25 (19.1%) after the activity (p<0.05). Three students, prior to the activity, (6.2%) agreed with the statement “Shared learning will help me understand my own limitations” vs. 15 students (11.5%) after the activity (p<0.05). Nine students, prior to the activity, (6.9%) agreed with the statement “Shared learning will help me to think positively about other professions” vs. 21 students (16.2%) after the activity (p<0.05). The remaining questions did not have a statistically significant difference.

Discussion and Conclusions: IPE activity among health care students affects their opinion of IPE in a positive way.

Take-home messages: IPE increased awareness to communication, self-limitation and the value of other professions in students of Medicine, Nursing and Physiotherapy
SESSION 6: Plenary 2
Tuesday 2 September: 0830-1015

6A PLENARY: Directions for change in design of learning spaces for health professions: global insights
Location: Gold Plenary, Level +2, MiCo

Jonas Nordquist* (Karolinska Institutet, Stockholm, Sweden)
Andrew Laing* (AECOM, New York, USA)

Physical space has been neglected in its impact on the success of learning. Health programs are accommodated in traditional didactic learning spaces: lecture theatres, seminar rooms, and separate buildings for academic disciplines. Hospitals have limited provision for student learning. Yet learning patterns and educational methods have been transformed. What are the trends globally in providing high performance learning spaces that respond better to emerging needs? What are the key design features? What can we learn from the innovative work and learning spaces in the corporate and other sectors? This plenary will address the overall issue of aligning the curriculum with physical learning spaces.
SESSION 7: Simultaneous Sessions
Tuesday 2 September: 1045-1230

7A SYMPOSIUM: Advancing Clinical Education through Longitudinal Integrated Clerkships
Location: Gold Plenary, Level +2, MiCo

Panel: Chris Roberts, University of Sydney, Australia
David Hirsh, Harvard Medical School/Cambridge Health Alliance, United States
Jill Thistlethwaite, The University of Queensland School of Medicine, Australia
Diana Dolmans, School of Health Professions Education (SHE), Maastricht University, the Netherlands

This symposium is aimed at those wishing to conceive, build, and study Longitudinal Integrated Clerkships (LIC) in order to advance clinical education. Internationally, LICs are gaining in popularity as an alternative to traditional block rotations. The presenters bring a wealth of diverse experiences of LICs from Harvard, Maastricht, and Outback Australia, and will share innovative theoretical insights. It has been suggested that the impact of LICs could be as radical for medical education as the introduction of problem-based learning. Research suggests that “educational continuity” benefits students and the communities in which they serve, particularly in under-resourced settings. LICs are effective for advancing student learning of science and clinical practice, enhancing professional identity, and supporting workforce goals such as retaining students for primary care and rural and remote practice. So far relatively few established LICs currently exist, and there are differing models. The symposium will provide ideas for all medical schools wishing to incorporate some of the general principles of LICs in their clinical education programmes.

7B SYMPOSIUM: Variations on the theme of professionalism: Students’ experiences of professionalism dilemmas across culture
Location: Auditorium, Level +3, MiCo

Panel: Ming-Jung Ho, National Taiwan University, Taipei, Taiwan
Lynn Monrouxe, Cardiff University, UK
Charlotte Rees, University of Dundee, UK
Madawa Chandratilake, University of Kelaniya, Sri Lanka
Fabrizio Consorti, Sapienza University of Rome, Italy
Shiphra Ginsburg, University of Toronto, Canada

Professionalism has become a competency international medical educators strive to cultivate. Students’ professional formation is influenced by their experiences of professionalism dilemmas, and new developments in research show that cultural context can impact their reactions to professional challenges. In this symposium, Lynn Monrouxe and Charlotte Rees will present their study of students’ personal incident narratives (PINs) of professionalism dilemmas in England, Wales, and Australia. Madawa Chandratilake will present a study employing the same method in Sri Lanka. Ming-Jung Ho will present the PINs of Taiwanese students followed by comparative studies of Taiwanese students’ reactions to standardized video clips of professionalism dilemmas versus the reactions of international students in Taiwan. Fabrizio Consorti and Shiphra Ginsburg will present studies from Italy and Canada using the same video clips. We expect active participation from the audience in the discussion session following the stimulating presentations.
7C1 (19731)
Linking Early Clinical Experience and Basic Science using Images of Disease

John Cookson*, Hull York Medical School, Centre for Education Development, York, United Kingdom
Anna Hammond, Hull York Medical School, Centre for Education Development, York, United Kingdom
Wong Ken, Hull York Medical School, Centre for Education Development, Hull, United Kingdom
Samantha Owen, Hull York Medical School, Centre for Education Development, Hull, United Kingdom

Background: Many undergraduate curricula incorporate clinical experience into the early years in a process of vertical integration. To be fully effective, horizontal integration is needed to signpost links between clinical experience and basic science learning. Basic science should underpin clinical learning and clinical problems should illuminate important basic science. This may be difficult but theories of situated learning and constructivism suggest that it is important.

Summary of Work: Hull York Medical School has a five year, integrated, spiral curriculum with patient contact from Year One. Year Two students have one day a week on Clinical Placement, alternating between primary/secondary care. In the morning, students consult, under supervision, with patients whose problems are relevant to that week’s outcomes. In the afternoon, in secondary care, students in small groups study a variety of ‘images’ mainly radiological or pathological, relating to the outcomes of the weeks. In primary care they undertake a variety of tasks, using public health data or interviewing patients and relatives with relevant problems. Tutors and a workbook provide learning support. Images and tasks, related to course outcomes via PBL cases and real patients, promote understanding of disease processes from cell component to population perspective.

Summary of Results: Feedback, collected routinely over two years from the whole cohort (to be presented), confirms the utility of this educational approach

Discussion and Conclusions: • ‘images of disease’ is a useful unifying concept supporting horizontal integration
• clinical placements can situate basic science understanding appropriately
• information retention is enhanced by multiple images of disease process

7C2 (21692)
FIFE S.T.A.R.S: Integrating an Approach to Clinical Presentations Within a System-Based Medical Curriculum

Emeka Nzekwu*, University of Alberta, Medicine, Edmonton, Canada
Laurie Mereu, University of Alberta, Medicine, Edmonton, Canada

Background: The University of Alberta is in its third year of developing the FIFE S.T.A.R.S program. Recent efforts to improve the program have focused on the implementation of an approach based extracurricular exercise to provide students with an approach to clinical presentations within a system-based medical curriculum.

Summary of Work: Clinical scenarios were provided to students based on a cumulative analysis of the system based blocks they had completed. Student volunteers were involved in the creation of clinical scenarios focused on a specific symptom. These students then created approach-based algorithms to these symptoms. Clinical scenarios were presented to students in a history taking/physical examination OSCE setting. A tailored learning platform was implemented through online evaluation forms which enabled us to provide immediate feedback to students regarding their progress in FIFE S.T.A.R.S and which clinical presentations they required more instruction. A complete approach was provided to these students following each session.

Summary of Results: In a survey of pre-clinical medical students, 97% of respondents felt that FIFE S.T.A.R.S filled a gap in the medical curriculum. Furthermore, nearly all students supported the use of peer-to-peer feedback, and attested to the quality of case scenarios created by their colleagues.

Discussion and Conclusions: To enhance preclinical education one can implement a tailored learning platform providing an approach to high yield clinical presentations whilst providing students with opportunities to improve their history taking and physical exam skills.

Take-home messages: FIFE S.T.A.R.S. has become a tailored learning platform providing students with an approach to clinical presentations, an online peer-to-peer evaluation program, and a consistent opportunity to learn clinical examination skills.
7C3 (20306)  
**Integrated Teaching - Is it the treatment for Curriculopathy?**

_Siddharth Dubhashi*, Padmanabhi Dr. D.Y.Patil Medical College, Hospital & Research Centre, Dr. D.Y.Patil Vidyapeeth, Pune, India  
K. B. Powar, Dr. D.Y.Patil Vidyapeeth, Pune, India

**Background:** Medical Education in India has seen a remarkable change over years. However, application of basic knowledge in patient care is practically lacking. The different subjects are taught in isolation with rigid compartmentalization leading to ‘Curriculopathy’. Aim: To make the students learn to apply their knowledge in ‘total’ care of patients.

Objectives: Creation of an awareness among teachers about need for interdisciplinary interactions, comparison of effectiveness of integrated versus traditional teaching. 

**Summary of Work:** This is a prospective study done at Deemed and Traditional Universities from Feb 2011 to July 2013. Study was approved by IRB. Faculty perception regarding Integrated Teaching was noted. Topics to be included were shortlisted and faculty was oriented. 32 Integrated teaching sessions were conducted for final year students. Sample size-6080 (integrated) and 1520 (traditional). Evaluation: Faculty feedback, Student feedback, Pre and post test scores for integrated and traditional teaching groups.

**Summary of Results:** There was 100% positive response for conduct of integrated teaching sessions even for 1st and 2nd MBBS students. 73% explained the concept of Integrated Teaching correctly. The difference in the pre and post-test scores for the Integrated Teaching group was statistically significant. The difference in the post-test scores for Integrated and Traditional teaching groups was statistically highly significant. 95% faculty agreed that integrated teaching was an effective mode of training and 95% rated the programme as 9 out of 10. 93% students appreciated the quality of discussions and 87% rated the programme as 10 out of 10.

**Discussion and Conclusions:** Integrated Teaching promotes intra and inter-departmental interactions amongst faculty. Individual outlook is broadened, thereby providing an unique academic ambience for institutional development. The topic is presented in all its perspectives, giving a holistic approach.

**Take-home messages:** A student-centred, patient-oriented approach is the fruitful outcome of this teaching model, which will help us to have the much needed ‘Basic Doctor’ thereby reviving the ‘Family Physician’ of yesteryears.

7C4 (21809)  
**Recommendations for successful curricular development – a focus groups analysis**

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Anja Schwiecker, Charité, Universitätsmedizin Berlin, Dieter Scheffner Centre for Medical Education, Berlin, Germany  
Asja Maaz, Charité, Universitätsmedizin Berlin, Dieter Scheffner Centre for Medical Education, Berlin, Germany  
Tanja Hitzblech, Charité, Universitätsmedizin Berlin, Dieter Scheffner Centre for Medical Education, Berlin, Germany  
Harm Peters, Charité, Universitätsmedizin Berlin, Dieter Scheffner Centre for Medical Education, Berlin, Germany

**Background:** The Charité, Universitätsmedizin Berlin introduced a new integrated, competency-based medical curriculum in 2010. The term-wise implementation is preceded by an interdisciplinary planning process for each module. The aim of this study was to identify determinants that influence the curricular planning process for process optimization, i.e. that experience-based strategies of the already planned modules should be made transparent as recommendations for the subsequent module development process.

**Summary of Work:** Focus group interviews with the module board members were conducted after every term with 4 planned modules. Data was analyzed using qualitative content analysis according to Mayring. So far, 12 semi-structured guided focus groups interviews have been conducted. Determinants of the planning process were identified and analyzed, and recommendations were drawn.

**Summary of Results:** The analysis led to categories of determinants for successful curricular planning. Essential determining categories were: module board members’ performance during the entire planning process; the importance of a medical specialty; the need for content-oriented guidelines and the presence and involvement of clinicians during the planning process.

**Discussion and Conclusions:** The implementation of an integrated medical curriculum requires a high level of professional exchange and cooperation between all faculty members. Challenges in the module planning process arise from determinants ranging from the performance of module board members to the engagement of clinicians.

**Take-home messages:** Experience-based, local faculty-drawn recommendations professionalize the future curricular planning process and provide an effective tool for process optimization.
ABSTRACT BOOK: SESSION 7
TUESDAY 2 SEPTEMBER: 1045-1230

7C5 (22385)
How do we develop socially accountable electives? Evidence from a thematic synthesis of the literature

Janagan Alagarajah*, King’s College London, London, United Kingdom

Background: International Health electives (IHEs) in low-and-middle-income countries (LMICs) are increasingly popular and provide personal and educational benefits to medical students. However, large numbers of students visiting low-resource settings each year can burden vulnerable host institutions. It is vital that we critically assess the impacts of electives in order to create socially accountable elective programmes. This review aims to identify and explore: 1) the impacts of electives on hosts; 2) the mechanisms that generate these impacts; 3) recommendations on minimising host burden.

Summary of Work: A search of academic databases, references from relevant studies and expert consultations for qualitative studies exploring the impact of IHEs on host actors in LMICs produced 1441 studies of which 6 were eligible. Thematic synthesis was used to analyse data using descriptive codes, descriptive themes and analytical themes.

Summary of Results: Hosts are negatively impacted when IHEs fail to consider host capabilities, needs and priorities. This creates host-visitor tensions, reduces the quality of patient care and disadvantages host medical student education. However, visiting students can provide significant educational, clinical and institutional contributions which benefit host institutional capacity, quality of patient care and learning experiences. Creating sustainable and reciprocal elective partnerships that utilise appropriately trained students could reduce host burdens.

Discussion and Conclusions: IHEs should provide sustainable, mutually beneficial resource and educational contributions to hosts and appropriate levels of pre-departure training for visitors to minimise negative host impacts.

Take-home messages: In order to become socially responsible, medical schools must take steps to reduce negative impacts on hosts for their elective students.

7C6 (19951)
Elective choices related to career preferences of Dutch medical students

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Olle ten Cate, University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands
Marjo Wijnen-Meijer, Leiden University Medical Center, Medical School, Leiden, Netherlands
Marijke van Dijk, University Medical Center Utrecht, Medical School, Utrecht, Netherlands

Background: Some medical schools provide electives to deliberately ease the transition from medical school to postgraduate medical training programs. This study explores if and how Dutch medical students use electives in the clinical phase of medical school to make career decisions and to prepare for postgraduate training programs.

Summary of Work: Between July 2012 to July 2013 all 274 graduating students at the Medical School in Utrecht in the Netherlands were asked to complete an open-answer questionnaire about their preferred specialty at the start of the sixth and final year, electives they chose during this year and reasons for these choices. In addition, for all respondents elective choices in the fourth and fifth year of medical school were collected from the student administration office.

Summary of Results: A total of 236 students responded (86%), 32.4% of which spent three or more out of a maximum of six electives at the same department. Many students also choose electives logically related to each other, e.g. combinations of anatomy, radiology and surgery. Qualitative analysis revealed that most electives where chosen for orientation toward and to optimize chances to get into a residency program of choice.

Discussion and Conclusions: Dutch medical students use electives mainly to focus on their future postgraduate training program, i.e. for orientation and to align their curriculum vitae to their preferred specialty.

Take-home messages: Dutch medical students use electives mainly to focus on their future postgraduate training program, i.e. for orientation and to align their curriculum vitae to their preferred specialty.
Using self-regulated learning as a perspective to view clinical activities in the clerkships

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Introduction: Undergraduate medical students face a challenge with the transition from learning in the classroom to developing competence in a clinical environment. Research suggests this is because during clinical training (clerkships) students need to employ more active learning strategies and self-regulate their learning. The importance of this was also described recently in an AMEE guide (1). Good self-regulated learning is a skill that needs to be developed by students and supported by the curriculum (2). However, understanding and supporting self-regulated learning processes in students is a big challenge, because self-regulation is a complex interactive process, and we know very little about how students regulate their own learning, especially outside the formal curricular elements of the clerkships, making it difficult to support this process. This study aims to identify 1. what everyday activities students undertake to optimally learn in the clerkships, 2. what goals and types of regulation influence these activities, and 3. what factors support or hamper the choice of self-regulated learning activities.

Methods: We conducted semi-structured interviews with 13 clerks from two Dutch university medical centers and their affiliated hospitals. The participants were purposively sampled to ensure a wide range in age, gender, experience and current clerkship. Before the interview, participants completed a day-reconstruction diary, to help them memorize their activities on the previous day. This diary was used as a guide for the interviews, though other interesting information was also pursued. The interviews were transcribed verbatim and iteratively analyzed using template analysis.

Results: Several groups of (mental and physical) activities could be identified e.g. activities focussed on learning through interaction, activities undertaken to optimize the learning environment/experience, formal curricular activities, activities directly involving patient care, organizational activities and individual learning activities. The activities undertaken by a clerk were influenced by goals and the type of regulation. Clerks reported that the activities they undertook were either because they wanted to do it (autonomous self-regulation) or because they felt they had to do it (controlled self-regulation). Furthermore the goal of an activity also influenced the activity undertaken. Some activities had a clear performance goal, others had a clear learning goal and some were a combination of both. Several factors were found that support or hamper self-regulated learning, including personal factors (affect and previous experiences), interpersonal factors (hierarchy, presence of peers), and contextual factors (possibility to actively participate in an activity, opportunity to work with patients).

Discussion and Conclusions: In our study we found that the types of activities clerks undertake are influenced by the type of regulation, e.g. more autonomous or more controlled self-regulation. Autonomously self-regulated activities often created opportunities for clerks to work towards their own goals, possibly leading to higher motivation. Externally controlled self-regulated activities often did not help clerks to work towards personal goals. We suggest that self-regulated learning could therefore be improved by a better communication between clerk and supervisor about one’s personal goals and the goals of a (controlled self-regulated) activity in the clinical workplace.

Introduction: Judgement-based assessments of clinical performance are vital to current assessment strategies, but suffer from high inter-assessor score variability. Assessor cognition research aims to understand the cognitive origins of these variations. Our prior research has shown that assessors’ scores show a moderate “contrast effect”: scores are biased away from the standard of preceding performances such that trainees seem particularly good when preceded by poor performances and vice versa. This work extends this investigation, examining whether contrast effects occur following a single prior performance; whether prior mixed (rather than consistently good or poor) performances cause contrast effects; whether early or recent prior performances are particularly influential; and whether the prior performances influence the content and/or valence of assessors’ free text feedback as well as assessment scores.

Methods: Consultants and registrar doctors were randomised to 3 groups in a blinded internet-based experiment. All participants viewed the same videos of good(G), borderline(B) and poor(P) performances by first-year postgraduate doctors consulting with a patient in varied order: Group 1:G,B,P; Group 2:B,G,B; Group 3:B,P,G. All then viewed the same intermediate performance. Participants provided scores and written feedback after each performance. The overall valence of feedback for each performance was rated on a 7-point scale (-3:highly negative to +3:highly positive) by 2 blinded researchers. The feedback was also segmented into discrete phrases and independently coded using the framework from our prior work. To assess valence, each segment was labeled as “positive(+1)” or “negative(-1)” and the sum for each performance created a “PosNeg rating”. To assess content, coded segments were compiled two domains: “information skills” and “interpersonal”.

Discussion and Conclusions: Contrast effects occurred even after a single prior performance with previous exposure influencing scores and the valence of assessors’ feedback, but not feedback content. Mixed recent experience averaged out rather than creating primacy or recency effects. Combined, these findings continue to suggest that assessors norm-reference whilst judging performance. As both the feedback and scores trainees receive during assessments may be biased by just one preceding performance, comparisons with other trainees may hinder both performance measurement and educational development.


7D3 (18819)
Action research to improve Foundation Doctors’ experience of Radiology practice

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Introduction: The United Kingdom Foundation Programme aims to ensure that newly qualified doctors, Foundation Doctors (FDs), acquire basic workplace competences essential for good medical practice (1). Previous literature focuses on Radiology teaching for medical students, rather than for FDs. As their decisions will affect countless patients, I feel it is important to help FDs acquire the Radiology skills needed to optimise their patients’ clinical care, throughout their working lives. I was motivated to explore how best to do this, by my own varied background in Medicine, Radiology and Foundation Educational Supervision in the National Health Service (NHS). My research was set in a large NHS teaching hospital, with its own affiliated medical school. I aimed to
1. understand how FDs learn to practise Medicine informed by Radiology.
2. discover effective ways of teaching Radiology and its practice.
3. enhance patient safety through multidisciplinary teamwork involving Radiology and clinical specialties.

Methods: In carrying out this action research, a stepwise multimodal approach was followed. I started with a group interview of FDs, then used their feedback to construct white-space questionnaires that I sent to FDs and Radiologists with an interest in Education, in my hospital. I planned Teaching sessions, informed by Radiology.

Results: N=61. The good performance was scored higher by Group 1 (Preceding poor performance: 5.01 (95%CI:4.79-5.24)) than Group 1 (Unbiased: 4.36(4.14-4.60);d=1.31;p<0.001. The borderline performance was scored lower by Group 1 (Preceding good performance: 2.96 (2.56-3.37)) than by Group 3 (Unbiased: 3.55 (3.17-3.92);d=0.67;p=0.04. The poor performance had the weakest manipulation (either unbiased or preceded by borderline performance) and showed no difference. Scores on the final (intermediate) performance for which all participants had the same prior exposure in different orders showed no difference across group, thus indicating an averaging effect of preceding experiences. Feedback coding agreements were high [k=0.77-0.96]. The coding did not show between-group differences in content, but both measures of feedback valence showed between-group differences comparable to the numeric scores assigned (e.g., PosNeg rating for the Good performance in Group 1 (2.6 (1.3 - 3.8)) was low relative to Group 1 (6.1 (4.8-7.4 );d=1.27;p<0.001.

Discussion and Conclusions: Contrast effects occurred even after a single prior performance with previous
Results: Data from the focus group, the questionnaire responses, the interviews and the FDs’ diaries were analysed thematically. Many findings triangulated each other. Common themes were the importance of
1. informal teaching, supplementing formal teaching.
2. Radiology teaching in clinical contexts, multidisciplinary meetings and Clinical Governance settings.
3. FDs learning to discuss and request investigations directly from radiologists.
Some opinion diverged. Some radiologists felt FDs’ awareness of Radiology and radiation protection was often suboptimal. FDs and radiologists agreed that the best Radiology teaching was radiologist-led. However, unlike radiologists, FDs felt that some clinician-led Radiology teaching was of a high standard.

Discussion and Conclusions:
My findings reveal that FDs learn some Radiology from books, journals and the internet. However, they learned best through scaffolded learning in clinical settings; involvement in critical incidents; and opportunistically, by participating in multidisciplinary communities of practice (2), and understanding the role that Imaging plays in caring for the whole patient. However, medical power hierarchies, which confine FDs to a ‘subaltern’ status, may impact adversely on learning interactions between FDs, senior clinicians and radiologists. I uncovered many misunderstandings in radiologists’ and FDs’ perceptions of each other. My research explores ways of improving FDs’ status, and of building bridges between Radiology and FDs. I discuss potential solutions to problems that I encountered: such as teaching by Radiology registrars, radiographers and senior clinicians, to supplement consultant radiologist-led teaching for FDs. Radiologists can help FDs’ learning by welcoming them into multidisciplinary communities of practice, actively considering FDs’ learning needs, and helping them recognise the importance of Imaging in caring for the whole patient.

References:

7D4 (18600)
A qualitative study of medical students’ experiences of international health electives to developing countries

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Introduction: Every year thousands of medical students worldwide embark on international health electives (IHEs) to broaden their experience of medicine in the developing world. While there is much commentary and opinion reported in the extant literature on IHEs, there is a dearth of empirical research that explores the experience and the value of these IHEs to medical students. Most students who participate in these IHEs in Ireland are members of medical student IHE societies. There are varying levels of interaction between students and their medical schools when planning and carrying out these experiences. This study aims to explore the experiences of a sample of medical students who completed IHEs in developing countries in 2012.

Methods: For this qualitative study students were recruited using online notice-boards of medical student societies. Purposive and snowball sampling were used to find students from different medical schools in Ireland, as the arrangements for IHEs in each location differ greatly. Sampling also sought to include students who had travelled with medical student IHE societies and others who had travelled independently. Anonymous, one-on-one interviews were then conducted with participants. These were then transcribed and analysed thematically. Interviews were conducted until saturation was reached.

Results: There were twenty responses to the online study advertisement, thirteen of these were selected for interview. One participant was added by snowball sampling. Five of the six medical schools in the country had representation in the study. The main themes identified were the perceived benefits of IHEs, difficulties with the distribution of charitable donations, the emotional impact on students, awareness of scope of practice, and issues with the current structure of IHEs.

Discussion and Conclusions: The informal relationship that currently exists between student societies and the medical schools results in many uncertainties around the conduct of IHEs. The issues of accountability and lack of supports for students are very important. Clearer guidelines and identification of learning outcomes for students would be helpful. The findings on charitable donations were not previously reported in the literature. This study is relevant to medical schools and medical students internationally.

7D5 (18821)
Is not sleeping okay? A grounded theory study of residents’ decision-making regarding how to spend their off duty time

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Introduction: Work hour restrictions are intended, in part, to promote physician wellbeing, but one may not
straightforwardly lead to the other. Particularly in North American residency training programs, where work hour policies are evolving and debated, there is a growing sense that “what [residents] do, or fail to do, with [free] time may have real implications for... [their] health and well-being” (Baldwin, Daugherty, Ryan & Yaghmour, 2012, p 401). Resident decisions about how to use off duty time are not straightforward, evidenced by research characterizing the postcall ‘stay-or-go’ dilemma and reports of resident noncompliance with duty hour policies. While educators assume that residents should use their off duty time in particular ways (e.g., sleeping, studying), there is little research into how residents actually use this time, and the reasoning underpinning their activities. This study sought to describe residents’ postcall activities, to understand how they made these decisions, and to theorize the relationship between their activities and the goal of resident wellbeing or recovery from fatigue.

Methods: We used a constructivist grounded theory approach to qualitative research due to the socially-situated nature of the studied phenomenon. With research ethics approval, we conducted 24 individual semi-structured interviews with Canadian residents from six surgical and non-surgical specialties across three university-affiliated hospitals. Interview transcripts were analyzed alongside data collection in an iterative fashion, in order to support theoretical sampling to sufficiency (Charmaz, 2006). One analyst coded the data independently and met regularly with a second analysis, using constant comparative methods to identify and refine key themes (Charmaz, 2006). Reflective memo-writing, field notes and diagramming were used to ensure methodological rigour (Charmaz, 2006).

Results: Residents talked passionately and at length about how they decide what to do with their postcall time. The predominant theme identified in the analysis was that of "Making trade offs". Trade-offs involved residents choosing between two or more seemingly incompatible yet equally valuable alternatives. These trade-offs represented choices about how to spend both time and energy while regaining control of their lives. Participants exhibited three different orientations to their trade-offs depending on the situation: they could be oriented to fatigue management, to normal life, or to professional development. These orientations were neither stable, nor were they program-specific. However, it was more common for residents in surgical programs to espouse an orientation towards professional development.

Discussion and Conclusions: In our study, residents’ response to competing demands on their postcall time was one of making trade-offs between alternatives. In contrast with assumptions in the literature about ‘appropriate’ use of postcall time, residents did not always prioritize sleeping and studying. However, their rationale for sometimes trading off these alternatives in favor of activities such as socializing and keeping appointments resonates with theories of recovery in high stress work environments. According to these theories, off duty leisure activities that provide a distraction from workplace demands are critical for managing wellbeing while on and off duty. This study offers new insights into how residents use their off duty time. The notion of making trade-offs as a self-regulating mechanism contributes to the ongoing educational discussion about the relationship between off duty activities and resident wellness.

A Consortium approach to competency-based undergraduate medical education in Uganda: Process, opportunities and challenges

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Background: This study describes the process which a consortium of Ugandan medical schools and the Medical Education Partnership for Equitable Services to all Ugandans (MESAU) undertook to define the required competencies of graduating doctors in Uganda and implement competency-based medical education (CBME).

Summary of Work: A retrospective qualitative study was conducted in which document analysis was used to collect data employing pre-defined checklists, in a desktop or secondary review of various documents. These included reports of MESAU meetings and workshops, reports from individual institutions as well as medical undergraduate curricula of the different institutions. Thematic analysis was used to extract patterns from the collected data.

Summary of Results: MESAU initiated the process of developing competencies for medical graduates in 2011 using a participatory approach of all stakeholders. The process involved consultative deliberations to identify priority health needs of Uganda and develop competencies to address these needs. Nine competence domain areas were collaboratively identified and agreed upon, and competencies developed in these domains.

Discussion and Conclusions: Key successes from the process include institutional collaboration, faculty development in CBME and initiating the implementation of competency-based medical education. The consortium approach strengthened institutional collaboration that led to the development of common competencies desired of all medical graduates to address priority health challenges in Uganda. It is important that the MESAU consortium continues engaging all stakeholders in medical education to support the implementation and sustainability of CBME in Uganda.

Take-home messages: Team work and collaboration across health training institutions through consortia formation is one way through which innovations in teaching and learning can occur where all stakeholders participate in the whole process and thus learn from each other and share with each other.

7E2 (22464)
The importance of faculty development for the global implementation of a new competency-based curriculum targeted at orthopedic residents

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Background: AO Trauma conducts 150–200 courses worldwide every year for residents in orthopedics with focus on trauma. As part of the AO Trauma Residents’ Education Program a new competency-based curriculum has been developed for these courses between 2009 and 2012. The curriculum is built on 12 competencies and contains core (mandatory) and optional content. Challenges of implementation include that courses are chaired locally by a varying group of surgeons with the majority of them being unfamiliar with the concept of competency-based medical education.

Summary of Work: Resources for faculty and chairpersons delivering the new courses have been developed, including checklists, course learning outcomes, program templates, prepared lectures, cases for discussions and more. To ensure the effective implementation of the competency-based curriculum and overcome resistance a training program for chairpersons (CTP) has been developed using a competency-based approach. The CTP helps the chairs to learn in more detail about their tasks and the process applied in the development of the course curriculum and gives them time to create their individual course program.

Summary of Results: So far, the curriculum for orthopedic residents has been implemented in 50 courses in 2013 and 2014. Based on feedback from course organizers and chairpersons, there was little or no resistance from chairpersons who previously attended a chairpersons training.

Discussion and Conclusions: Supporting and educating chairpersons in the planning phase is crucial for successful implementation of a competency-based curriculum (Dath D, Iobst W, 2010). As a next step, also faculty members should be informed about the concept of competency-based medical education.

Take-home messages: Continuous faculty development is important for the implementation of a competency-based curriculum.
**7E3 (21485)**  
Continuous Reflective Assessment for Training, the Canadian family medicine resident assessment process  

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**Background:** With the move to Competency based education and assessment, The Working Group on Certification Process (WGCP) of the College of Family Physicians of Canada, through a survey and modified Delphi process, defined 6 Essential Skill Dimensions, and selected 99 priority topics for Key Feature development. Each Key Feature is linked to one or more Essential Skill Dimension. These form the Evaluation Objectives for Canadian family physicians in training. The Evaluation Objectives are now incorporated in to national accreditation standards.

**Summary of Work:** In collaboration with Canadian Residency Program and Assessment directors, the WGCP further defined a template for In Training Assessment that promotes Continuous Reflective Assessment for Training (CRAFT).

**Summary of Results:** Assessment relies on multiple workplace observations recorded on "Field Notes", that inform the In Training Assessment Report and the Progress Review. At the Progress Review, resident and Faculty Adviser reflectively and collaboratively review progress and define the next learning plan. The process is predominantly formative, flexible in time and learner centred. Novel uses for the In-Training Assessment Template include identification of: gaps in resident assessment systems, and skill sets to develop for various assessment tasks.

**Discussion and Conclusions:** The In Training Assessment template guides a process of continuity and reflection for the Resident throughout training. This, along with the Evaluation Objectives meet the principles of competency based assessment proposed by Carraccio et al (2012).

**Take-home messages:** The focus of this presentation will be demonstrating how the CFPC’s Evaluation Objectives, In Training Assessment template and CRAFT provide robust competency, based assessment of residents.

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**7E4 (22970)**  
Teaching generic competences in the continuum of medical education  

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**Background:** In the outcome-based medical education teaching generic competencies on all levels of education is very important. In the last ten years the new harmonized core curriculum was introduced in all four medical schools in Croatia and the new competency based specialty training program was developed for all specialties. At the University of Zagreb School of Medicine (UZSM) we paid special attention in teaching generic competencies in all new graduate and postgraduate program.

**Summary of Work:** We introduced a longitudinal 6 years course Fundamentals of Medical Skills with emphasis on teaching communication skills, gradually developing medical students’ competence from basic to specific communication associated with clinical courses in higher grades of medical study. We expect greater effectiveness of a longitudinal, integrated communication approach in teaching medical students compared with concentrated courses. In a year long internship, communication skills, team work and professionalism are part of the program. In all specialty training programs a newly established course offers teaching in communication, team work, teaching and learning, health advocacy, management and leadership, professionalism.

**Summary of Results:** At the UZSM teaching of generic competences is introduced in the continuum of medical education, with respect on different conceptual framework at various levels of education.

**Discussion and Conclusions:** Continuous enhancement of generic competences through the graduate and postgraduate education is essential for professional development. Teaching generic skills on all levels of medical education exerts influence on development of professionalism in hospital environment.

**Take-home messages:** Generic skills enhancement must be included in all levels of medical education.
**7E5 (22403) System of medical students’ practical training**

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Boris Ivnyev, Donetsk National Medical University, Donetsk, Ukraine
Marina Pervak*, Donetsk National Medical University, Donetsk, Ukraine

**Background:** An original system of students’ practical training has been designed and put into practice at the Donetsk National Medical University. The distinguishing feature of the system is the orientation of education at all its levels to learning outcomes – doctors’ competences and clinical skills.

**Summary of Work:** Professors of clinical departments of our university and the experienced practical physicians as experts formulated occupational competences which must be acquired by medical students and a list of the clinical skills in accordance with the Ukraine national standards of medical education. The through (end-to-end) program of students’ practical training was developed. According to this program the practical skills for all clinical subjects from 3rd year to 6th year were determined.

**Summary of Results:** The teaching process is organized to provide individual work of students and their mustering doctors’ skills. At the propedeutic level of education students work with simulators and manikins at The University Center of Practical Training. All students have individual plans of practical training. At the end of every clinical subject study teacher must inscribe the skills acquired by the student in his individual plan. Practical training of all graduates is checked at practically oriented examinations during final state attestation. Mastering all clinical skills is obligatory to obtain MD diploma.

**Discussion and Conclusions:** Realization of the above mentioned system allowed us to improve quality of doctors’ training at our University.

**Take-home messages:** University Center of Students Practical Training plays an important role in undergraduate medical education.
Clinical Assessment

Location: Theatre Room 11, Level 0, MiCo

7F1 (20495)
The Utility of a new clinical assessment of final year medical students – the patient perspective

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Background: The OSCE whilst reliable lacks validity in assessing clinical encounters. We introduced a new summative assessment, the Modified Objective Structured Clinical Examination Record (MOSLER), four short clinical encounters in which final year medical students are observed taking a focused history and physical examination then discussing diagnosis and management. We have previously reported the high reliability of the MOSLER.

Summary of Work: We report the patient assessment of the validity, acceptability and educational impact of the MOSLER. Data were gathered using a nine point Likert scale from 140 participants. Free text comments were subject to thematic analysis.

Summary of Results: The MOSLER is valid and acceptable to patients (median Likert scores of 9). 89% would participate in future assessments and 86% would recommend the role to friends and family (86%). From thematic analysis the top three themes were: 1. Altruism; 2. To support future doctors; 3. Embedding patient perspective. Patients reported an unexpected educational impact from participating in the MOSLER, gaining greater understanding of their condition and treatment.

Discussion and Conclusions: Validity and acceptability are at least as important as reliability at the threshold of starting clinical practice. The areas of utility of the MOSLER reported here score highly from the patient perspective. The educational value of taking part appears to extend beyond the candidate, as many patients expressed personal benefits they had gained.

Take-home messages: MOSLER has very high levels of acceptability and validity from the patient perspective. Patients report educational benefits of being involved in MOSLER assessments.

7F2 (19304)
Student ability to assess their peers in long the case clinical examination

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Background: While students are known to benefit from the experience of acting as assessors of their peers, there are concerns regarding the ability of students to make accurate judgements on their peer’s performance. In this study we sought to assess how well students performed as examiners compared to their academic co-examiners, and whether the students’ accuracy as examiners improved over time.

Summary of Work: Medical students (N=94) acted as assessors of their peers alongside academic co-examiners in both Year 3 and Year 4. The level of agreement in marking was determined by comparing the independent marking sheets of student and academic co-examiners. These results were compared to the level of agreement attained by the same group of student examiners in the previous year. Following the assessments, we invited academic co-examiners to attend a focus group to discuss their perceptions of student ability as assessors of their peers.

Summary of Results: Information on 75 sets of paired students from Year 3 to Year 4 were available, with overall agreement / disagreement available for 60 pairs of data. We found no significant improvement in the level of agreement over a one year period, with students consistently marking more leniently than academic co-examiners. Focus group data suggested that academic co-examiners perceived student peer examiners as not yet able to carry out the long case assessment without their guidance.

Discussion and Conclusions: Students were unable to provide an accurate assessment of their peer’s performance in the formative long case examinations, without consultation with an academic co-examiner. We found no significant improvement in agreement over a one year period.

Take-home messages: Students need supervision and guidance when assessing their peers in formative long case examinations.
7F3 (20931)
A two-step simulation-based model for an integrated final examination of professional nursing competence – students’ perceptions

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Background: The goal for undergraduate nursing education in Sweden is to certify that the students meet the national requirements for a degree of Bachelor of Science in Nursing. Therefore, in addition to a bachelor thesis, a two-step examination of professional nursing competences has been developed and implemented at Karolinska Institutet.

Summary of Work: Professional competences examined in the two steps are communication, ability to identify care needs and to plan, provide, evaluate and document nursing care (clinical reasoning, teamwork, medical-technical skills, and pharmaceutical management). Step one is a patient simulation where the students in pairs are presented to a patient scenario. Step two is an individual computerized written examination based on three different patient cases.

Summary of Results: In close connection to both parts of the examination students are asked to reflect on and evaluate their own contribution, strengths and weaknesses in solving the cases, and to comment on case construction, content, degree of difficulty and relevance according to national requirements. The vast majority of students perceived the patient cases to be of great relevance according to their professional competence where they can be challenged and examined on defined competencies needed for their future work as nurses.

Discussion and Conclusions: From the perspective of students, professional identity and confidence is increased by an examination of professional competence where they can be challenged and examined on defined competencies needed for their future work as nurses.

Take-home messages: Examinations in professional competence strengthen the nurse students’ confidence that they have fulfilled the requirements and are able to integrate theoretical and clinical knowledge.

7F4 (20840)
Charting inspiration: Development and evaluation of a tool to measure health professional student learning in the affective domain

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Marise Lombard, Griffith University, School of Medicine, Gold Coast, Australia

Background: Learning in the affective domain, according to Bloom and Krathwohl’s famous taxonomy, is a critical component of the education of health professionals. It describes learners’ development of an integrated values framework consistent with that of their chosen profession, but has been notoriously difficult to assess and verify.

Summary of Work: Based on phenomenological analysis of the daily journals of participants in a randomised educational trial of an extended multi-method simulation methodology, we developed a simple tool to enable assessors to identify and rate examples of affective learning in reflective journals, according to the levels described by Krathwohl (1973). The Griffith University Affective Learning Scale (GUALS) was trialled in the summative assessment of journals from medical students participating in subsequent iterations of the extended simulation program, which provides intensive realistic experiences of junior doctor life.

Summary of Results: In the pilot study 130 student journals were each rated by two independent assessors (with the higher of the two scores being used for summative purposes during the validation). Scores on the scale were normally distributed and showed good psychometrics, with a mean inter-rater difference of 0.3 points on a 7-point scale and an intra-class correlation coefficient of 0.86. Results from a larger sample of journals will be presented.

Discussion and Conclusions: The tool appears to be sufficiently reliable for summative use.

Take-home messages: The GUALS shows promise as a fair and reliable method for the summative assessment of affective learning in the journals of health professional students experiencing intense clinical experiences in both simulated and real-care settings.
**7F5 (21677)**  
*Assessment of professionalism: Development of a bad behaviour checklist*

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**Background:** The ACGME requires residency programs in the US to report biannually on their residents' standing on six competencies. One of the most important of these is professionalism.

**Summary of Work:** In this study, we describe an institutional-level effort to develop a checklist of “bad behaviours” that measure professionalism. After identifying key bad behaviours in workshops, we determined their relative egregiousness by having workshop participants indicate their level of concern if a resident engaged in each behaviour 1, 2, 3, 4 or “5 or more” times during a six-month period (0=not concerned; 5=very concerned).

**Summary of Results:** The behaviours with the highest concern ratings included: (1) displaying obvious signs of substance abuse, (2) demonstrating abusive behavior towards coworkers, and (3) failing to act truthfully with patients and families. For practical purposes, our final checklist includes only the 19 bad behaviours with the highest concern ratings.

**Discussion and Conclusions:** This study demonstrated that unprofessional behaviours vary in their level of egregiousness. This information is vital for programs identifying unprofessional behaviours upon which to focus remediation efforts.

**Take-home messages:** This study demonstrated that careful delineation of the professionalism construct domain is an important prerequisite for creating reliable and valid assessment tools.

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**7F6 (20648)**  
*Development and Validation of the Medical Professionalism Behavior Assessment Tool*

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**Background:** Assessment of professionalism behaviors has become a priority for undergraduate and graduate medical education. The Medical Professionalism Behavior Tool (MPB) was developed by clinicians, educators, education researchers and residents.

**Summary of Work:** Originally developed from the NBME's Assessing Professionalism Behaviors with inclusion of skills specific to cultural competency, the MPB was a modified, 25-item evaluation tool, which was then reduced to 15 items with retention of cultural competency skills. The MPB was used by medicine residents in annual seminars as part of a self-reflective exercise where they rated themselves and then discussed with another resident areas they wanted to improve. These data were entered into a spreadsheet making the responses anonymous, and were subjected to statistical analysis. The MPB was reviewed by 11 of 13 residency program directors at the University of Virginia (UVA) for content validity.

**Summary of Results:** All of the residency program directors thought the MPB captured behaviors relevant to evaluation of professionalism in clinical medicine. Statistical analysis of the internal consistency (reliability) and construct validity associated with the MPB yielded strong results with Cronbach's alpha of 0.84; thus providing good statistical evidence of reliability and validity for MPB use in formative and summative assessment.

**Discussion and Conclusions:** The MPB is a valid and reliable tool for use in assessment of professionalism behaviors in the clinical learning environment.

**Take-home messages:** The strength of the MPB is that it is 15 items, has statistical validity and reliability, reflects behaviors central to medical professionalism as described in The Physician Charter, and incorporates behaviors specific to culturally competent care.
**7G SHORT COMMUNICATIONS:**

**Work-based Assessment**

**Location:** Theatre Room 12, Level 0, MiCo

**7G1 (19736)**

Alignment between learning needs and learning goals of Mini-CEX in clerkships

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**Background:** Defining learning goals (LG) in alignment with learning needs (LN) is one of the key purposes of formative workplace-based assessment, but studies about this topic are scarce.

**Summary of Work:** We analysed quantitatively and qualitatively how often trainer-student pairs identified the same LN during Mini Clinical Evaluation Exercises (Mini-CEX) in clerkships and to what degree those LNs were in line with the recorded LGs. Multilevel logistic regression models were used to predict LGs by identified LNs, controlling for context variables.

**Summary of Results:** 512 trainers and 165 students conducted 1783 Mini-CEX (98% completion rate). Concordantly, trainer-student pairs most often identified LNs in the domains ‘clinical reasoning’ (23% of 1167 complete forms), ‘organisation / efficiency’ (20%) and ‘physical examination’ (20%). At least one ‘defined’ LG was noted on 313 student forms (18% of 1710), with a total of 446 LGs. Of these, the most frequent LGs were ‘physical examination’ (49% of 446 LGs) and ‘history taking’ (21%); corresponding LNs as well as context variables (e.g. clinic size) were found to be predictors of these LGs.

**Discussion and Conclusions:** Although trainer-student pairs often agreed in their identified LNs, many assessments did not result in an aligned LG or a LG at all. Interventions are needed to enhance the proportion of (aligned) LGs in Mini-CEX in order to tap into its full potential not only as a ‘diagnostic’ but also as an ‘educational tool’.

**Take-home messages:** The sparseness of LGs, their dependency on context variables and their partial non-alignment with students’ LNs raise the question of how the effectiveness of Mini-CEX can be further enhanced.

7G2 (21194)

Aiming for excellence in medical education: The pediatrics Mini-CEX project at Kuwait University (Phase One, The development and initial implementation of the Mini-CEX)

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**Entesar Husain**, Kuwait University, Pediatrics, Kuwait

**Mayra Al-Saeid**, Kuwait University, Pediatrics, Kuwait

**Background:** The Mini-CEX is a clinical competence assessment. Our aim is to implement it in the pediatrics undergraduate education in Kuwait.

**Summary of Work:** The tool was reviewed and introduced to the pediatrics curriculum in 2013-2014.

**Summary of Results:** Counselling children was included as a separate competency. Thirty-two students were assessed by 32 assessors. A total of 217 assessments were made with an average of 6.8 assessments per student. Majority were in-patient (88.3%) with children aged 5.1-12.0 years (46.7%). Physical examination was most assessed (71.7%) and counselling was the least (7.1%). The mean scores for the competencies were satisfactory. Most of the assessments included comments on the student’s strengths, weaknesses, and plan for improvement (85.7%, 74.7%, and 74.7% respectively). The mean assessment time was 17.09 ± 5.22. The mean assessor satisfaction was 7.79 ± 1.12 and 7.82 ± 1.29 for the students.

**Discussion and Conclusions:** The Pediatrics Mini-CEX seems to be a feasible tool for use in Kuwait. Reliability and validity of this tool should be studied in the future. Continuous guidance should be given to assessors and students to ensure proper implementation.

**Take-home messages:** Proper implementation of the Mini-CEX ensures assessment of a variety of clinical competences in pediatrics.
Implementing electronic workplace-based assessments: Strategies and challenges

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Background: Workplace-based learning and assessments are key to education and training in medicine and healthcare disciplines. Electronic assessment solutions offer many potential benefits, but face a sizable challenge in clinical environments lacking in available computing equipment and reliable network access.

Summary of Work: St George's, University of London (SGUL) have been piloting a system, Myprogress, for offline completion of workplace-based assessments on mobile devices. Network access or computers are not required in the clinical environment; assessments are completed on smartphones or tablets and uploaded later when network access is available. Iterative pilots in Medicine and Radiography have evaluated and refined the system from a practical and educational perspective.

Summary of Results: Pilots ran in areas including Critical Care, Paediatrics, Surgery and Geriatrics, at different sites and stages of training. Increased numbers of completed assessments and feedback gathered through online surveys and focus groups indicated that the system was well-received and easy to use, although with less flexibility than paper. Participants perceived considerable value in the long-term adoption of an electronic system, but had short-term concerns about the impact of changes to working practices and time commitments.

Discussion and Conclusions: These concerns can be addressed; providing tablet devices improves user experiences, and facilitates enhanced educational feedback and support when compared with the use of user-owned smartphones.

Take-home messages: Mobile technologies are a viable solution to the challenges of assessing workplace learning in a clinical environment, but it is crucial to make their value clear to both learners and assessors.

Time to supervise WBPAs

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Background: Workplace based assessment is widely used to evaluate trainee performance. The literature suggests, however that WBPA is seen by trainees as being a ‘tick box’ exercise, with limited educational value due to lack of formative feedback. Poor interrater reliability and the retrospective approach to many of the assessments may also compromise confidence. Multiple samples have been shown to improve reliability in assessment of performance, though time pressures may inhibit ability to standardise the assessments, at a time when educational time is limited in consultant job plans.

Summary of Work: The trainee online portfolio of assessment (e-portfolio) yielded minimum numbers of assessment required by FY1 and FY2 doctors and core medical trainees on medical placement over a four month clinical rotation. A calculation of time per assessment was made from recommendations in the literature. This was mapped to the number of medical consultants available to provide WBPAs.

Summary of Results: There were 19 junior trainees in total, and 20 educational supervisors in medicine. Based on minimum e-portfolio requirements in order to either ‘pass’ the clinical attachment or show achievement of curriculum competencies, trainees needed to complete 6-7 WBPAs per 4 month rotation. Using standard times for completion of assessment from the literature, total time to complete each assessment properly would be 20-30 minutes. This gives a total assessment time of between 40-60 hours for the medical department per 4 month rotation.

Educational supervisor meetings for each trainee would add a further 19 hours.

Discussion and Conclusions: If a postulated figure of 80 supervisor hours per 4 month rotation is used for junior trainees to achieve minimum assessment requirements to the defined standards, there are clear implications for service delivery. This figure is a gross underestimate, as senior trainee and undergraduate supervision has not been considered.
7H1 (22353)
Involving residents in the development of an interactive, web-based learning and self-assessment hub

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Background: AOTrauma is a worldwide provider of educational activities for residents in orthopedic surgery. As part of their competency-based Residents’ Education Program, AOTrauma has developed a web-based hub for learning and self-assessment (STaRT). To ensure that STaRT meets the needs of residents, learners were involved in all stages of development.

Summary of Work: A general needs assessment was performed in three countries followed by a targeted needs assessment with 16 residents and 19 residency program directors. On this basis goals and objectives for STaRT were formulated and educational methods selected. Four highly interactive pilot modules were prepared and access was given to 20 residents at different stages of their training. With 14 of them individual interviews were conducted following the completion of four assigned tasks.

Summary of Results: The involvement of residents in the targeted needs analysis revealed their specific needs and preferences with regard to web-based learning and self-assessment. Individual interviews after the completion of assigned tasks on STaRT informed us that the goals and objectives were mostly met and provided suggestions that were applied to improve the content and platform.

Discussion and Conclusions: Our pilot data suggest that interactivity and feedback in asynchronous elearning have a positive influence on residents’ motivation to learn. STaRT as a web-based learning hub provides a tailored solution for focused learning and self-assessment. However, a limitation remains for attaining the needed practical skills.

Take-home messages: For elearning to be effective, the needs and preferences of the targeted learners must be integrated in the design of web-based education.

7H2 (22956)
Simulated complex clinical procedural skills in situ – Bridging the gap between the lab and clinical practice

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Background: Postgraduate medical curricula contain mandatory procedural skills, including lumbar puncture, intercostal drainage and central venous cannulation. Simulated procedural skills training can improve technical ability in skills laboratories. However, lab-based skills practice does not necessarily predict clinical performance. We propose that the environment plays a significant role in learning and performing clinical procedural skills, and that using simulation training in the ‘real-life’ clinical environment will bring us closer to ensuring safe and successful clinical practice.

Summary of Work: The NHS Lothian Clinical Skills Mastery Programme was introduced in Edinburgh in 2013. For each procedural skill, our trainees receive knowledge packs (written and video resources) and a 2-phase supervised simulated training programme.

• Phase 1: Skills lab (non-clinical)
• Phase 2: In situ (clinical environment)

In spring 2014 we will study the impact of environment on performance, via randomised control trial, using 3 groups of candidates: Knowledge Packs ‘vs. Lab Simulation ‘vs. In Situ Simulation. Each group will subsequently undergo a checklist-based assessment of simulated performance in situ.

Summary of Results: A combination of quantitative and qualitative data from our study will be presented.

Discussion and Conclusions: Simulated training within the clinical environment is the key to improving skill levels in a meaningful way. This dramatically improves fidelity and provides the additional challenge of progressing from motor skill to psychomotor, whereby trainees must employ their newly-acquired non-technical skills to ensure technical success and patient safety.

Take-home messages: Environment can negatively impact on complex procedural skill performance. Simulated practice in situ can mitigate this effect and contribute to the safe development of procedural competency.
7H3 (19974)
The Currency of Social Power in Clinical Learning Environments: The Relationship Between Residents as Teachers and Clerks' Sense of Empowerment

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Background: Clinical learning can be strongly influenced by the nature of the student-preceptor relationship. Preceptor influence represents a type of social power, which is an important determinant of an individual's sense of personal empowerment.

Summary of Work: Three iterations of clinical clerks (n=253) from six disciplines at McMaster University (Hamilton, Canada) completed modified Teacher Power Use (TPUS) and Learner Empowerment (LEM) scales for their primary preceptor-identified as either staff physician or resident-and their personal senses of empowerment, respectively. TPUS and LEM outcomes were subjected to correlational analyses as well as independent analyses of variance concerned with preceptor involvement.

Summary of Results: Clerks' perceptions of personal empowerment correlated positively with their perceptions of preceptor power use (r = 0.55, p < .05) However, the more often the clerk's primary preceptor was a Resident the more often they perceived the use of negative coercive power (r=-0.23, p<.05) and the less often they perceived the use of pro-social referent power (r=0.198, p<.05). Overall, clerks perceived more pro-social preceptor power use than negative preceptor power use.

Discussion and Conclusions: Preceptor power use influences learner's sense of empowerment in clinical learning environments. Independent of clinical rotation or stage in clerkship, learners report greater referent and reward power use and less coercive power use on rotations with low resident preceptor involvement.

Take-home messages: Learners are subjected to more coercive power use in rotations with greater proportion of Resident supervision. These findings illuminate the resident-clerk relationship, underscore the importance of experienced physician teachers to clerk development, and suggest a need for improved resident education in student mentorship.

7H4 (19271)
Developing a new course for Paediatric Educational supervisors

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Background: In the UK, all educational supervisors need to be on the General Medical Council's approved trainers' list by 2016. A number of courses have been developed to train educational supervisors but none nationally that are Paediatric specific.

Summary of Work: A steering group led the development of a one day course for Paediatric educational supervisors ensuring the 7 standards of the Academy of Medical Educators were incorporated. The group including non-clinical and clinical leads and experts in medical education, IT and course design. Harden's ten questions for course design were used to ensure the product would be suitable. Three pilot days were held, starting in November 2012 where experienced educational supervisors were invited to the first day. Course modifications were made according to their feedback including making a careers video. Three courses were held in 2013 with 10 planned for 2014.

Summary of Results: Overall course satisfaction was 96%. Educational supervisors valued the update on workplace based assessments, careers video on how to give advice and guidance, how to give good feedback and supporting both the able trainee and the doctor in difficulty. The attendees felt they had gained importantly knowledge of specific Paediatric requirements, a key difference between this and other courses.

Discussion and Conclusions: Specialty specific educational supervisors' training courses can empower supervisors and increase their confidence in dealing with trainees educational needs and improve trainee educational support.

Take-home messages: With adaptations this one day course could be used in other specialties and is simple and easy to deliver and has the benefit of being college quality assured.
7H5 (20761)
A “Science Shop” for research and innovations in postgraduate medical education

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Background: The introduction of competency based Post Graduate Medical Education (PGME) in the Netherlands raises many questions about competencies needed for medical specialist work, innovation and implementation and work related learning. Many of these questions call for expertise from disciplines in the field of social sciences, business and arts. More often than not in hospitals this expertise is not readily available and therefore many questions stay unanswered. Non-medical students writing their bachelor or master thesis at the University Medical Center Groningen (UMCG) were assigned to answer these questions.

Summary of Work: In 2007 we introduced a “Science Shop” at the UMCG with two core activities: (1) facilitating the translation of questions related to PGME into challenging problems for students and (2) reduce barriers related with the deployment of students.

Summary of Results: From the introduction of the Science Shop ≥300 students (≥40 each year) finished their thesis. Subjects covered range from the origins of stress among first year trainees in paediatrics to the organisation of longitudinal patient contacts during PGME.

Discussion and Conclusions: Bachelor and master students from non-medical studies can help answer the many questions raised by PGME.

Take-home messages: A “Science Shop” expands the possibilities for the scientific foundation of PGME.

7H6 (21338)
Community paediatrics in crisis; why are UK trainees not choosing this as a subspecialty?

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Background: Community Paediatrics (CP) focuses on holistic management and wellbeing. Regionally, relatively few trainees select community paediatrics as a career. This study explores trainees’ views on how to improve CP training.

Summary of Work: 15-item questionnaire completed by regional Paediatric trainees who had finished level 2 (5 years) training; 8 trainees participated in a focus group.

Summary of Results: Questionnaire response rate was 93% (26/28). Trainees gave CP experience a mean score of 2.6/6 for level 1 (years 1-3) training, improving during higher Paediatric (level 2) training to 4.62. Influencing factors for choosing a CP career were subspecialty diversity, good role models, less likely to do resident consultant on-call, better work life balance and caring for children with complex needs. Reasons for not choosing CP were lack of acutely unwell children, not feeling part of a team, working in isolation and feeling lost and difficulty co-ordinating daytime work in the community with hospital on call rota.

Discussion and Conclusions: Most trainees felt they had poor CP experience. Careful planning is needed to ensure that CP placements give opportunity for attainment of all curriculum competencies and that participation in hospital on call rota does not dilute community experience.

Take-home messages: Good CP experience is essential at all training levels but especially for senior trainees as it is vital that we have enough community Paediatricians to meet children’s health needs.
**71 SHORT COMMUNICATIONS: Student Engagement**
Location: Amber 2, Level +2, MiCo

**711 (21640) Students’ role in endocrinology curricular development**

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**Background:** In recent years, medical students’ input has enriched curricular development. They have a significant role in defining content and methodology.

**Summary of Work:** In our School of Medicine, there is formal course evaluation from students. Curricular and Medical Education Office looked at endocrinology course for three years, given it had some specific issues to be changed. Personalized follow up was made to staff involved. Endocrinology Staff made changes in the course.

**Summary of Results:** After three years of follow up, the endocrinology course evaluation improved significantly. Staff was involved in formal medical education program, changing course contents and methodology. Interventions were made and the course showed marked improvement in satisfaction, grades and acceptance, generating a working team for the whole transversal medical curricula, with involvement of teachers and students in further analysis and improvement strategies. Students’ input in course development associated with an evaluating team, as generator of feedback for groups, encourages staff and student development and compromise.

**Discussion and Conclusions:** We recommend it is included in a regular basis for curricular development. We need to develop formal research for further evaluation.

**Take-home messages:** Students should be consider as an expert view in the curricular development.

**712 (21344) How can students act as ‘change agents’ in curricular reform in post-soviet contexts?**

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**Background:** The Modernising Medical Education in Eastern Europe (MUMEENA) project aims to support partners in Ukraine, Georgia and Azerbaijan to develop more integrated curriculum underpinned by learner-centred approaches. To date, the project has focused on faculty development supported by a model of organisational change (Kotter 1995). The focus now is on encouraging students as ‘change agents’ (Friedman 2007), a new concept in the post soviet countries involved in this project.

**Summary of Work:** This qualitative study involves a survey of students in the MUMEENA partner medical schools, followed by semi-structured (Skype) interviews exploring students’ perceptions of curricular reform and their role in supporting and stimulating further change. Interviews were transcribed and thematically analysed in the light of a theoretical model of students as change agents (Dunne and Zandstra 2011), recognising the difference in contexts.

**Summary of Results:** Initial survey results indicated high levels of interest but varying levels of awareness of the project aims. Interview data illustrated clear examples of students contributing to the fostering of a culture of change which drives innovation.

**Discussion and Conclusions:** Engaging and empowering students is more challenging in a post-soviet context where democratic values may still be contested. Students are very motivated to stimulate and support change which they perceive will bring their curriculum more in line with European peers and increase their mobility.

**Take-home messages:** The student voice is both necessary and powerful in effective curricular change. Promoting students as change agents in partnership with faculty should be encouraged.
713 (21335)
The student voice in evaluation: Different stage – different timbre

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Background: The quality and relevance of the information gathered is paramount when using the student voice to improve study programmes.

Summary of Work: In an on-going project we follow three cohorts of nursing students through their three-year programme. Methods used are two validated inventories (DREEM and CLES+T), written “free” comments, focus groups, semester meetings, and interviews with individual students. The purpose is twofold: to improve the programme and to better understand methods of evaluation. Here we report on the latter.

Summary of Results: Compared, the different methods paint quite different and sometimes conflicting pictures of the programme. This can partly be attributed to limitations inherent to the methods used, e.g. closed or open questions, anonymity or not, written views or discussions. However, preliminary results suggest that the way in which a particular evaluation or method is framed, along with the inter- and intragroup dynamics it helps to create, will bring certain experiences or agendas to the foreground while pushing others to the side.

Discussion and Conclusions: In order to better make use of the student voice in programme development we need to improve our understanding of evaluation methods and framing from the students’ point of view.

Take-home messages: The quality and usefulness of data from evaluations depends not only on the questions and techniques used to collect student views. Important is also how the stage for evaluation is set and how students perceive the situation.

714 (19207)
Can students engage collaboratively in effectively generating and refining multiple choice questions?

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Background: Multiple choice examination questions are typically instructor-generated. Can students generate questions of comparable caliber?

Summary of Work: 180 students generated MCQ questions before class teaching sessions and could revise drafts after class teaching sessions. These revisions, without answers, were available online for peer review and improvements. Final collaborative versions could constitute ≤ 50% of the final examination. The instructor and one cross-check rater scored before class and final versions using the SOLO taxonomy scale (1-5). Teachers were given a randomized selection of authorship-blinded questions and asked to identify if they were generated by students or instructors. Surveys, online discourse and course exam scores measured effects.

Summary of Results: 57.3% percent of before class questions were modified after class by student author or peer collaboration. SOLO taxonomy scores on student-generated multiple choice questions were higher post class instruction compared to before class instruction (mean score 4.3 versus 3.1, p<0.0001). Raters were not able to differentiate authorship of student vs. instructor questions (Wilcoxon paired test Z = -0.44; p = non-significant). Students achieved quality levels of assessment individually or by community efforts of the same caliber as teacher controlled evaluation. Student comments acknowledged perceived improvements in knowledge acquisition and assessment and social skills.

Discussion and Conclusions: It is feasible to engage students in collaborative refinement of multiple choice questions. This results in better questions, which are indistinguishable from instructor-generated questions.

Take-home messages: Student and peer collaboration on MCQ generation facilitated a shift from individual learning to student-assumed responsibility for assessment normally teacher controlled.
715 (21113)
«Do it yourself» questionnaire – giving medical students the opportunity to design their own study curriculum

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Background: The most important factor for learning is learner’s enthusiasm. To keep it alive during all 6 year medical curriculum is crucial. Should we give them the opportunity to select their own course program according to their needs, placing each course on the semester they prefer? In the era of personalized medicine, should not a personalized curriculum be available today for tomorrow’s doctors?

Summary of Work: An online questionnaire was piloted and asked medical students and graduates to place all courses in the semester they would like to be taught. Each year had its own questionnaire for statistical analysis reasons. The questionnaire consists of a main board with all 60 obligatory courses and questions for any feedback.

Summary of Results: 79 (8%) of all 993 Ioannina University Medical students participated. 46 (58%) were positive on deciding their own curriculum from the first year. The vast majority wish to study Biology and Histology in the first year, contrary to the current official curriculum predicts. The vast majority wish to study Biology and Histology in the first year, contrary to the current program. In all courses there were at least 7% of students who would like to study them in a different semester (7%–85% for core courses, 24%–95% for electives).

Discussion and Conclusions: The sample size is small, but the idea of studying with a personalized curriculum was something welcomed by the majority of participants, many of which would like to study all courses in a different semester than the current official curriculum predicts. To quote an open answer, “If I could form my own curriculum I would show more desire”.

Take-home messages: It’s important to give students the opportunity to carve their own course curriculum, in order to keep and increase their enthusiasm.

716 (22396)
Students’ contribution to a major curricular revision of an integrated, outcome-based medical undergraduate education program

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Background: Students face a unique and most valuable perspective for curricular evaluation in terms of comprehensibility, work load and transparency of assessment. They represent virtual experts in the actually taught and in the spiral nature of the entire curriculum. Aim of this study was to involve them broadly in the large curricular revisions process at our institution.

Summary of Work: Object of major curricular revision was a six year, modular competency-based undergraduate medical education program that was introduced term-wise at the Charité-Universitätsmedizin Berlin in 2010. For the revision phase of the entire curriculum medical students were active players in the curricular planning committees. In their role, committee students analyzed content-related redundancies, gaps and needs and the structure of the existing curriculum. They introduced revision concepts to focus on essential outcomes, to concentrate specific learning content and to optimize the assessment program.

Summary of Results: Involvement of students as experts in the taught curriculum was highly accepted by the faculty. Due to the students’ institutional and financial independency, their proposals were often appreciated and accepted by the curricular revision committee. In addition, they played an important part in mediating conflicts and to solve problems.

Discussion and Conclusions: Engaging students as active players in a major curricular revisions process is feasible and appreciated. The students’ curricular expertise adds an important perspective and yields often highly useful concepts for curricular revisions.

Take-home messages: Openness to medical students’ curricular expertise offers valuable opportunities to advance the revision process and outcome of a curriculum.
A video communication on ASPIRE, an AMEE initiative to promote student engagement in the curriculum and in the medical school, presented by medical students

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Background: Medical students can be involved in any aspect of the university life. As medical students we enjoyed discovering the existence of ASPIRE and we want to specially thank ASPIRE project promoters to have taken this AMEE initiative (http://www.amee.org/amee-initiatives/aspire).

Summary of Work: We participated in a course on “medical photography and audiovisual communication” coordinated by Maria Rosa Fenoll-Brunet at the University Rovira i Virgili (Catalonia, Spain). Since one of the learning outcomes of this course is to produce a short film clip, and the existence of ASPIRE surprised us very much we are delighted to dedicate our videos to ASPIRE. Specialy, to the area of excellence in students’ engagement in the curriculum and in the medical school.

Summary of Results: Effective collaborative teamwork between three small groups of seven medical students resulted in three short film productions. First video is entitled “Do you know ASPIRE?” It introduces the context and promoters of the project. The second video is entitled “Student engagement criteria”. It shows criterion for ASPIRE applicants into the specific context of students’ engagement. The third video is multilingual and presents the first Winners of ASPIRE Awards on student engagement.

Discussion and Conclusions: As medical students we enjoy being involved in creating innovative materials to disseminate this AMEE initiative. We are really inspired by discovering how the Awarded medical schools implemented successful strategies for student engagement.

Take-home messages: We encourage among medical students worldwide the dissemination of ASPIRE as an initiative to obtain recognition internationally of their engagement into their Medical Schools.
7J1 (21028)
The good, the bad and the ugly – what’s not to like about problem based learning (PBL)?

Frederic Pender*, University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom

Background: PBL is a constituent of the curriculum delivered in many medical schools. To optimise learning opportunities offered by PBL, the student needs to engage with PBL processes. Disengagement by students is sometimes reported; it is important to establish why this may be the case.

Summary of Work: Engagement with PBL was explored using a focus group of medical students. A number of themes emerged and were classified as positive (the ‘good’) or negative (the ‘bad and the ‘ugly’) perceptions of PBL. Positive views included development of transferable skills (interpersonal and cognitive) and the opportunity to apply strategic thinking to a clinical problem. Opinions expressed more negatively, involved those concerned with delivery issues (inappropriate timing and sequencing of scenarios), disparity in student participation and inconsistent knowledge achievement across groups.

Summary of Results: Students confirmed the need to manage the variables in PBL carefully: student preparedness, facilitator skill and quality of scenarios. Positive impressions coincided with good quality scenarios and well-trained facilitators; negative concerns centred on delivery issues and equity of the student experience.

Discussion and Conclusions: A well-prepared facilitator, guiding students through fit-for-purpose scenarios, is the best formula for good engagement with PBL. The most important variable to emerge was the case scenario; students appear to prefer a mixture of constructs using a variety of clinical detective story approaches. Context and process attributes running through scenarios may be as important as content.

Take-home messages: Scenario content, approach and house-style are significant determinants of PBL engagement. Quality assurance processes governing a PBL experience help to optimise student engagement.

7J2 (23042)
Still here... 16 years later! Tutors’ reflections on sustaining the integrity of a whole-programme educational philosophy for medical students’ active learning

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Background: In 1996, substantial reform of the educational philosophy, design, and delivery of Liverpool undergraduate medical curriculum required educators to reorientate their role considerably. Overall, the 34 inaugural problem-based learning (PBL) tutors remained quite positive (in interviews with the 35th tutor) about the ‘curriculum commotion’ of that first semester. They worried, however, about their fallibility in facilitating ‘active learning’ (vs ‘teaching’) of integrated knowledge for clinical practice and its uncertainties. Sixteen years later, ten of those participating tutors remained very involved with that curriculum.

Summary of Work: Aim: What insights can long-serving educators provide about sustaining the educational integrity of an ‘active learning’ system? Setting: Liverpool MBChB curriculum. Participants: The ten of 34 inaugural PBL tutors who were still very ‘curriculum-active’ there to-date.

Method: Inductive analysis (within the pragmatism paradigm) for themes, from semi-structured interviews (by the eleventh remaining tutor, using their original answers as prompts) about challenges during the 16-year follow-up.

Summary of Results: Perceived challenges included the hidden curriculum and ongoing changes in expectations, priorities, and learning environment.

Discussion and Conclusions: Tutors who stayed long-term to sustain this ‘active learning system’ gave meaningful clues about critical challenges to anticipate.

Take-home messages: There was a collective ‘wisdom’ from this cohort of educators that was well worth heeding.
7J3 (19833)  
Prevent crack in PBL phase 2: Reflection as Tutor at Arabian Gulf University (AGU) College of Medicine  

Amjad Imam*, Arabian Gulf University, Paediatric, Manama, Bahrain  

Background: AGU adopted problem based learning since its inception. It is first medical school in the Gulf Region to start PBL in phase 2 of curriculum. The delivery of curriculum through PBL involved many challenges. The problems faced with running of PBL are presented along with suggestion for remediation.  

Summary of Work: The feedback from students, tutors, examiners & literature was explored for successful delivery of PBL in Year 2,3,4. The experience from McMaster/Maastricht university was compared and views from faculty, senior tutors and medical students were collated to prevent cracks in PBL curriculum over time.  

Summary of Results: More training of new faculty and part time tutor are needed. Regular review of PBL problem on the basis of previous problems. Addition of new problems aligned to the community needs of GCC. Unit chairman to appraise tutor periodically in order to bring some uniformity in conducting of PBL. More interdisciplinary integration. Assessment at the end of unit should reflect the learning objective.  

Discussion and Conclusions: The audit of running of PBL is essential in order to prevent loss of interest from students and lowering of quality.  

Take-home messages: Cracs do appear in most institutions who are running PBL and a robust system should be in place to fill the gap in order to prevent loss of interest from students and lowering of quality.

7J4 (22329)  
Does the environment matter? Students' psycho-social situation and its relation to academic achievement in a problem based learning and a traditional curriculum  

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Background: In medical education, students' performances have most prominently been investigated in comparisons between traditional and problem-based-learning (PBL) curricula. Many studies in this field suggest that the effect of different curricula on students' outcomes is rather marginal. One explanation for this finding of similar outcomes is that learners' self-regulation efforts are rather similar across contexts. Thus, we adapted the control-value theory of achievement emotions (Pekrun, 2006; Artino et al. 2012) as a theoretical background in order to compare students' self-regulation of learning in a problem-based-learning (PBL) and a traditional curriculum.  

Summary of Work: In a 3-year prospective longitudinal study we obtained measures from the domains of the learners’ environment, appraisals, emotions, and achievements in both curricula. Achievement was assessed through progress tests. All other variables were based on validated and published questionnaires. Based on Pekruns theory, we specified a structural equation model that formalized relations between the components mentioned above.  

Summary of Results: A total number of N=1646 students took part in the study. The model had an adequate fit to the data (RMSEA=0.04; CFI=.94; TLI=.94). Constraining all model parameters between groups had no significant effect on quality of model fit. Thus, the relation between learning outcomes as well as components of self-regulation remained remarkably similar across contexts.  

Discussion and Conclusions: Our results suggest that students from different curricular context show similar outcomes because the way they regulate their learning behaviour follows similar patterns across educational environments.  

Take-home messages: Independent of the preferred instructional approach, it is vital to address students’ social, emotional, and motivational situation in order to ensure curricular success.
7J5 (23086)
Affectionately yours: Understanding emotions in PBL

Brian Bailey*, Napier University, School of Community Health (retired), Penicuik, United Kingdom

Background: Twenty years ago the author participated (as a learner) in a PBL workshop at an internationally well-known center of excellence. The event had a profound emotional and career-changing effect upon him which led to search for an understanding of the nature and effects of the emotions, an understanding of the 'music of what happened' at that event. Twenty years later, a reported paradigm shift towards socio-cultural theories of learning, towards conceptions of collaborative learning, distributed cognition and distributed affect has prompted educators to ask broadly similar questions about the nature and role of the emotions in learning.

Summary of Work: Here the author presents a 'reverse design' account of the emotions in PBL derived, on one hand from his necessarily protracted research over the years, as reported in disparate AMEE conference papers about the emotions in PBL (for example in the context of group process and scenario design) and on the other hand from recent neuroscientific discoveries concerning the centrality of emotion in all human behaviour.

Summary of Results: The reverse design account of PBL described above derives from an art rather then a science sensibility and is offered as a complement to the traditional, rational-scientific view of educational structures, processes and outcomes.

Discussion and Conclusions: Rationality has its limitations. Approaching the study of education through artistic, metaphorical, emotional perspectives can be productive.

Take-home messages: Yours affectionately, PBL.

7J6 (22303)
When and how does collaborative learning evoke students’ emotional responses?

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Yasuyuki Suzuki, Gifu University, Medical Education Development Centre, Gifu, Japan

Background: Whilst Problem-based learning (PBL) has widely been implemented into medical school internationally, few literatures on PBL have considered the students’ emotional aspects. We aim at describing students’ emotional responses evoked during the group discussion to understand the mechanism of group dynamics in PBL precisely.

Summary of Work: The semi-structured interviewing guided by the short descriptions of common problematic situations in PBL was conducted to 9 medical students in Japan and Thailand where PBL has widely been utilized. Interviewees were encouraged to recall and tell their feeling and the behaviour during the group discussion. The transcriptions were analyzed with the previous literatures and the educational theories.

Summary of Results: Several positive emotions such as joy and a respect related to the possession of knowledge were shown. Negative emotions such as shame and uneasy were expressed when they realized that they lead the discussion to the wrong direction. Furthermore, many positive emotions like relief and pleasant and negative emotion such as boredom were expressed with regard to the ritual processes. Notably the data showed that the some of the reality of students’ emotional responses were different from theoretical and cultural assumptions of group dynamics in collaborative learning.

Discussion and Conclusions: Although both positive and negative emotional responses were evoked depending on their context, unexpected patterns of emotional responses and behaviours were demonstrated. These informations will contribute to the reforming the way of facilitating group discussion in PBL.

Take-home messages: Careful attention to variety of students’ emotion should be paid by tutors in order to facilitate collaborative learning effectively.
7K SHORT COMMUNICATIONS: 
Patient Safety
Location: Amber 4, Level +2, MiCo

7K1 (21302)
Patient Safety in Family Medicine: A Thematic Analysis of Accreditation Standards and the Triple C Curriculum
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Nishan Sharma, University of Calgary, Ward of the 21st Century (W²1C), Calgary, Canada
Margot Harvie, Health Quality Council of Alberta, Patient Safety Education, Calgary, Canada
Maeve O’Beirne, University of Calgary, Family Medicine, Calgary, Canada

Background: The next revision of the CanMEDS roles is due for release in 2015. A significant revision from the 2005 version will be the incorporation of patient safety competencies and the framework will be tailored to competency-based medical education (CBME). At present, work is underway to map the CanMEDS roles and competencies to the Canadian Patient Safety Institute (CPSI) competencies. The Health Quality Council of Alberta (HQCA) has developed six learning principles which comprise the key content of a patient safety curriculum. The purpose of this study was to examine the College of Family Physicians of Canada (CFPC) accreditation standards and Triple C Curriculum for patient safety content.

Summary of Work: This study entailed thematically analyzing the competencies as outlined by the Triple C curriculum and overarching Red Book standards for accreditation with respect to the HQCA patient safety learning principles and CPSI patient safety competencies. The qualitative analysis software NVIVO version 10 was used.

Summary of Results: Continuous learning and improvement as well as appropriate responsibility and authority were key themes in the accreditation standards. The Triple C curriculum encompassed more of the HQCA learning principles than the CPSI competencies.

Discussion and Conclusions: The CPSI competencies are more geared towards acute care as opposed to community-based care. The HQCA patient learning principles are more readily adapted in the CFPC documents however a greater focus on patient safety and quality improvement is still needed.

Take-home messages: The language of patient safety learning principles and competencies needs to be broad enough to encompass community-based care such as Family Medicine.

7K2 (19933)
Is patient safety an accurate indicator of the quality of education and training?
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Background: Patient safety is a pre-requisite for good medical practice. The first priority for all healthcare providers must be to ensure patient safety, which is also an essential requirement for measuring the quality of education and training. The practice of medicine is not free from risk; best practice demands minimising the risk. In reality, the practice of individuals and institutions will vary. Institutions demonstrating a favourable patient safety culture offer an ideal environment for training.

Summary of Work: To enable effective and robust oversight of postgraduate medical education and training, Health Education West Midlands developed a detailed Quality Management framework and process. We regularly conduct visits to institutions in order to review education and training, determining their suitability to train. Patient safety is a key component of the standards for measuring educational quality.

Summary of Results: All reviews of healthcare settings address and explore patient safety through a series of well tested, structured questions to trainees, trainers and administrators during the regular inspection visits. The answers to such face to face enquiries, triangulated with external and internal survey data, inform decisions to approve (or otherwise) training programmes delivered by institutions, often with requirements for action plans and progress reports that need to be signed off.

Discussion and Conclusions: Measuring the patient safety culture of healthcare institutions is both necessary and achievable. Patient safety is a valid indicator of overall educational quality that identifies institutions best suited for training.

Take-home messages: Patient safety provides a clear indication of the quality of education and training that should identify organisations best suited for training.
CSI-Seattle: The Resident Plays Detective In A Safety Initiative

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Background: Regulatory attitudes and dry content can make it difficult to attract residents to participate in quality improvement and error reduction projects, and to develop competency in these domains.

Summary of Work: A large academic radiation oncology practice developed a comprehensive safety initiative (CSI-Seattle), including a departmental incident learning system. Over 2 years, a total of 1951 near-miss incidents have been reported using an online process. A multiprofessional team reviews these reports weekly; the incidents are categorized and ranked for severity by potential for harm. The majority of problems have been administrative (e.g., scheduling), with no harmful consequences, but technical errors that were caught on routine QA checks carried higher risk potential.

Summary of Results: Residents participate in these reviews in increasing numbers. They take on the role of “detective” of more complex incidents, using root cause analyses and other investigative methods, presenting their findings at bimonthly town hall meetings. Residents have researched the database, identifying high-risk situations, such as rushed work and poor communication systems, and proposed practice improvements. This research has also produced ten abstracts and 2 submitted papers.

Discussion and Conclusions: Residents are not perceived as a threat by staff, and have contributed to a measured improvement in the safety culture within the department. Residents are now very engaged in quality and safety; not only do they learn, but they also help diffuse defensive attitudes to error reduction.

Take-home messages: Residents can learn dry topics more successfully when actively engaged – this is a win-win situation for the department.

“Going through the motions”, identifying patient safety issues and incorporation into learning through assessment

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Background: Undergraduate medical students at our institution are taught the importance of checking patient identity. This study assessed whether students process the information obtained and are aware of the steps to follow in cases of mis-identity.

Summary of Work: During the year four formative OSCE examination we provided one simulated patient with an incorrect name band. This did not form part of the assessment, and students noticing the error were informed to continue as normal. Examiners were asked to document whether students identified the error.

Summary of Results: A total of 134 students were assessed, with 74% (93/126) failing to alert the examiner to the incorrect name band. On highlighting the error, a proportion commented that they noticed the error but failed to mention it as they assumed it was a mistake.

Discussion and Conclusions: Over three quarters of senior medical students failed to identify an incorrect name band. Furthermore, those that noticed the error did not appear to understand the importance of alerting staff. We utilised these results to provide feedback stressing the importance of patient safety and the steps to follow in patient mis-identity. In the forthcoming summative assessment students will be given a scenario involving a prescription and incorrect name band, providing multiple opportunities to identify error, and will be formally examined on both recognition and knowledge of what to do in patient mis-identity. This phase of results will be available by time of presentation.

Take-home messages: This highlights a serious patient safety issue, and suggests students may be “going through the motions” but not processing the information obtained.
Structured pharmacy team shadowing to improve junior doctor medication safety

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Background: Junior Doctors are responsible for 91% of medication errors. Much evidence suggests significant reduction in medication errors when the Pharmacy Team is involved, however, Pharmacy roles are notoriously poorly understood by Junior Doctors.

Summary of Work: Sixty Final Year Medical Students individually shadowed a Hospital Pharmacist for an afternoon and given learning outcomes to meet. The session was evaluated using pre and post questionnaires to identify understanding of the roles, responsibilities and value of Pharmacy and learning outcomes assessed.

Summary of Results: Students (n=20) rated items on a Likert Scale of 0 (not confident) to 10 (very confident). Understanding of Pharmacist, Technician and Dispenser roles all increased. Understanding of role differences increased from an average of 4.6 to 7.1 and knowing which Pharmacy member to contact increased (5.5 to 7.1). Understanding Pharmacy’s role in admission and discharge increased including understanding of Mediboxes (4.3 to 6.7). Likelihood of involving Pharmacy in future practice averaged at 8.1/10 post-session. There was a significant difference in overall confidence score pre-session (M=5.4, SD=0.8) and post-session (M=7.4, SD=0.3); t(6)=8.3, p=0.0002.

Discussion and Conclusions: This straightforward, light-touch educational intervention isn’t resource heavy but orientated students to the duties and functions of Pharmacy in preparation for practice. Structure around learning outcomes provided purpose, motivation and insight into the importance of this fundamental resource to the Junior Doctor and increased confidence and likelihood of appropriate team involvement in students’ future clinical practice.

Take-home messages: Structuring Pharmacy shadowing around learning outcomes enhances Medical Student understanding of the roles and use of Hospital Pharmacy, subsequently improving Junior Doctor medication safety.

The development of a peer initiated Quality Improvement teaching programme to demonstrate the role of medical leadership in improving patient safety as a part of the postgraduate medical curriculum

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Samah Allimam, Central Manchester Foundation Trust, Haematology, Manchester, United Kingdom

Background: Junior Doctors are uniquely placed to provide an input into patient safety and service improvement both during training and in our future careers. This has become a recognised training need, with the addition of Quality improvement (QI) to the postgraduate curriculum.

Summary of Work: A questionnaire revealed a clear training need. 90% of Foundation trainees at Central Manchester Foundation Trust were unfamiliar with the Medical Leadership Framework, and 40% unaware of QI methodology. However 100% felt they would benefit from formal QI training. Subsequently, we developed a peer lead quality improvement training programme comprised of interactive peer lead workshops on QI methodology, support from Consultant mentors and the development of a QI workbook.

Summary of Results: Despite being in the initial stages of the programme, early indications are that trainees are beginning to engage with QI; 36% of trainees leading a project, and 50% of trainees feeling confident to lead a QI project when the opportunity presents. The Trust management has been successfully engaged and Foundation doctors have subsequently been invited to sit on clinical effectiveness committees and to collaborate with management on large scale projects.

Discussion and Conclusions: The programme has been met with enthusiasm from trainees, consultant mentors and the Trust. Peer initiation and education offers a sustainable and relatable method of offering this QI training.

Take-home messages: Junior Doctors are increasingly recognised as ‘agents of change’ within the new NHS. However, the skills required to be these ‘agents’ are not innate; formal teaching needs to be delivered.
Educators’ Experiences with the Establishment of Successful Interprofessional Education Centers

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Background: Since interprofessional education (IPE) was first introduced as an educational approach, studies have substantially been focusing on learners’ reaction, acquisition of knowledge, skill and behavior, modification of perception and attitudes and benefits to patient care. Limited references are available from perspectives of those who lead and have successfully managed to create a climate that leads to interprofessional collaboration. By exploring cultural and professional issues as well as positive solutions, this study gains a deeper understanding about what a manager/educator need to know in order to establish IPE environments.

Summary of Work: Semi-structured interviews were undertaken and audio-taped with participants who were first initiators and then managers of IPE centers in Stockholm, Sweden. Interviews were conducted and recorded in January.

Summary of Results: The analysis is preliminary. The origin of IPE activities in Stockholm came from the 1988 WHO reports which highlighted the need for better communication between health professions. In the beginning of the IPE implementation process, managers/educators had problems with agreeing to a common understanding of IPE. Logistic of students, supervising, and economical problems were exhausting. Enthusiastic “driving spirit” persons made a difference for the acceptance of IPE. Enthusiastic teachers/supervisors took a stand for IPE. The leaders of the organization were necessarily the key factors to sustain the process. Patients engagements in the evaluation of IPE was also important for a deeper understanding and for the success of IPE.

Discussion and Conclusions: There is a paucity of educational initiatives to help medical students understand the roles of other HCPs. Analysis of this IPE intervention suggests it benefits senior medical students and other HCPs.

Take-home messages: Senior medical students felt this novel, multidisciplinary shadowing initiative had practical and attitudinal benefits and want additional similar opportunities.
7L3 (18996)
Improved attitudes and cross-professional insight in interprofessional undergraduate teams using simulation training
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Mark Barrow, University of Auckland, Faculty of Medical and Health Sciences, Auckland, New Zealand
Jane Torrie, University of Auckland, Simulation Centre for Patient Safety, Auckland, New Zealand
Antonia Verstappen, University of Auckland, Centre for Medical and Health Sciences Education, Auckland, New Zealand
Jennifer M. Weller, University of Auckland, Centre for Medical and Health Sciences Education, Auckland, New Zealand

Background: Teams who work together should train together, yet nursing and medical students at our university have previously undergone life support training in separate uniprofessional groups.

Summary of Work: We brought together final year nursing (Ns) and medical students (Ms) for seven Advanced Cardiac Life Support (ACLS) simulations with debriefs. Each day three teams, comprised of three Ns and five or six Ms, rotated through each simulation, and the entire 2013 cohort was studied over 8 such days. Participants were asked to complete the Readiness for Interprofessional Learning Scale (RIPLS) at the start and end of the day. Finally a semi-structured focus discussion group was conducted at the end of each day aimed at identifying specific instances of cross-professional learning.

Summary of Results: In total 133 Ms and 60 Ns took part. RIPLS scores increased over the day from a median (range) of 77 (34-90) to 80 (58-88), Wilcoxon z=-4.44, p<0.001. Focus group data indicated that professional groups experienced specific insights into the skills, knowledge and roles of each other – for example, Ns were found to be better at preparing intravenous medications and fluids, while Ms were better at planning care and performing interventional tasks such as needle decompression to relieve pneumothorax.

Discussion and Conclusions: A one-day interprofessional simulation course can lead to attitudinal change and specific interprofessional insights. The course will continue to be offered.

Take-home messages: All indications suggest that our interprofessional ACLS simulation course is highly valued by participants, allows identifiable cross-professional learning, and increases readiness to participate in interprofessional clinical practice.

7L4 (20479)
Classroom discourse in interprofessional education: the negotiation and co-construction of meanings among students from different health professionals
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Background: As interprofessional collaboration is considered key to the safe and high-quality patient-centered care, interprofessional education (IPE) is being increasingly adopted in undergraduate health professions education. Previous studies have contributed to conceptual analysis of IPE and evaluation of its learning outcomes. However, little is known from a classroom discourse perspective about the process by which students from different health professions collaboratively solve the patient’s problem and negotiate social roles in interprofessional team.

Summary of Work: Data collection was undertaken in a 2-day case-based seminar where students from 6 different professions learned together in small groups. Five multidisciplinary cohorts (n=29) participated in this research, and students’ collective knowledge construction of two randomly selected groups were video-recorded. Moreover, focus groups were conducted to examine students’ reflection on their engagement.

Summary of Results: This discourse analytical account of IPE segments provided a description of how meanings were co-constructed and negotiated among students from different disciplines. Through interactions, students could obtain a better understanding of interprofessional collaboration and their own health profession. However, they encountered some difficulties, such as using a common language for team communication and balancing one’s professional autonomy in a situation of collaborative teamwork.

Discussion and Conclusions: This discourse study of IPE shows that students co-constructed meanings in highly interactive discourse. Such understandings of their interactions would be beneficial for not only the novice learners of interprofessional collaboration but also tutors who scaffold the students’ learning.

Take-home messages: Through collaborative interactions between students from different disciplines, they can realize the importance of interprofessional practice and (re)negotiate identities as health professions in the team.
New joint geriatric block curriculum for third year medical and dental students to promote interprofessional education

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Nobuo Nara, Tokyo Medical and Dental University, Center for Education Research in Medicine and Dentistry, Tokyo, Japan

Background: In Japan, the average life expectancy is 79.9 years for men and 86.4 years for women, and elderly people represent over 25% of the population in 2013. Tokyo Medical and Dental University is the only national university specialized in medicine and dentistry and started a joint geriatric block as a part of new curriculum for third year medical and dental students in 2014 to promote interprofessional education to take care of this increasing elderly population.

Summary of Work: In this block, 102 medical and 47 dental students learned together in the same class for 2 weeks. It was a combination of lectures, case conferences, oral care training, aging game, off-campus institution visit and TBL. Lectures on “physical, mental and social change by aging” or “falls and fractures” were given after “aging game”. After experiencing “oral care training”, lectures about gerodontology and “dysphagia due to dental problems” were given by dental staff followed by medical lectures about dysphagia and aspiration pneumonia. “Off-campus institution visit” at 39 sites and workshop about the visit were performed in the second week. TBL finished the course.

Summary of Results: Averages of rating scale (1-5) by students were 3.8, 4.1 and 3.4 for the questions, whether they could attain the goal which they decided beforehand, whether they thought the block would be beneficial in the future, and overall rating, respectively.

Discussion and Conclusions: Although there are many issues to be solved, most students realized the importance of geriatrics and interprofessional collaboration after this joint geriatric block.

Take-home messages: The new joint geriatric block for medical and dental students seemed to be beneficial to promote interprofessional education to take care of the aging population.

The historical emergence of Interprofessional education: A critical discourse analysis

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Background: Interprofessional education (IPE) efforts are built on the principle that in order to work effectively together, health professionals must also learn together. Unfortunately, evidence for IPE’s effectiveness remains elusive. Instead, IPE has been rather uncritically accepted as the obvious and natural way to enable collaborative practice. In this project, we investigate historically how current conceptions of IPE have emerged.

Summary of Work: Using Foucauldian critical discourse analysis, we traced the historical, social, and political emergence of current IPE discourses in Canada. Our textual archive included 335 items, compiled through systematic searches of various literatures, reports, standards and websites. We also conducted key informant interviews. We examined the emergence of the language of IPE, its evolution, its justification, its advocates, and areas of resonance or tension exist between different rationales of IPE.

Summary of Results: Our study revealed tensions within and between various framings of IPE initiatives. Many IPE initiatives adopt instrumental approaches to evaluating relational processes. Discourses of IPE emphasize difference in turn as something to be erased and then to be championed: on one hand, health professionals must bring their diverse perspectives and expertise to bear on complex problems; on the other, they may become interchangeable, providing equivalent services and expertise.

Discussion and Conclusions: Multiple structural factors that shaped the evolution of IPE. These structural factors created different rationales and framings for IPE initiatives, which may account for the obvious discursive tensions that exist within the language of IPE. Despite these evident tensions, however, most IPE discourses are united in accepting the shared premise that IPE requires or creates a flattened hierarchy among health professionals. This premise ignores the realities of power relationships among professions and may prevent, rather than facilitate, meaningful interprofessional training and care.
Take-home messages: Historical analyses enhance our understandings of the tensions inherent in current educational formulations.

7L7 (20321)
A mixed methods approach to nursing and medicine students’ attitudes towards collaboration

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Background: Lack of physician-nurse collaboration in wound management may result in prolonged healing process for the patients (Apelqvist, 2012). In order to facilitate future professional collaboration interprofessional undergraduate learning activities has been proposed (Barr et al., 2005). The aim of this study is to investigate changes and characteristics of nursing and medical students’ attitudes towards each other’s future professions in relation to a joint learning activity.

Summary of Work: Medical (n=38) and nursing (n=30) students were jointly trained in compression therapy, Doppler assessment and wound case studies. Students were measured by the Jefferson scale on attitudes toward Physician-Nurse Collaboration (Hojat, et al., 1999) and compared to previously gathered baseline scores. Focus group interviews were held to deepen the knowledge about characteristics of attitudes towards both the others’ profession and towards collaboration.

Summary of Results: Attitudes towards the other profession increased after interprofessional learning activity. This kind of learning activities may increase future professional collaboration and thus improve wound management.

Discussion and Conclusions: Attitudes towards the other profession increased after interprofessional learning activity. This kind of learning activities may increase future professional collaboration and thus improve wound management.

Take-home messages: Efforts should be made to find strategies for structures facilitating collaboration in clinical practice. Joint learning activities are appreciated by the students. These may result in better collaboration in students future professionals and may ultimately benefit patient care with better wound healing.
7M SHORT COMMUNICATIONS: Junior Doctor as Teacher
Location: Amber 6, Level +2, MiCo

7M1 (19605)
Role models and role modeling: Perspectives from postgraduate trainees

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Background: Role modeling by staff physicians has been shown to be essential to the process of professional formation. However, the status of residents (postgraduate trainees) as role models has only been minimally explored. As such, this study seeks to understand residents’ perceptions of themselves as role models.

Summary of Work: Fourteen semi-structured interviews were carried out with senior-residents in Internal Medicine, General Surgery, and Pediatrics at McGill University using a locally developed interview guide. Interviews were audio-recorded and subsequently transcribed for analysis following principles of qualitative description.

Summary of Results: Three primary themes emerge from the data: (1) residents distinguish between the aspirational ideal of being a role model and the process of role modeling appropriate behaviors, and this distinction impacts their perceptions of themselves as role models; (2) residents perceive role modeling as being a good physician in the presence of students, and describe role modeling primarily in the context of clinical interactions; and (3) residents have a limited awareness of their impact on medical students as role models, and struggle to identify how students learn from role modeling.

Discussion and Conclusions: Although residents recognize the importance of role modeling in education, their understanding of themselves as role models, and their awareness of the impact of their role modeling, appears limited.

Take-home messages: These findings suggest the importance of incorporating the concept of ‘residents as role models’ into postgraduate training programs.

7M2 (21374)
A guide for direct observation of postgraduate learners teaching junior learners

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Background: Medical educators have increasing demands on their time. One example is being asked to have postgraduate and undergraduate learners simultaneously in clinical or classroom settings. Frequently, in such scenarios, postgraduate learners adopt teaching roles, passing on skills to undergraduate learners. Learners are often interested in engaging in these valuable teaching and learning experiences. The College of Family Physicians of Canada has been suggesting that teaching is an integral aspect of a postgraduate family medicine learner’s education. Because of these trends, it becomes important to support our faculty medical educators by developing resources to help them determine the quality of teaching provided by postgraduate learners.

Summary of Work: Using existing literature, a form (meant as a guide) was developed to help teachers determine the quality of teaching provided by postgraduate learners in a multilevel learning environment. This form was tested in a new educational program at the University of Alberta called Physicianship, one component of which is faculty observation of postgraduate learners teaching. Feedback on this form was sought from the faculty medical educators.

Summary of Results: Feedback received related to: the applicability of the components of the form in the assessment of postgraduate learners as teachers, amendments to the form that they (as users) would appreciate, and their opinion on the form’s use in other settings or for other peer coaching endeavours (e.g. among faculty members).

Discussion and Conclusions: The form itself was considered to be a helpful guide. Amendments to the form were suggested, which will be considered for improvement purposes. The faculty medical educators found there to be potential for this form in other settings, suggesting it to be a versatile instrument.

Take-home messages: This new and innovative tool has potential as a direct observation guide for medical educators.
7M3 (20227)
Assessing trainees' current satisfaction level with their roles as clinical teachers using Direct Questioning of Objectives (DQO) utility

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Background: Trainees in clinical postings desire a formal programme to foster teaching. The aim of this study was to assess trainees’ educational objectives and their current satisfaction using a utility score.

Summary of Work: All clinical trainees appointed to a teaching program at a University Teaching Hospital in 2011 and 2012 and all applicants in 2013 listed their educational objectives and scored their importance on a scale of 0 – 10 (a). Their current level of satisfaction was scored on a scale of 0 – 10 (b). DQO utility (0 – 1) was calculated as Σ(α x (b/10))/ Σa. Results expressed as mean and 95% confidence interval (CI). Means were compared using student t-test. DQO = 1 complete satisfaction and DQO=0, no satisfaction.

Summary of Results: 72 trainees, from most specialties, completed the DQO but only 69 (96%) were usable. 466 objectives were laid out by trainees with a median of 6 and a range of 2-13. The mean (CI) DQO utility score was 0.46 (0.43-0.49) with a range of 0.17 - 0.72. There was no correlation between the numbers of objectives and DQO utility score (r=-0.01).

Discussion and Conclusions: This study shows a poor satisfaction by trainees with their objectives as clinical teachers. This does not improve with seniority and cuts across all specialties. There is a need for formalised programmes to encourage good breed of clinical teachers grounded in pedagogy and a structured career pathway.

Take-home messages: An objective tool shows widespread dissatisfaction of trainees with their objectives as educationalists. Urgent programmes are needed to foster future clinical educationalists.

7M4 (20226)
The Associate Clinical Teaching Fellow (ACTF) programme – formal structure to pedagogy during clinical training

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Background: To foster teaching amongst junior clinicians, an Associate Clinical Teaching Fellow (ACTF) programme was established in 2011 for full-time trainees in a large teaching hospital.

Summary of Work: The program has run for three years with vigorous validated feedbacks on single teaching episodes and generic feedback on the program. Trainees commit to weekly two hours teaching of medical students. They are supported by monthly hour long educational forums and 2-day educational workshops (16 CPDs) per academic year run by three senior consultants and three university educationalists.

Summary of Results: Over three years, 156 trainees applied and 29 (19%) were appointed. There have been 11 (38%) surgical, 14 (48%) medical and 4 (14%) anaesthetic trainees; two (7%) foundation, 14 (48%) core and 13 (45%) specialist trainees; 14 (48%) females and 15 (52%) males. In the first two years, 208/239 (87%) students “strongly agreed” or “agreed” that ACTFs were essential to their learning and it was 180/259 (70%); p<0.05 for consultants. 156 (65%) and 68 (29%) graded ACTF teaching as “excellent” and “good”; and for consultants, it was 118 (46%) and 110 (43%) respectively, p<0.05. Using validated SFDP-26 for individual teaching episodes, overall, 153/203 (75%) considered ACTFs “excellent” and 37 (18%) “good” and for consultants, it was 174 (57%) and 105 (35%) respectively, p<0.05. All ACTFs “strongly agreed” or “agreed” that the educational days met their expectation and objectives. All learnt something that would change their practice.

Discussion and Conclusions: We describe an innovative, structured programme of developing future medical educational teachers. It is popular with both students and trainees. All aspects of it have had positive feedbacks. Wider implementation is recommended as part of structured career pathways for dedicated teachers.

Take-home messages: Organised education faculty amongst clinical trainees fosters educational achievement and supports a structure to developing as educationalists of the future.
**7M5 (21413)**
Pedagogical training for preceptors in Internship: Questioning of practice

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**Background:** We identified the possibility of intervening in the improvement of medical education through pedagogical training of preceptors of medical internship at the Federal University of Rio de Janeiro.

**Summary of Work:** Course on Pedagogical Training for Preceptors, developed in three modules (Education, Work and Health), totaling 180 hours, 60 of which in class and 120 using long distance tools, with Problem-based Method and active bibliographical research. It is guided in two central concerns, questioning traditional methods of teaching and the reality of contemporary healthcare. Activities in classroom are opportunities to discuss and formulate the problem, evaluate the course and training teaching and assessment methods; distance activities, with tutor-guided groups, allow for the development of both individual and collective work, information exchange, discussion of relevant themes within the program, and the exchange of results of active research of texts and practice experience.

**Summary of Results:** Participants showed to have acquired a critical view of the pedagogical contents and of health work, and their adhesion to innovative pedagogical practices identified during the training program and in their end of term papers, revealed the importance of the course for a better medical training, and the production of knowledge on the function of preceptors.

**Discussion and Conclusions:** Preceptors begin to bring in information on changes in their routine, such as: reorientation in the way the students debate; questioning on the assessment routines; intensification of criticism and questioning on the organization and routines in the Internship programs; new proposals for such work.

**Take-home messages:** Problem-based teaching causes important ruptures in medical training.

**7M6 (20411)**
Confidence in Uncertainty: Developing a Program of Support for Novice Teachers in Veterinary and Physician-Based Medicine

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**Karen Young**, University of Wisconsin School of Veterinary Medicine, Pathobiological Sciences, Madison, WI, United States

**Background:** The important role of medical trainees (interns and residents) as teachers is increasingly recognized in veterinary and physician-based medicine, but often is not supported through provision of training in adult learning or other preparatory methods. To develop appropriate teaching programs focused on effective clinical teaching, more understanding is needed about the support required for the trainee’s teaching role.

**Summary of Work:** Following discussion among representatives from education and paediatric and veterinary medicine, 28 incoming and outgoing paediatric and veterinary trainees were observed by an experienced external observer in multiple clinical teaching settings over 10 weeks. An interpretative approach was used to analyze the data and identify a series of dynamics around which to base a new program to support clinical teaching.

**Summary of Results:** Five dynamics were identified from the qualitative data: 1) Novice–Expert, recognizing transitions between roles; 2) Collaboration–Individuality, recognizing the power of peer learning; 3) Confidence–Uncertainty, regarding the confidence to act; 4) Role–Interdisciplinarity, recognizing the ability to maintain a discrete role, yet synthesize knowledge and cope with complexity; and 5) Socialisation–Identity, taking on different “selves”.

**Discussion and Conclusions:** Proposed actions to support trainee teaching in 5 dynamic areas include providing written guidelines and practical teaching tips, clear expectations, sustained support strategies including contact with an impartial educator, physical space to discuss teaching, continuous feedback, and peer observation across medical and veterinary services.

**Take-home messages:** Medical and veterinary trainees have similar teaching support needs and would benefit from a variety of strategies, enhancing the goal of “One Health”.

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**7M7 (21546)**

**Lectures Delivered by Junior Doctors Enhance Medical Students’ Confidence Managing Common Conditions: Results of a Prospective Analysis**

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**Background:** Junior doctors (JD) are increasingly recognised to be effective providers of practical small-group hospital-based medical education. There has, however, been little attention focussed on the capacity of JDs to deliver more conventional lecture-based teaching. If effective, lectures delivered by JDs could help better prepare medical students for clinical practice.

**Summary of Work:** Final year medical students at the University of Birmingham were invited to attend 30 weekly revision lectures delivered by JDs during the 2013-2014 academic year. Students’ responses to validated, pre- and post-lecture questionnaires which used five point scales to assess confidence and the relevance and quality of lectures were collected using TurningPoint® technology. Data were categorised as positive, neutral and negative with statistical significance assessed using non-parametric analysis.

**Summary of Results:** Preliminary results are for 9 lectures. Average attendance was 96±24 students. On pre-lecture questioning students felt more confident at diagnosis (58% positive) than management (31% positive). Student confidence in both areas increased significantly on post lecture questioning (89% and 81% positive responses respectively). Students felt that the teaching was relevant (92%), useful (96%) and well-delivered (93%).

**Discussion and Conclusions:** Lectures delivered by JDs are effective at improving senior medical students’ confidence managing common conditions and are well received. Additional work is required to determine whether similar results are found with more junior medical students.

**Take-home messages:** JDs can provide an effective source of lecture-based undergraduate medical education and offer an opportunity to enhance the diversity of university-based teaching staff.
7N1 (20215)
Well-being, attitudes toward counseling, and willingness to seek counseling in first year medical students

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Background: Medical school seems to set the foundation for physician well-being, and stress during medical school can challenge this foundation. This study explored well-being, attitudes toward counseling, willingness to seek counseling, and coping strategies of first-year medical students. Gender differences were also explored.

Summary of Work: One hundred and five first-year medical students (98% response rate; 46% female) were administered questionnaires on mental health, attitudes toward counseling, willingness to seek counseling, and coping strategies during the first week of their first year in medical school.

Summary of Results: Female medical students were less willing to seek counseling and had more negative attitudes toward counseling compared to male medical students. Most students indicated that they chose not to seek counseling because they did not feel a need for it. Three students acknowledged stigma prevented them from seeking counseling. Negative coping strategies (denial, self-blame and substance use) were negatively associated with well-being while healthy coping strategies did not correlate with well-being.

Discussion and Conclusions: Medical schools should continue efforts to make counseling accessible. Additional exploration for negative attitudes of female students toward counseling merits further investigation, as this finding is counter to previous research. Detrimental use of unhealthy coping strategies can be addressed in classes, clubs, and by advisors and mentors.

Take-home messages: Attitudes toward counseling and willingness to seek counseling merit attention, particularly for female medical students. Fostering a climate which communicates the value of counseling may cultivate more positive attitudes about and increased willingness to seek counseling, especially for female medical students.

7N2 (22699)
What about stress and quality of life for medical students?

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Background: Stress is common in medical students. Student quality of life is often reported to be weak.

Summary of Work: Among other assessments, we evaluated the place of well-being to predict success in their studies for students from two medical schools: Pierre-and-Marie-Curie-medical-school /UPMC and Angers-medical-school/AMS. Ongoing studies integrated another medical school and a business school. Evaluations were made with validated questionnaires like the state-trait-anxiety-questionnaire-inventory:STAI, and with visual analog scales (VAS:0/100mm) which have been developed with our students.

Summary of Results: Preliminary results for a sample of third- and sixth-year medical students concerned 541 UPMC students and 36 sixth-year AMS students. Although no differences was found between students of the two medical schools (AMS: 37.5mm; sd:10.1 /UPMC:41.1mm; sd:10.2), anxiety assessed by the STAI-state is significantly higher in the older promotion (UPMC-sixth-year:41.1mm; sd:10.2 /UPMC-third-year 36.4mm; sd:9.7; p*≤0.05). The VAS “Medical studies are a stress factor for you” emphasizes a less stressful image of medical studies for AMS students (AMS: 31.1mm; sd:24.9 /UPMC: 23.9mm; sd:22.0; p*≤0.05).

VAS about “Satisfaction with studies”, “Satisfaction about student life”, “Life compared to other young people” confirmed that some medical students complained about their student life. Dissatisfaction is significantly more important for some students of the medical school with largest classrooms (UPMC), confirming our hypotheses about involvement of factors like environment and size of medical school.

Discussion and Conclusions: Our preliminary results confirmed the necessity to develop stress and well-being management interventions for medical student, regardless of size and medical school environment.
Take-home messages: Medical studies are a stress factor for students.

7N3 (22905)
Does Mood Matter? Mental Health Perceptions and the Impact of a Mental Health Awareness Programme in University Medical Students

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Background: Our study ran alongside QUB Mind Your Mood, a student led Mental Health Awareness programme. 1022 students engaged with the programme, with 628 students attending a workshop in its first year.

Summary of Work: Our study aimed to:
- Explore the student’s perception of Mental Health
- Gauge if participation in an Evidence Based Mental Health Education programme significantly changes students’ attitudes to Mental Health
- Investigate the impact that course of study and lifestyle have on students’ Mental Health.

Students were emailed the voluntary questionnaires two weeks before and after the workshop. The questionnaires assessed a range of mental health perceptions at both time points using a PHQ-9 Health Assessment. A Clinical Governance Team approved the questionnaires, which were designed using a Likert scale and open text-box questions. Data was analysed using descriptive statistics and thematic analysis.

Summary of Results:
Medical students represented 59% (251/424) of baseline respondents and 54% (122/227) of the follow up questionnaire. 8.5% of the medical students identified as living with a Mental Health condition. 64% knew someone living with a Mental Health condition. Students who described their ability to recognise and manage the signs and symptoms of Mental Health conditions as “good” or “very good” increased by 34% after the programme (p<0.001). Despite these improvements, 66% of students still worried about their Mental Health. “Embarrassment” was seen as a barrier to seeking help.

Discussion and Conclusions: Medical students often struggle with their Mental Health at University. Our study demonstrates that participation in Mental Health Education programmes may prove beneficial to medical students early in their undergraduate career.

7N4 (22440)
If They’re Stressed, They’re Not Burnt-out: Chronic Stress, Burnout and Coping Styles in Medical Students

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Background: Chronic stress and burnout are viewed as related responses to the strains of medical training. However, research suggests that chronic stress and burnout may represent independent responses to job demands, with different antecedents and mechanisms. This study examined the relationship between burnout and chronic stress in medical students, and examined the relationship between these two measures and predictor variables of coping styles and social support.

Summary of Work: A total of 201 3rd and 4th year medical students from an urban Canadian medical school completed the Perceived Stress Scale (PSS), the Maslach Burnout Inventory (MBI), the Coping Inventory for Stressful Situations (CISS), and the Social Provisions Scale (SPS). The relationships between scores on these instruments were determined using Pearson correlation coefficients.

Summary of Results: Stress levels were negatively correlated with burnout scores (p< .01). Task-oriented coping was associated with greater burnout scores (all p values <.01).

Discussion and Conclusions: Chronic stress and burnout may represent qualitatively different responses to the demands of medical training. Students who report symptoms of one are less likely to report symptoms of the other. Furthermore, burnout and chronic stress symptoms are associated with different coping styles and perceptions of social support.

Take-home messages: Chronic stress and burnout appear to be divergent responses to the strains of medical school. Further research into the antecedents and mechanisms of stress and burnout is required to inform institutional initiatives aimed at enhancing medical student wellness.
7N5 (22408)
The prevalence of smoking and its relationship to depressive symptoms among health science students of a medical university

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Background: It has been shown in several international studies that the prevalence rate of smoking among medical students reflects the rate of smoking in the general population of the same country. The group of subjects in this study represent a section of the population, which is expected to be aware of most of the harmful effects of smoking. The aim of the study was to estimate the prevalence of smoking among health sciences students of the largest university of Saudi Arabia in Riyadh city and its relationship to the symptoms of depression.

Summary of Work: This was a descriptive-analytic, cross-sectional study, which was conducted among the health sciences students. The smoking rate of the students and its relationship to depressive symptoms was estimated by using the 21-item Beck Depression Inventory.

Summary of Results: The rate of current smokers was 6.9% and that of sometime smokers was 5.1%. The rate of those who smoked ever was 22.5%. The mean BDI score of depressive symptoms was 11.67 among smokers, 11.34% among sometime smokers and 14.46 among non-smokers.

Discussion and Conclusions: The finding of higher score for depressive symptoms among non-smokers is rather surprising. However, these findings could be due to the confounding factor of lower rate of smoking among female students, who were found to have significantly higher score of depression in this study.

Take-home messages: The significant rate of smoking among health sciences students is a cause for concern, considering that this group is expected to be in the front-line for prevention from smoking.

7N6 (22008)
The prevalence and correlates of depressive symptoms from an Arabian setting: A wake up call

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Background: It has been shown that medical students have a higher rate of depressive symptoms than the general population and age- and sex-matched peers. The study population represents a very expensive sector of the community. This study aimed to estimate the prevalence of depressive symptoms among the medical students of a large school following a traditional curriculum and its relation to personal background variables.

Summary of Work: A descriptive-analytic, cross-sectional study was conducted in a medical school in Riyadh, Saudi Arabia. The medical students were screened for depressive symptoms using the 21-item Beck Depression Inventory.

Summary of Results: A high prevalence of depressive symptoms (48.2%) was found, it was either mild (21%), moderate (17%), or severe (11%). The presence and severity of depressive symptoms had a statistically significant association with early academic years (P=0.000), female gender (P=0.002) and students with perceptions of lower income.

Discussion and Conclusions: The high prevalence of depressive symptoms is an alarming sign and calls for remedial action. Further clarification qualitative studies that explore in-depth the negative elements in the curriculum and EE, contributing to depression will be helpful to unravel the nature of the association. It would be interesting too to observe the association between the prevalence of depressive symptoms in different schools and other independent variables such as the curriculum type or EE.

Take-home messages: The rate of depressive symptoms is alarming and calls for remedial action. A more in-depth qualitative and comparative studies are needed to unravel the reversible factors leading to depression.
**70 SHORT COMMUNICATIONS: eLearning in Action**

**Location:** Amber 8, Level +2, MiCo

**701 (19249)**

**Employing web-based technologies to improve online participation in a blended learning MSc programme**

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**Background:** The MSc Diabetes Care and Education is a part-time blended learning programme run by the School of Medicine, University of Dundee for healthcare professionals working in Kuwait. Taught sessions occur in week 2 of the module and week 1 is used to prepare students through a variety of standard on-line activities including: discussion forums, quizzes, suggested reading, video. Many students were treating week 1 activities as optional and consequently were not well prepared to maximise the opportunities of week 2 with module leads.

**Summary of Work:** The team have introduced interactive web-technologies, which have elements of play and group work, to improve participation.

- Online noticeboards to develop ice-breaking activities
- 3D Virtual world platform to run pre-class assignments in the form of group games
- Web-based digital storytelling software to encourage collaborative learning.

We have gathered feedback through student interviews to ascertain their reactions to the introduction of gamification and virtual world as pre-class assignments in support of the taught sessions.

**Summary of Results:** Feedback from students and module leads, combined with activity logs of the LMS suggest that students will participate more in on-line activities that include group work and peer feedback and appear to have an element of fun or play, but that this does not necessarily translate into them also completing other tasks.

**Discussion and Conclusions:** Engaging student participation on distance and blended learning programmes is always a challenge. Learning tasks which involve group work and draw on gaming and social-media type interactions with their peers can help.

**Take-home messages:** Web technologies fostering group learning, can improve students’ online participation and enhance preparation for face-to-face sessions. Web-based technologies, in particular virtual worlds, can be used to engage learners, transforming pre-reading tasks into exciting challenges.

**702 (20135)**

**Technology-enhanced lecturing: How students perceive the move from the traditional approach to a blended learning format**

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**Background:** The didactic lecture continues to be a commonly used instructional method despite the criticism of allowing students to assume a passive role. With new technology, this traditional approach may be redefined by combining it with online activities. The aim of this research is to investigate how this can be done to enhance student learning.

**Summary of Work:** A 30-hour anatomy lecture was redesigned into a blended learning format of 6 sequential organ-based modules. 23 hours were allocated to f2f instruction, 7 hours to online activities, including preparatory fill-in-the-blank assignments, clinically related videos, and mc-quizzes for each module. To investigate students’ study behaviour and perception of learning, 3 focus-groups were conducted and thematically analyzed.

**Summary of Results:** Students reported that online activities “pushed them towards a first engagement with the material”, videos “generated curiosity”, quizzes “made them think”. The familiarity with the basics liberated them from the “worry of missing something important” during f2f instruction, facilitating active participation and “deeper understanding”. Self-study before the examination was described as “easier and faster”, participants stated that “contents would remain for a longer time in memory”.

**Discussion and Conclusions:** The findings indicate that preparatory online work can prevent students from being passive recipients of information during lectures. Students engaged more actively, more deeply, and over a longer period of time with the course material, thus indicating enhanced learning on the part of the students.

**Take-home messages:** Lectures can tap their full potential when combined with preparatory online activities.
703 (21992)
Implementation of e-learning modules in teaching palliative care

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Background: In the Leiden University Medical Center the Palliative Consultation Team observed that residents lacked necessary basic expertise in palliative care. Because of the multidisciplinary approach in palliative care it was felt necessary to develop a training programme in which different competencies are addressed. We developed a programme that integrates the CanMEDS roles medical expert, communicator, collaborator and manager.

Summary of Work: Our goal was to develop a training programme with minimal training time and optimal transfer to the clinical practice. The programme consists of three courses in which individual e-learning modules precede face-to-face education and practical assignments. Because every resident is obliged to complete the e-learning module beforehand, the level of knowledge and expertise at the start of the face-to-face meeting is similar for each attendant. Face-to-face training time can therefore be utilised more effectively to train skills and to discuss problems.

Summary of Results: We evaluated the effectiveness of the e-learning modules in a pilot study during the palliative course. The e-learning modules contribute to an equivalent level of knowledge and good focus on palliative care at the start of the face-to-face training. Flexibility in online learning in both time and place was clearly recognised by the participants.

Discussion and Conclusions: E-learning shortly before a training in palliative care skills is an effective method to obtain the same level of basic knowledge/expertise. Face-to-face training time can therefore be utilised more effectively.

704 (21983)
It’s all in the game: Effectiveness of a serious game for residents’ emergency skills training

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Presenter: Mary Dankbaar*, Erasmus University Medical Center, Desiderius School, Rotterdam, Netherlands

Background: Training in emergency care skills is critical for patient safety and an essential part of medical education. Increasing demands on competences of doctors necessitate cost-effective training. We developed a serious game, where residents can stabilize patients in a virtual emergency department. Serious games are expected to facilitate active learning, but there is a need for more effectiveness research. Research question: does the serious game lead to a higher emergency skill level with residents, when used before face-to-face (f2f)-training?

Summary of Work: In a quasi-experimental design with residents preparing for a rotation in the emergency department, a control group (n=71) received study materials and did a 2-weeks f2f-training; the intervention group (n=142) received also the abcdeSIM before the same f2f-training. Emergency skills were assessed at the beginning (in a subset of residents) and at the end of the 2 weeks f2f-training.

Summary of Results: After the game, before f2f-training, the intervention group performed better on clinical competency than the control group (7-point scale; M=4.3 vs. 3.5, p<.05). Scores on communication and overall rating scale were not different. At the end of the 2 weeks f2f-training, both groups performed the same. Evaluations of the game were positive.

Discussion and Conclusions: After using a serious game, residents’ emergency skills were improved substantially. The fact that there no longer is a difference in skills between groups after training, may be explained by the large difference in learning time between the game and f2f-training. More research is needed to know which game characteristics facilitate the learning effect.

Take-home messages: A serious game can improve emergency skills with residents in an attractive way.
Using e-learning to deliver core concepts in an integrated undergraduate pathology curriculum

Norman J Carr*, University of Southampton, Faculty of Medicine, Southampton, United Kingdom
Sunhea Choi, University of Southampton, Faculty of Medicine, Southampton, United Kingdom
Marcus P Parry, University of Southampton, Faculty of Medicine, Southampton, United Kingdom

Background: E-learning forms an important part of many curricula, but is often used as an adjunct to other teaching methods such as lectures. However, well-designed e-learning can offer advantages over traditional methods for the teaching of core concepts by promoting active engagement with the material presented.

Summary of Work: At the University of Southampton, a new pathology curriculum was developed in which 46 e-learning packages, called “Pathology interactive Practicals (PiPs)”, deliver the core concepts. Lectures and tutorials are linked to PiPs and build on them. This curriculum design is novel, because the PiPs are core and the other teaching modalities are supplementary. PiPs are interactive and include formative questions with immediate feedback. They are visually rich, consistent with the principle that pictures enhance learning regardless of individual preferred learning style. Learning is structured, each PiP taking 20 to 30 minutes to complete.

Summary of Results: Since introduction in 2011, PiPs have been used by many students from all years. In 2012-13 there were 35,812 hits by 703 students, including 177 clinical students. Feedback is positive, and PiPs were rated as good or very good by 76% of students. Many students have asked for this approach to be extended to other subjects. Students value the ability to work through difficult concepts at their own pace and to return to PiPs later for revision.

Discussion and Conclusions: This curriculum design integrates different teaching modalities using the strengths of each.

Take-home messages: E-learning can be highly effective as the principal means of delivering core concepts.

Development and Implementation of Virtual Patient Cases to Enhance Medical Student Understanding of the Social Determinants of Health

Anita Parhar, University of British Columbia, Faculty of Medicine, Vancouver, Canada
Joseph Anthony, University of British Columbia, Faculty of Medicine, Vancouver, Canada
Leah Walker, University of British Columbia, Faculty of Medicine, Vancouver, Canada
Susan Murphy, University of British Columbia, Faculty of Medicine, Vancouver, Canada
Michael Lee, University of British Columbia, Faculty of Medicine, Vancouver, Canada
Gurdeep Parhar*, University of British Columbia, Faculty of Medicine, Vancouver, Canada

Background: Evidence suggests that experiential learning opportunities involving underserved populations are needed to expose students to issues of social determinants of health. Due to increased numbers of students enrolled in health professional programs, distributed across multiple sites, providing adequate training in social determinants of health has become increasingly challenging. Virtual patient (VP) cases are already core components of learning in many health professional programs, however there were no VP cases addressing the social determinants of health in the medical program at UBC.

Summary of Work: A multi-disciplinary team developed six VP case scenarios, each flexibly designed to meet the needs of students in Medicine, Physical Therapy, Occupational Sciences, Dentistry, Pharmacy, School of Public and Population Health and Nursing. This project used a web-based interactive simulated learning environment to teach students how to identify and address the determinants of health of their patients.

Summary of Results: The virtual patient cases were implemented into the 4th year of the MD curriculum at UBC. Through extensive and detailed evaluation it was found that VP cases
1) presented opportunities to better understand the social, cultural and geographical contexts of the most underserved populations;
2) challenged learners to consider the social determinants of health in planning interviews, physical examinations, investigations and treatment;
3) allowed the learners to explore their role as patient advocate to improve the social determinants of health for vulnerable populations.

Discussion and Conclusions: By offering a simulated learning environment, VP cases allow medical students to experience challenges the “patient” faces and to consider avenues to help improve health outcomes for that individual, and to learn from the consequences of their choices.

Take-home messages: Given the capacity issues of clinical learning in an ever expanding number of medical students, pursuing safe and culturally
appropriate learning opportunities to better experience and understand social determinants of health can be undertaken with new modalities such as virtual patient cases.
**7P SHORT COMMUNICATIONS:**

**Humanities in the Curriculum**

**Location:** Theatre Room 13, Level 0, MiCo

**7P1 (22695)**

The benefits of the medical humanities in helping students to tolerate ambiguity and manage uncertainty in complex clinical scenarios: A multi-media presentation

*Sam Regan de Bere*, University of Plymouth, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom

*Richard Ayres*, University of Plymouth, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom

*Sally Hanks*, University of Plymouth, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom

*Suzanne Nunn*, University of Plymouth, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom

*Teresia Compton*

**Background:**

Managing uncertainty requires clinicians to accept that while some areas of their work may be outside of their intellectual or scientific understanding they must nonetheless carry them out to the best of their abilities and judgement. Uncertainties are typically rooted in: i) the inherent gaps in scientific and social knowledge about health, illness and wellbeing, or from the existence of contested explanations; ii) the impossibility of individuals learning the vast (and burgeoning) body of knowledge that underpins medicine, and; iii) distinguishing between the limitations of medicine and the limitations of self-knowledge.

**Summary of Work:**

Our core medical curriculum has drawn on the perspectives, critiques and skills-sets of various humanities disciplines (art, theatre, literary writing, history, philosophy).

**Summary of Results:**

The presentation includes footage of students learning in humanities sessions, as well as commentaries from them, and the humanities practitioners, clinicians, academics, patients and external partners who come together to facilitate the work of the medical humanities theme.

**Discussion and Conclusions:**

Teaching management of uncertainty in complex contexts is a challenge as it requires maturity and sophistication in students who have not yet experienced the demands of clinical work. Engagement with humanities helps students to develop capabilities for dealing with complexity, ambiguity and uncertainty.

**Take-home messages:**

Medical education can learn from humanities disciplines to facilitate management of uncertainty.

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**7P2 (20455)**

Evaluation of the Development of Medical Humanities Curriculum in Taiwan

*Shih-Chieh Liao*, China Medical University, Medical School, Taichung, Taiwan

*Yu-Hwa Chu*, Taiwan Medical Accreditation Council, Taiwan Medical Accreditation Council, Taipei, Taiwan

*Walter Chen*, China Medical University, Medical School, Taichung, Taiwan

*Hsin-Yuan Fang*, China Medical University, Thoracic Surgery, Taichung, Taiwan

**Background:**

To improve the empathy, communication and medical humanity capabilities of the future physicians in Taiwan, the administration and educators of medical schools concerned conducted a medical education reform 20 years ago, of which medical humanity education was especially emphasized.

**Summary of Work:**

This study analyzes the 31 results of medical school accreditation in relation to the recommendations of medical humanity curriculum from 2007 to 2012 offered by 186 Taiwan Medical Accreditation Council members (171 Taiwanese, 15 foreign).

**Summary of Results:**

In the accreditation results, 112 recommendations about medical humanity were divided into 3 portions: curriculum (59), such as: bad course design and interconnectedness (20), course evaluation (10), inconvenient or scant classes (10), ill-defined courses (6), crowding out effect (6), early contact with patients (4), and others (3); teachers (46), such as: shortage of teachers (17), insufficient evaluations and upgrades (15), integration of basic and clinical teachers (8), excessive administrative pressure (3), and teaching methods (3); and students (7), such as: lack of motivation (5) and others (2). The weaknesses of medical humanities education in Taiwan were grouped into 3 domains: 1) irrelevant content, 2) untrustworthy teaching, and 3) improper placement.

**Discussion and Conclusions:**

After 20 years’ reform, medical humanity education in Taiwan has progressed, but sustained effort is still required on the part of curriculum planning and design, faculty promotion and research, and the increase of student motivation.

**Take-home messages:**

There are four major improvements for Taiwanese Medical humanities education: specifying educational Goals, integration of basic and clinical teachers, protecting faculty promotion, and the evaluation of medical humanities education.
**7P3 (19987)**

**Ed's Story: Verbatim theatre as a teaching tool for medical students incorporated into undergraduate medical curriculum - live performance vs DVD**

*Paul D'Alessandro*, University of British Columbia, General Surgery, Vancouver, Canada  
*Gerri Frager*, Dalhousie University, Paediatric Palliative Care, Halifax, Canada  

**Background**: Medical humanities have been used to foster inter-professional learning and reflection on difficult issues, and develop non-technical competencies. Ideal contexts for such initiatives are difficult to determine. Ed’s Story: the Dragon Chronicles is a verbatim play based on the journal of a 16 year-old with terminal cancer, and 25 interviews with his family, friends, and healthcare team. After cross-country performances, live viewing and DVD viewing were incorporated into core undergraduate curriculum at our institution. Facilitated post-performance discussions were held.  

**Summary of Work**: This study aimed to collect responses of trainees who viewed Ed’s Story, and compare trainee preferences between extra-curricular and mandatory viewing, and live performance and DVD. One-hundred sixty-five (n=165) trainees completed confidential, online surveys after viewing. Forty-six trainees from 5 institutions completed surveys after extra-curricular live viewing (60.9% female, age 26.2±3.2). Sixty second year trainees completed surveys after mandatory live viewing (68.3% female, age 26.0±2.9, response rate 71.4%). Fifty-nine second year trainees completed surveys after mandatory DVD viewing (62.7% female, age 27.3±4.4, response rate 62.8%).  

**Summary of Results**: A majority agreed the play was a good learning experience and should be experienced by all medical students. Trainees highlighted the play’s realism; and insights gained into patient experiences and inter-professional learning. They preferred the play to other modalities. When trainees viewed the play as part of mandatory curriculum, especially shown live, a greater percentage agreed that viewing should be incorporated into curriculum (p<0.05).  

**Discussion and Conclusions**: Medical trainees responded positively to this verbatim play.  

**Take-home messages**: Live performance or higher quality DVD in mandatory curriculum may be most preferred.

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**7P4 (21383)**

**Medical Ethics Class can be Enjoyable: Using a Stage Play Project as a Tool**

*Wisree Wayurakul*, Thammasat University, Family Medicine, Bangkok, Thailand  

**Background**: Medical ethics have been taught in most medical schools worldwide with variety of teaching techniques. A stage play project was used in ‘Humanistic Medicine 2’ course offered for 3rd year medical students at Thammasat University to help them understand basic principles of medical ethics.  

**Summary of Work**: A descriptive study focused on students’ attitudes towards a stage play project. After all performance finished, 173 students were asked to complete two sets of questionnaire which were a 6-question quiz testing their understanding of ethical issues and an open-ended questionnaire regarding students’ attitudes. The open-ended questionnaires were analyzed anonymously by content analysis technique.  

**Summary of Results**: The response rate was 94.22% (163 of 173). A mean score of a knowledge quiz was 7.38 from a perfect score of 10. Most of students considered the usefulness of stage play project was able to translate an abstract idea of ethical issues to a concrete example. Overall, students rated this project 8.46 of 10. Other than knowledge, some advantages such as good team-working, joyful class beyond expected and boosting creativity were noted. Only 4 of 163 (2.45%) suggested not to continue the project due to too time-consuming. The most important obstacle was inappropriate timing: too close to the comprehensive examination and to the national license test.  

**Discussion and Conclusions**: All students reported the stage play project help them understand ethical issues much more than lecture alone.  

**Take-home messages**: Good class atmosphere could attract students to the lessons, thus enhance their understanding.
**7P5 (19739)**

A method of teaching primary care using arts and humanities

Francesco Carelli, Family Medicine, Milan, Italy

**Presenter:** John Spicer*, London School of GP, London, United Kingdom

**Background:** Teaching and learning for primary care should reflect the essential qualities of the discipline: generalist clinical practice, continuing relationships with patients and their families, and the uncertainty and undifferentiated nature of the patients served. Medical humanities are defined as an interdisciplinary, and increasingly international endeavor that draws on the creative and intellectual strengths of diverse disciplines in pursuit of medical educational goals.

**Summary of Work:** The authors have used all modalities of medical humanities in their work as clinician-teachers over the last number of years; and will present elements of that work in a summary and stimulating manner. For example, use of literature to illustrate narrative, of visual art to assist observation and deduction, and philosophy to stimulate reasoning.

**Summary of Results:** The authors draw on their experience in 2 countries [UK and Italy] and present summarised methods of using the medical humanities to deliver and assess primary care teaching.

**Discussion and Conclusions:** Recommendations for the use of arts and humanities as a means of teaching about, and within, primary care will be made.

**Take-home messages:** The medical humanities should form a consistent part of curricula for postgraduate and undergraduate medicine and offer a way of articulating the key elements of primary care, as described above, in a powerful and adaptive manner.

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**7P6 (20250)**

How could the arts and humanities enhance undergraduate medical curricula?

Emma Ridings*, University of St Andrews, Fife, Scotland, United Kingdom

**Background:** Arts and humanities form part of many modern medical curricula although the degree to which they are included in the program of study varies. Core attributes have been identified as desirable for medical graduates, including an enquiring mind, core knowledge, critical appraisal and the ability to communicate. It is clear how the curriculum allows for the acquisition of core knowledge however it is indistinct how the other attributes are nurtured.

**Summary of Work:** The objective was to explore the ways in which the arts and humanities could benefit medical education with regards to the development of these attributes.

**Summary of Results:** It was found that creative arts could lend themselves to medical education but there was on-going debate about whether they should occupy space in an already crowded curriculum. Literature, theatre, film and visual art mediums were described as providing a means to display patients' experiences. Thus student engagement with these arts developed a deeper understanding of humanity hence improving their ability to communicate and empathise. Alternative projects, incorporating opera for example, were identified as nurturing curiosity and provoking thought, as such developing an enquiring mind.

**Discussion and Conclusions:** Whilst certain branches of art exist in the curriculum they could be further employed to explore wider aspects of patients' experiences.

**Take-home messages:** The arts and humanities possess immense potential to develop the fundamental characteristics of future doctors. Consequently medical students could benefit significantly from the inclusion of arts and humanities in their medical curriculum however more extensive programmes need to be implemented in order to truly assess their effectiveness.
**7Q  CONFERENCE WORKSHOP:** Training a Realistic Role Portrayal in less than 30 minutes (22886)

*Location: Workshop Room 1, Level 0, MiCo*

**Gayle Gliva-McConvey**, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, United States

**Lorraine Lyman**, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, United States

**Alba Woolard**, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, United States

**Temple West**, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, United States

**Amelia Wallace**, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, United States

**Background:** The quality of role portrayal by simulated patients, simulated family members, confederates, team members (or any simulated role), has immediate and specific impact on the fidelity of the simulation and the outcome of the experience for the learners. If a goal in simulation is to achieve the highest level of realism to allow the learner to carry out the required tasks and to be fully engaged, all participants in the simulation must be properly prepared or trained. It may be challenging to train those who are assisting in the simulation as patients, family members, confederates or team members when there are time constraints. There is an established methodology for training Standardized Patients that has proven to produce very realistic and standardized portrayals. This pre-simulation training which is usually days before a simulation is thorough and has proven efficacy. However, in some situations, it is necessary to recruit and prepare people for a simulation quickly and shortly before the simulation starts. This workshop condenses the well-established SP Methodology and training techniques into a thirty minute training system for situations that require realistic portrayals in pain and highly emotional affects such as panic, anxiety and grief. Using SP techniques and standardized scales, a person can be trained to realistically and repetitively portray the role needed to enhance and complete the simulation.

**Intended Outcomes:** Participants will have the skills to train realistic portrayals for any specific role for the healthcare simulation in less than 30 minutes.

**Structure:** Combined short didactics, assessing recorded demonstrations and small group practice.

**Who should attend:** Anyone responsible for preparing simulated role portrayals for healthcare simulations.

**Level:** Intermediate

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**7R  CONFERENCE WORKSHOP:** Four ways to enhance learning on international electives: A student-faculty run workshop (20569)

*Location: Workshop Room 2, Level 0, MiCo*

**Paula Baraitser**, King’s College London, Centre for Global Health, London, United Kingdom

**Molly Fyfe**, King’s College London, Department of Education, London, United Kingdom

**Janagan Allagaraiyah**, King’s College London, Centre for Global Health, London, United Kingdom

**Felicity Knights**, King’s College London, School of Medicine, London, United Kingdom

**Anika Rahim**, King’s College London, School of Medicine, London, United Kingdom

**Background:** International health electives (IHEs) are commonplace and offer important opportunities for student-directed learning. Electives are also highly variable educational experiences and thus ensuring that they are high-quality experiences is problematic. The literature identifies four common challenges on IHEs: ethics; opportunities for reflection; working beyond clinical competence; burdens on host communities. Based around on-going action-research, this workshop will introduce multiple strategies to address these issues and enhance learning through educational support delivered before, during and after IHEs.

**Intended Outcomes:** The participants will gain: 1) a theoretical understanding of experiential learning on electives; 2) strategies for developing peer-led workshops on ethics; 3) strategies for using interactive e-learning during electives; 4) practical guidelines for developing effective learning contracts; and 5) practical guidelines to facilitate socially accountable electives. The facilitators will gain feedback from a broad audience to further inform their work.

**Structure:** This workshop is jointly-led by students and faculty. The workshop first presents a theoretical and contextual background on learning during electives, including common barriers to effective learning (20 minutes). Participants then circulate through four stations (15 minutes each) where practical approaches to enhancing learning are interactively demonstrated. Stations cover: developing peer-led workshops around ethical challenges; online support for critical reflection during electives; developing effective clinical learning contracts to prepare and protect students during clinical placements; preparation to minimize burdens on host institutions. The workshop concludes with discussion and feedback from participants (10 minutes).

**Who should attend:** Those with interests in: electives; ethics/ professionalism; global health; peer learning; e-learning.

**Level:** Introductory
7S  CONFERENCE WORKSHOP:  
Reasonable Adjustments in Assessment – When and How They Should be Used?  
(22891)  
Location:  Workshop Room 3, Level 0, MiCo  
Drew Gilliland, Queen's University Belfast, Centre for Medical Education, Belfast, United Kingdom  
Gerry Gormley, Queen's University Belfast, Centre for Medical Education, Belfast, United Kingdom  
Mairead Boohan*, Queen's University Belfast, Centre for Medical Education, Belfast, United Kingdom  

Background:  Medical schools around the world are required to comply with disability legislation when implementing assessments. In the UK the GMC have provided examples of reasonable adjustments that may be employed to accommodate students taking assessments. These guidelines can relate to the documentation provided, adjustments through allowances, for example, extra time to complete the assessment. Other adjustments include the provision of specialist equipment e.g. computers or special lighting. Alternative assessment venues may also be used.  

Intended Outcomes:  
• Gather examples from an international audience on current practice  
• Explore the adjustments that should be made for different disabilities and levels of disability  
• Consider if adjustments can impact on ability to practice in future career  

Structure:  Discussion of examples from Queen’s University Belfast of adjustments made during the past five years. Group work using scenarios to highlight differences in approach between medical schools.  
Who should attend:  Those involved in undergraduate assessment.  
Level:  Intermediate

7T  CONFERENCE WORKSHOP:  
Advanced qualitative approaches: Using Institutional Ethnography in medical education research (18524)  
Location:  Suite 9, Level Mezzanine, MiCo  
Fiona Webster*, University of Toronto, Department of Family and Community Medicine, Toronto, Canada  
Nancy McNaughton*, University of Toronto, Standardized Patient Program, Toronto, Canada  
Tina Martimianakis*, University of Toronto, Sick Children’s Hospital, Toronto, Canada  
Robert Paul*, University of Toronto, Institute of Health Policy Management and Evaluation, Toronto, Canada  
Stella Ng, University of Toronto, Centre for Faculty Development, Faculty of Medicine, Toronto, Canada  
Ayelet Kuper, University of Toronto, Wilson Centre for Research in Education, Toronto, Canada  

Background:  Institutional Ethnography (IE) is a sociological approach that allows for an examination of the complex social relations organizing people’s experiences of their everyday working lives. IE makes use of the same methods as many other qualitative approaches – interviewing, focus groups, textual and discourse analysis – but differs quite significantly in its focus and process of analysis. IE is theoretically complex but grounded in praxis, a fusion of theory and practice for social change. Therefore IE may present an opportunity for interested members of the medical education community to conduct scholarly inquiry grounded in the practical realities of everyday work, producing meaningful opportunities for change.  

Intended Outcomes:  Drawing from the instructors’ research experiences, this workshop will introduce the theoretical concepts of: 1) standpoint; 2) the role of texts; and 3) institutional capture as they relate to the practices of data collection and analysis in IE. By the end of this workshop attendees should be able to describe the fundamental concepts underlying institutional ethnography in order to consider it as an approach to inquiry in medical education.  

Structure:  This interactive workshop will be taught by a panel of 3 instructors who will each introduce different aspects of IE. The presentations will engage participants in meaningful exchange that is grounded in concrete examples of research.  
Who should attend:  Clinicians and researchers who conduct, or are interested in conducting, critical qualitative medical education research and would like to explore new methodologies. This approach can be applied to any content area.  
Level:  Intermediate
7U CONFERENCE WORKSHOP: Accreditation: across the continuum, across the world (21676)
Location: Suite 8, Level Mezzanine, MiCo

Jennifer Gordon*, Royal College of Physicians and Surgeons of Canada, Office of Specialty Education, Ottawa, Canada
Sarah Taber*, Royal College of Physicians and Surgeons of Canada, Office of Specialty Education, Ottawa, Canada
Jason Frank*, Royal College of Physicians and Surgeons of Canada, Office of Specialty Education, Ottawa, Canada
Marta van Zanten*, Foundation for Advancement of International Medical Education and Research (FAIMER), Office of Specialty Education, Philadelphia, United States

Background: Accreditation is of primary importance to many medical education systems, ensuring programs are teaching (and assessing) learners consistent with applicable standards. Most systems of accreditation emphasize similar standards, contain similar process elements, and face similar challenges and debates. This workshop will bring together experts in medical education accreditation, from across the continuum (from undergraduate to CPD), to discuss guiding principles for accreditation, debate key content for accreditation standards using the World Federation for Medical Education (WFME) categories, and discuss different approaches to the accreditation process depending on one’s own context.

Intended Outcomes:
- Recognize guiding principles across the continuum
- Identify essential standards
- Describe common elements of the accreditation process and debate advantages and disadvantages of different approaches
- Discuss implications for varied contexts, jurisdictions, and across the continuum

Structure:
- Introductions: Workshop goals and objectives; Presentation: context of accreditation, guiding principles and values
- Elements of Accreditation Standards: Presentation: WFME groupings; Small groups by WFME grouping: key standards elements; Report back/discussion: considerations for different contexts, jurisdictions, and parts of the continuum
- Elements of the Accreditation Process: Presentation: common elements; Small groups: approaches to each process element; Report back/discussion: considerations for different contexts, jurisdictions, and parts of the continuum
- Wrap-Up: Large group discussion: what can be applied in your context

Who should attend: Intended for administrators, educators and others with an interest in the accreditation process in their continuum.
Level: Intermediate

7V CONFERENCE WORKSHOP: The BMJ or Instructional Science: How to get your papers published in different types of journals (20942)
Location: Suite 7, Level Mezzanine, MiCo

Erik Driessen*, Maastricht University, Department of Educational Development & Research, Maastricht, Netherlands
Janneke Frambach*, Maastricht University, Department of Educational Development & Research, Maastricht, Netherlands

Background: As a (young) researcher it is wise to think about your publication strategy: what kind of journals are you opting to publish your papers? The journal with the highest impact factor? Or the journal that is read most by the teachers and policy makers? Or the journal in which the theory you just modified with your study is discussed widely? And what will be the effect of your publication strategy for your scientific career? In this workshop we will discuss four articles on the same topic published in four different types of journals. We will look at writing style, structure, the composition of the introduction and discussion sections of the papers? Next to the technical aspects, we will also discuss the ethical side of publishing in different types of journals: how far are you prepared to go to get your paper published in that high impact journal? For example: to what extent will you follow up requirements of the editors for modification of your paper?

Intended Outcomes: More insight in how to plan a personal publication strategy; Awareness of the differences between journals and the impact this has on the reviewing of your paper.

Structure: After a short introduction we will discuss four articles on the same topic published in four different types of journals.

Who should attend: People who (want to) publish research about medical education.
Level: Intermediate
7W  CONFERENCE WORKSHOP:  
**Measuring Outcomes in Continuing Medical Education and Professional Development (19759)**

Location: Suite 6, Level Mezzanine, MiCo

**Jocelyn Lockyer***, University of Calgary, Community Health Sciences, Calgary, Canada  
**Karen Mann***, Dalhousie University, Medical Education, Halifax, Canada

**Background:** Systematic reviews of the literature demonstrate that short CME courses can result in changes to physician knowledge, skills, attitudes, and, if they are well designed, to physician behavior and potentially, patient and community outcomes. Specifically, CME activities which include interactive components, multiple exposures, and require less complex behavioral changes appear to have the greatest likelihood of success. [Fossetlund et al., Cochrane Review, 2009] This workshop will explore approaches that can be taken to assess outcomes.

**Intended Outcomes:** Following the workshop, participants will be able to (1) describe the CME outcome literature as synthesized from systematic reviews, (2) identify approaches to determining the impact of a CME intervention or activity, (3) discuss their approaches to CME outcome measurement, (4) identify and plan for 2-3 techniques they intend to adopt to enhance their work.

**Structure:** The workshop will model best practices in CME short courses. We will begin with a case-based exercise and discussion in small groups. Brief presentations will follow about the CME outcomes literature, selection of outcomes and approaches to measurement. Participants will then discuss the various approaches they might take to measuring ‘planned’ outcomes, using their own example or the case as an example. Following a summary of the key content and discussion, participants will complete a ‘commitment to change’ questionnaire to identify the changes that they plan on return to their workplace.

**Who should attend:** CME and CPD providers, designers, researchers and evaluators.

**Level:** Intermediate

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7X  CONFERENCE WORKSHOP:  
**Slow Medical Education: Promoting Empathy and Reflection (19781)**

Location: Suite 4, Level +2, MiCo

**Joseph Zarconi***, Summa Health System, Medical Education, Akron, Ohio, United States  
**Delese Wear***, Northeast Ohio Medical University, Family and Community Medicine, Rootstown, Ohio, United States  
**Arno Kumagai***, University of Michigan, Internal Medicine, Ann Arbor, Michigan, United States  
**Kathy Cole-Kelly**, Case Western Reserve University School of Medicine, Family Medicine, Cleveland, Ohio, United States

**Background:** Medicine has been affected by a “slow medicine” movement which attempts to balance the attraction of technology, speed, and efficiency with listening, collaboration, and human presence. But what about medical education? Medical education offers only brief asides for students’ deep consideration of these values. Despite the commonly heard call to include different forms of reflection in clinical education and practice, one is often expected to learn to reflect “on the fly,” and only after the real work of medicine is done. If reflection, professional identity development, and patient-centeredness are to be valued in training physicians, then the time and conditions needed to foster these characteristics are essential in curriculum design. Intentional pauses for reflection and dialogue about significant events must be created to facilitate the development of the fully reflective mindfulness of clinical practice.

**Intended Outcomes:** Familiarity with the concept of, and teaching strategies for, “slow medical education,” aimed at fostering empathic and reflective professional identity development for students and residents.

**Structure:** The concept of “slow medical education” will be discussed. Attendees will then participate in two “slow medical education” activities, including a close reading exercise, and a reflective writing and discussion exercise, to demonstrate strategies for engaging students and residents in slow medical education.

**Who should attend:** Undergraduate and graduate medical education faculty, curriculum leaders, physicians, residents, medical students.

**Level:** Intermediate
**7Y  CONFERENCE WORKSHOP:**
Adding Structure to the Medical School Interview: Developing Situational Questions to Assess Personal Competencies (19167)
Location: Suite 3, Level +2, MiCo

Carol L. Elam*, University of Kentucky College of Medicine, Office of Medical Education, Lexington, KY, United States
David J. Jones*, University of Texas School of Medicine at San Antonio, Medical School Admissions, Office of the Dean, San Antonio, TX, United States
Steven T. Case*, University of Mississippi School of Medicine, Office of Admissions, Jackson, MS, United States

**Background:** Interviews have been used for decades to assess personal qualities of applicants in US medical school admission processes. To address interviewer bias and varied rating tendencies, vocational psychology researchers advocate structuring interviews. Ways to enhance interview structure include improving question consistency using behavioral or situational scenarios, standardizing rating scales, and conducting rater training.

**Intended Outcomes:** This workshop is designed to help participants consider how to improve the reliability of the personal interview. Participants will develop questions based on behavioral or situational scenarios to explore one personal competency in applicants, and suggest desired responses. They will discuss an approach to training interviewers to use the scenario-based questions and ratings of responses. Work products will be shared across session attendees.

**Structure:** This interactive, hands-on workshop will consist of small group activities with large group debriefing. Brief presentations on weaknesses of the interview, approaches to structuring interviews, and development of rating scales will guide the completion of learning tasks. Using descriptors of the Association of American Medical Colleges’s core personal competencies for entering medical students (Integrity and Ethics, Reliability and Dependability, Service Orientation, Social and Interpersonal Skills, Teamwork, Capacity for Improvement, Resilience and Adaptability, Cultural Competence and Oral Communication), participants will divide into groups to develop a scenario and three guiding questions for one competency and design descriptively-anchored rating scales to evaluate applicants’ responses to that scenario.

**Who should attend:** Medical school admission directors, committee members, and interviewers; medical educators and students interested in enhancing the personal interview.

**Level:** Intermediate

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**7Z  CONFERENCE WORKSHOP:**
Where do I start? An author’s guide to devising questions, aims and objectives for systematic reviews in medical education. A Best Evidence Medical Education (BEME) Collaboration workshop (23199)
Location: Suite 2, Level +2, MiCo

Antonio Vaz Carneiro*, University of Lisbon, School of Medicine, Lisbon, Portugal
Madalena Patricio*, University of Lisbon, Faculty of Medicine, Lisbon, Portugal
Morris Gordon*, University of Central Lancashire, School of Medicine and Dentistry, Preston, United Kingdom

**Background:** BEME is playing an important role in supporting synthesis of evidence to inform teaching with BEME reviews frequently cited after publication. Preparing a review is taken as an indicator of scholarship in medical education. Many health education systematic review reports are limited by a lack of clarity in stated goals or a mismatch between the actual aims and outcomes. Such issues are rarely related to the methodology or scope of the work itself, but merely planning. BEME has produced scholarly guidance to support authors in this difficult part of the systematic review process. In this workshop, BEME will explore this vital stage for all potential authors of health education systematic review.

**Intended Outcomes:** To develop skills in devising aims for systematic review in healthcare, particularly considering those that give the most relevant outcomes and may support transfer to practice.

**Structure:** Preliminary information will be sent to participants in advance to the workshop. The workshop will start by a short introduction to the stages of the BEME review process, particularly when planning a review. Participants will review a sample of titles, backgrounds and conclusions from actual BEME reviews, with a whole group debrief to identify key areas of focus when planning and how these questions are reflected in the conclusions of the work. Small groups will then work on a participant’s concept a) to devise appropriate research questions b) to report conclusions based on initial questions, followed by a group discussion.

**Who should attend:** All those interested in writing any kind of systematic review and evidence synthesis in all fields of healthcare and in particular, those who would be interested in authoring a BEME review.

**Level:** Introductory
Background: More than a century ago, William Halsted, at John Hopkins University defined an apprentice-style training method, based on the concept “see one, do one, teach one”. In this system residents were able to perform surgery under the tutelage of a senior faculty surgeon, but this method involved significant expenditure of resources and time and did not provide a standardized means of assessing surgical skills. We are now witness to a profound alteration in the teaching paradigm evolving from an apprentice to a competence-based and moving towards a proficiency-based method that is the future of medical education in all specialties. In future curriculum medical educators will need to incorporate meaningful validated and assessment tools into residency programs using rigorous, reliable and regular means of assessment for all relevant surgical and medical skills. Virtual reality simulation is one means of achieving this goal.

In this Workshop we will focus on how new virtual reality tools using simulation are changing our approach to the training paradigm of doctors and surgeons. In the near future these new virtual reality technologies will significantly enhance the training of neurosurgery and the other surgical and clinical specialties and will also be exploited in many different cultural and social disciplines. The future is now and we need to be prepared for it.

Intended Outcomes: The goal of this workshop is to outline how virtual reality simulation can be utilized to improve global medical and surgical education, medical and surgical expertise, patient care and patient outcomes working in cooperation with national and international research groups.

Structure: Learning approach using simulation technologies from the clinic to the operating room in order to enhance technical skills and knowledge.

Who should attend: Doctors- Students- Residents

Level: Introductory
7CC POSTERS: Assessment 4: OSCE
Location: South Hall, Level 0, MiCo

7CC1 (19963)
A Near-Peer Led Mock-OSCE Objectively Improves Summative OSCE Performance in Medical Students

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Background: The Mock-objective structured clinical examination (OSCE) is a teaching-OSCE, aimed at improving candidates’ clinical skills via personalised feedback, which closely replicates the institution’s summative OSCE. While there is some subjective evidence for Mock-OSCE benefit, there is little objective evidence. Further, OSCEs generally put pressure on faculty resources, therefore institutions have begun to explore the role of peer-assessors, showing good reliability. The current study objectively demonstrates benefit from a near-peer written and assessed Mock-OSCE on summative OSCE performance in medical students.

Summary of Work: A Mock-OSCE was offered on a first come, first serve basis to 4th year medical students 11 weeks before the summative OSCE, 2013. The assessors were senior medical students and junior doctors. The candidates were given personalised written feedback and marking schemes as reflection tools. Quantitative analysis was performed by comparing Mock-OSCE and non-Mock-OSCE group ranking in both 3rd and 4th year summative OSCE exams. Students who undertook a BMSc were analysed separately.

Summary of Results: 70 students sat the Mock-OSCE, 82 did not. Students who undertook the Mock-OSCE had a similar mean ranking to those who did not in their 3rd year OSCE, but a significantly higher mean ranking to those who did not in the subsequent 4th year OSCE (0.576 vs 0.443 respectively, p= .003). This improvement was present in both BMSc and non-BMSc groups.

Discussion and Conclusions: A near-peer written and assessed Mock-OSCE objectively improves performance in students undertaking medical school OSCE final.

Take-home messages: • The Mock-OSCE objectively improves students’ OSCE-assessed clinical skill.
• There is a role for near-peers in effective Mock-OSCE design and assessment.

7CC2 (20323)
The study of correlation between score of radiology in the fourth-year and Objective Structured Clinical Examination (OSCE) in the sixth-year of medical studies

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Background: Radiographic interpretation is one of the competencies which is required in the fourth-year medical curriculum and tested after finishing the rotation from radiology department. It is also assessed in the form of Objective Structured Clinical Examination (OSCE) during studying in the sixth-year curriculum. The correlation of those scores is, however, questionable.

Summary of Work: In 2013 academic year, OSCE score in part of radiographic interpretation in sixth-year of medical students were recorded. Those scores were compared with their own scores in the same part when they were assessed during radiology rotation in the fourth year of 2011 academic year. Additionally, Cumulative Grade Point Average (CGPA) from first to fifth year of each student was also considered for analyzing with those correlations.

Summary of Results: Mean age of 77 sixth-year medical students who were examined for OSCE was 24.3 ± 0.9 years. There were 49.4% of male and 50.6% of female. Mean CGPA from first to fifth year was 3.1 ± 0.3. The correlation coefficient (r) between score of radiology in the fourth-year and OSCE in the sixth-year was 0.22 (p=0.06). When CGPA was analyzed, the correlation of that with score of radiology and OSCE were 0.73 (p<0.001) and 0.41 (p<0.001), respectively.

Discussion and Conclusions: The correlation score between radiology in the fourth-year and OSCE in the sixth-year was not good, while CGPA has good association with score of radiology and OSCE.

Take-home messages: Teachings about radiographic interpretation from other departments besides radiology department at the fourth-year have affected on score of radiology part in OSCE for the sixth-year medical students.
7CC3 (21394)
Split rest periods (SRP) during OSCE can reduce stress and improve performance of medical students

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Walaiporn Ployted, Medical Education Center Buriram Hospital, Department of Medicine, Mueng Buriram, Thailand

Background: The stress of medical students in clinical years might affect learning and impede the performance potential during examination. For stress reduction, we determine the effectiveness of presenting split rest period in each OSCE station compared with the conventional rest station as part of a regular session during OSCE examination.

Summary of Work: 24 of 5th year medical students were enrolled in OSCE during study in department of medicine and were randomized into 2 groups (n=12). Control group had 6 OSCE stations and 1 resting station, 5 minutes each. Intervention, Split Resting Period (SRP) group split rest period into 50 second per station. The self rating anxiety stress score (SRAS) was measured at the beginning and the end of each OSCE station and the OSCE scores were recorded. Two sets of OSCE exams were validated for equal level of difficulty.

Summary of Results: Baseline students were similar. SRAS was significantly lower in SRP group both before and after OSCE station (55.2 vs 93.0, p=0.004) and after station (62.9 vs 98.1, p=0.003). The OSCE scores were not significantly different in both groups (54.0 vs 54.1 p=0.971).

Discussion and Conclusions: Split rest period for each OSCE station significantly reduced stress and anxiety during examination and sustained this effect both before and after OSCE station. However, the OSCE score between 2 groups were not significantly different.

Take-home messages: Resting period during examination is the important factor to reduce stress and anxiety during examination. Additionally, the more frequent rest period leads to more effective results.

7CC4 (22998)
Evaluating medical students' skills in Emergency area

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Background: In 2001, the assessment of clinical competence and communication skills with Objective Structured Clinical Exams (OSCEs) began. The training in emergency medical problems are included in the sixth year of Spanish curriculum and it is well introduced in undergraduate assessments worldwide. From 2004 we introduced emergency medical cases at the OSCEs consisting of combinations of history taking/communications skills and problem solving skills with SP cases and mannequin cases.

Summary of Work: Evaluation of students' ratings and performance using faculty and SP scores and post OSCE feedback to students. We have outlined the results of the survey given to the examiners. For statistical analysis, we used the p (sig < 0.01) in univariate analysis; chi-Q test, Spearman's coefficient test for non-parametrics correlations, contingency tables for measuring discordance or kappa's test for measuring concordance of the students' scores.

Summary of Results: 222 sixth year students have performed 9 different emergency stations (2004-2012). The mean scores were 7.2 (+-SD 0.79). Performance scores are higher in SP cases than mannequin (p>0.05). The SP cases were a biliary tract disease, ectopic pregnancy, a complicated urinary infection and an infectious arthritis; the mannequin case were a multiple trauma patient, a sepsis, a poisoning case and an cardiac arrest for different pathologies. Credibility and comprehensiveness of the cases were considered good by both staff and students. 93% of the students thought that they have more difficult to perform mannequin cases than SP cases and they feel anxious to manage these cases. All staff agreed that these stations are a good evaluation method.

Discussion and Conclusions: OSCEs stations have proved to be an excellent way to evaluate knowledge in emergency subjects. The training in Emergency area is one of the most important step in the last year medical students Spanish curriculum.
**7CC5 (22426)**

**Final year summative clinical skills assessment as preparation for clerkship and national licensure**

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**Background:** National OSCE was established since 2013 as an exit exam for medical students in Indonesia. It demands students’ ability to perform minimal competences for primary care based on Standard of Competence for Medical Doctor in Indonesia. While skills are trained in the undergraduate program, students may not be aware of the expected competences and their challenge for clerkship.

**Summary of Work:** An 8-station OSCE was held at the end of year 4, assessing integrated clinical skills. Skills and cases assessed were based on Standard of Competence for Medical Doctor in Indonesia. Evaluation using 4-point Likert scale and open questionnaire was conducted to understand students’ perspectives.

**Summary of Results:** The questionnaire achieved 81% response rate from 373 students. It was revealed that less than 60% students were aware of the national licensure and competence standard. Meanwhile, the OSCE purpose as a preparation for clerkship was perceived useful as more than 80% students agreed and prepared for the OSCE. The skills and cases assessed were in line with undergraduate curriculum. The integrative skills station stimulated them to practice their skills and integrate it with their knowledge. More than 85% students thought their performance made them confident to enrol in clerkship.

**Discussion and Conclusions:** The final year summative clinical skills assessment using OSCE was useful to prepare the clerkship and project students’ achievement to prepare for national licensure.

**Take-home messages:** A final year OSCE could be proposed as preparation for clerkship and further as preparation for national licensure. How to design the OSCE to comply with the purposes is a key point for its success.

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**7CC6 (22071)**

**The Objective Structured Clinical Examination in integrated regimen**

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**Background:** Achievement of skill in graduate practical training and providing for patient safety is an important priority in modern education. Continuous improvement of the OSCE using simulation technologies allows the increase of graduate competence assessment reliability.

**Summary of Work:** For reaching the graduate competencies complex assessment by internal medicine, the OSCE is carried out in integration with different disciplines. For high reliability using the 10 stations with time limitation for each task performance is used 7 minutes. Total assessment of each station task performance is defined in 10 points. The task structure in the 6 stations is devoted to assessment of skills by internal medicine and 4 stations by related subjects. Thus in two-three stations the tasks have the integrated character that allows estimation of interprofessional interaction skills.

**Summary of Results:** When carrying out the OSCE, hi-tech simulators – the cardiopulmonary patient Harvey, Sim-man, the patient actor, the patient hybrid, computer technologies are used. In each station there are examiners of different specialties according to task structure.

**Discussion and Conclusions:** Carrying out the OSCE with integration of different interfacing specialties allows estimation of interprofessional interaction and communication skills. Including the simulation technologies allows increasing assessment reliability of the end result achievement extent.

**Take-home messages:** Different specialties integration in the OSCE and using of the hi-tech simulators, actor patients, the hybrid-patients, computer technologies allow authentically estimating of the graduate’s competences.
7CC7 (22050)  
Can Early Years OSCEs Predict Final OSCE Results?

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Elizabeth Sinclair, University of St Andrews, School of Medicine, St Andrews, United Kingdom  
Anita Laidlaw, University of St Andrews, School of Medicine, St Andrews, United Kingdom  

Background: Students at our School of Medicine are examined in 5 OSCEs (Objective Structured Clinical Examination), 2 in the first year, 2 in the second year and one final OSCE at the end of third year. Data from one cohort of 139 students (graduating 2013) were used in this study. The aim of this study was to identify if final OSCE results can be predicted from the early years.

Summary of Work: Analysed data included gender plus OSCE global rating (pass / fail) and OSCE score (percent) for five exams. Pearson correlation analysis was carried out to examine the association between scores in all of the exams and score in the final OSCE. T-tests were carried out to examine if scores in the final OSCE varied with gender, or global rating of any of the previous OSCEs. Finally linear regression analysis (stepwise) was carried out to determine whether scores or global rating on previous OSCEs predicted the scores achieved in the final OSCE.

Summary of Results: There was a significant, medium strength (P = .001) positive association between OSCE scores in all examinations. Independent t-tests revealed a significant effect of gender on the scores for the final OSCE.

Discussion and Conclusions: Results of the regression show that the OSCE scores at the end of first year and the middle of the second year significantly predicted 56% of the variation in the final OSCE score. In this model gender was no longer significant.

Take-home messages: Early years OSCEs can predict final OSCE results.

7CC8 (21735)  
OSCE Lived Experience : The Story of Medical Students

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Background: To train competent medical students is one of the major goals of medical schools; in this regard, in internship and clerkship programs, medical students gain clinical and medical competencies via attending in-patient and out-patient departments. In these contexts, an inclusive assessment tool such as OSCE is an instrument to help assess clinical competence of students. Moreover, in OSCE application, students’ views about OSCE play a crucial role. Therefore, this study is an attempt to explore lived experiences of a group of medical students of OSCE, its reflective role as an assessment tool, and its strengths and weaknesses.

Summary of Work: In this study, phenomenological methodology was used to explore medical students’ lived experiences of OSCE. The study population was clerkship students. Purposeful sampling continued till data saturation. An informed consent was secured from each participant before the study. Three Focus Group Discussions (FGDs) with five participants were arranged for data gathering. The group discussions started with open questions and continued with probes. Total time for each FGD session was an hour, and the recorded transcribed data were read and re-read by the researchers several times and their major and minor themes were extracted (content analysis).

Summary of Results: Four major themes were extracted from the gathered data: awareness, learning, attribution, satisfaction, reflective thinking and feeling.

Discussion and Conclusions: Medical students expressed diverse feelings toward OSCE, ranging from positive to negative that might be due to specific structure of OSCE and its multiple facets that affect grading systems. Therefore, to enhance medical students’ clinical competence, medical educators need to pay specific attention to this factor and consider it in educational settings.

Take-home messages: Medical students expressed diverse feelings toward OSCE, ranging from positive to negative.
7CC9 (21495)
Does the number of skill practice and previous background experiences of medical students affect counseling communication OSCE score or not?

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Background: Good communication skills can be achieved by repeated practice and previous background experiences. Therefore, counseling skills may be related to student experiences during clinical practice or students’ own experiences with their relatives to the breaking bad news situations or end of life care. Our study is to determine the relationship between the number of skill practice and previous background experiences and counseling performance.

Summary of Work: Twenty three of sixth year medical students were enrolled in this study. Using questionnaire about background counseling experiences in their real life and in clinical practice and previous counseling situations. The “breaking bad news” counseling OSCE scores were recorded.

Summary of Results: The average number of previous breaking bad news experience of medical students in clinical practice was 5.8 ± 2.45, in their real life was 0.5 ± 0.95, respectively. The mean OSCE scores in counseling station were 62.6 ± 15.63. Surprisingly, both previous clinical and real life experiences were not significantly correlated with OSCE score by chi-square test (p=0.36, p=0.48).

Discussion and Conclusions: The number of counseling experiences did not correlate with performing an excellent OSCE score. This might be caused by inadequate supervision and feedback during skill practice.

Take-home messages: The quantity of experience could not relate with better performance in counseling OSCE. The solid background experiences may be further evaluated for correlation.

7CC10 (20944)
What Happened in Traditional Chinese Medicine After the OSCE Practice?

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Jun-Liang Chen, Chang Gung Memorial Hospital, Department of Traditional Chinese Medicine, Taoyuan, Taiwan
Hong-Sheng Shiue, Chang Gung College of Medicine, Chang Gung University, Taoyuan, Taiwan
Sien-Hung Yang, Chang Gung College of Medicine, Chang Gung University, Taoyuan, Taiwan

Background: The Department of Traditional Chinese Medicine (TCM), Chang Gung Memorial Hospital held the first formal and summative TCM OSCE on March 24th, 2012 in Taiwan. Forty-one undergraduate students of the TCM at Chang Gung University completed this test at the end of their eight-year training. The test had six topics with five facets, and included fourteen standardized patients whom had received training one week earlier.

Summary of Work: Results showed that if some sub-items were deleted, the reliability of all tests could approach almost 0.7 except for test 4. The internal consistency reliability was 0.317.

Summary of Results: The reliability of almost all tests reached the acceptable level, but the internal consistency reliability was not good enough. These results suggest that the evaluators and the standardized patients should be trained more thoroughly in the TCM method. Furthermore, the tests and checklists should be designed with the combination of classical and modern TCM knowledge.

Discussion and Conclusions: Our study revealed that the difficulty of four of the six tests were hard, especially the tests 2 and 6, concerning physical examination. Both the discrimination level of “History taking” in test 1 and “Communication” in test 3 were poor. The “Inquiry” in four examinations was similar with history taking, which focused on the details and completeness of patients’ background and problems relative to their illness. Since outpatient clinics are the main service of TCM, history taking and communication are the basic skills that can be learned well from practitioners through adequate training programs. However, for examination purposes, more concrete assessment items should be developed.

Take-home messages: How to evaluate the effect of teachers’ teaching after the OSCE for the TCM intern Dr practiced? We design the questionnaire to obtain the initial results.
7CC11 (21430)
Educational impact of Objective Structured Clinical Examination (OSCE) as a formative assessment on undergraduate medical students

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Background: The benefits of the Objective Structured Clinical Examination (OSCE) have been proposed on both formative and summative assessment. In our institute, the formative OSCE has been recently implemented as a formative assessment. This study aims to review an educational impact of OSCE, as a formative assessment, on National licence examination in the aspect of clinical skills of undergraduate medical students at Rangsit University.

Summary of Work: Documents and statistical data have been reviewed. An educational impact was reflected by a percentage of passing students on clinical skills examination as a part of the National licence examination. The data was analysed comparing among five years of implementation the OSCE as a formative assessment. The formative OSCE was used as a preparedness strategy at the first year. The duration of formative OSCE increased over five years. Nowadays, the formative OSCE is organised continuously for a whole year to three clinical year of medical students.

Summary of Results: The National licence examination on clinical skills was implemented for 6th year medical students. The OSCE examination was used as a comprehensive summative assessment. After an implementation of OSCE as a formative assessment, the percentage of passing students on the National clinical skills examination increased from 63.16% to 97.27% in five years. The significant increase correlated with the duration of opportunity to practise with the formative OSCE.

Discussion and Conclusions: The OSCE has educational impact which is reflected from significant increase of passing students on clinical skills exam. The continuous formative OSCE assessment is a significant influencing factor on educational impact.

Take-home messages: The formative OSCE has significant impact on educational outcome of undergraduate medical students. Continuously organised formative assessment influences an effective outcome.

7CC12 (19998)
A new twist to an innovative OSCE: In-situ OSCE

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Background: Traditionally, the OSCE was held in clinic skill centers. Resident doctors in Taiwan work mostly in the ward. We design the OSCE which reflects their jobs in real life and assesses their clinic competency. We assess the advanced level of competency for resident doctors. Patient safety and communication are key issues for PGY1.

Summary of Work: We host an OSCE setting in the real ward. The PGY1 will contact with our SP by the bedside. The PGY will get the chart with mission instruction for each station at nurse station. The mission of the PGY1 are as following: 1) History taking with an inpatient successful business man, 2) Identifying the patient and performing PE with a patient who is in too much pain to cooperate, 3) History taking from a dumb mother, 4) History taking from a old patient who only can speak dialect, 5) Inserting a Foley and calming down the patient, 6) Suturing a drunk patient. We also have debriefing in this formative assessment.

Summary of Results: In our study, the students agree that 1) it relates to their daily jobs, 2) It improved their competency and confidence, and 3) They learned substantially from it.

Discussion and Conclusions: We should have different levels of learning objectives for learners with different level skills. The faculty should overcome the existing limitations and conduct a useful and objective-oriented assessment.

Take-home messages: 1. in-situ OSCE is an efficient and objective-oriented assessment
2. Faculty should design the different level scenarios for each level student.
3. Hybrid simulation is an excellent solution for OSCE.
7CC13 (22509)
OSCE Curriculum Design and Implementation: A Faculty Development Program

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Background: As a result of a shift to a competency-based education, there was a need identified for assessment of residents’ communication skills. An OSCE program with standardized patients (SP) was developed and has been running for the last two years. Expansion of this program created the current need for additional faculty training thus we developed an OSCE curriculum design and implementation course.

Summary of Work: We used a systematic six-step approach to develop this curriculum. The curricular components ranged from creating a blueprint to training the SPs and piloting the OSCE cases. We identified the goals and objectives of the program. We incorporated multiple educational strategies to engage learners in active and self-directed learning. The evaluation design and methodology was carefully aligned with the objectives of the curriculum. The program development component included identifying the delivery format, the stakeholders, and availability of funding and resources.

Summary of Results: We developed a 5-week longitudinal program in the development of an OSCE/SP for the formative assessment of residents’ communication skills. The program was successfully implemented and piloted with 12 Internal Medicine faculty.

Discussion and Conclusions: This curriculum was developed in a structured and systematic way using the six-steps approach. Although it was based on the needs of the Internal Medicine department, it can be applied to different disciplines locally, regionally and internationally.

Take-home messages: Using the six-step approach was an efficient way to develop the OSCE/SP program, which was effective for training faculty.

7CC14 (21317)
Scoring Objective Structured Clinical Examinations by Direct Observation or Using Video Monitors

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Jaw-Wen Chen, Taipei Veterans General Hospital, Taipei, Taiwan

Background: Opinions on the interaction between the examiners and the examinees are controversial. Our study aimed to compare 2 different scoring methods for objective structured clinical examinations (OSCEs), including direct observation or using video monitors.

Summary of Work: Total 68 undergraduate medical students underwent a 12-station OSCE in a tertiary medical center in Taiwan. In each station, one examiner rated the student by direct observation, and another examiner rated the same student by using video monitor in another room. After 6 stations, all the examiners exchanged their position.

Summary of Results: In the 12-station OSCE, there were total 150 checklist items, including 54 items of history taking, 18 items of physical examination, 29 items of communication skills, 16 items of problem solving, and 33 items of clinical skills. Overall, the reliability (Cronbach’s reliability) was 0.757. Comparing the scores by two methods, there were no difference in the scores of history taking (P= 0.792), physical examination (P= 0.116), problem solving (P= 0.374), and clinical skills (P= 0.419). However, the scores of communication skills by direct observation were higher than using video monitor (P= 0.037).

Discussion and Conclusions: Scoring using video monitor was a considerable method for evaluation of history taking, physical examination, problem solving and clinical skills in OSCE. However, scoring using video monitor did affect the scores of undergraduate medical students in communication skills assessment.

Take-home messages: Scoring using video monitor was a considerable method for evaluation of history taking, physical examination, problem solving and clinical skills in OSCE. However, it was not appropriate for evaluation of communication skills in undergraduate medical students.
Unbundle medical education, broaden access?

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Background: It is fifty years since the first estimate was published about the cost of Undergraduate Medical Education (UME) in the UK. In the context of increasingly scarce resources and a move to widen access to UME, we re-analyse one distinct cost element, direct teaching hours (DTH) as we consider the opportunities to increase the affordability of UME.

Summary of Work: We estimated DTH from student timetable analysis, a questionnaire and interviews at one large, successful UK medical school. We calculated the direct costs of their delivery using Time Driven Activity Based Costing. Publically available information was used to calculate staffing costs and a literature review provided the basis for cost reduction options.

Summary of Results: For the standard five year undergraduate medicine degree, each student receives ~1400 DTH. We calculate ~£8500 as the aggregate DTH cost per student.

Discussion and Conclusions: DTH appears to contribute at most 17% of the total cost of UME, and probably less. In the United States there has been a move to ‘unbundle’ higher education by separating teaching from other activities. If successfully done for UME the impact on overall costs of UME may be small. Nevertheless we foresee the possibility of two distinct models for the delivery of UME developing – a ‘full service’ and a new ‘low-cost’ unbundled offering that makes greater use of new technologies.

Take-home messages: New technologies may allow medical education to be delivered at a lower cost. Wider access to UME could result.

Appointing a change agent facilitates the integration of diversity, especially gender aspects, into a new undergraduate medical curriculum

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Background: Along with the introduction of a modular, outcome-based medical curriculum, Charité, Universitätsmedizin Berlin decided to systematically integrate diversity perspectives, especially gender and sex aspects, into the new curriculum. Here, we report on the strategy and success to incorporate diversity, especially gender and sex aspects, into the clinical modules of the 7th and 8th semester of the new program during the curricular planning phase.

Summary of Work: A change agent was appointed who regularly participated in the module planning sessions and the module reviews by the curricular academic board. The change agent provided continuous counseling to faculty members. Prior to module planning, the change agent identified relevant diversity and gender issues to be integrated into the clinical modules.

Summary of Results: Diversity and gender issues were broadly integrated as learning objectives and teaching content into all modules and the different teaching formats such as seminars, lectures, communication skills training, clinical skills courses and problem-based learning.

Discussion and Conclusions: The appointment of a change agent facilitates the integration of diversity issues into a new medical curriculum. Key successful strategies of the change agent are broad research on the relevant diversity issues to be integrated, active participation in the committees involved in curriculum design and close counseling of faculty members.

Take-home messages: Appointing a change agent is a successful strategy to integrate diversity aspects into a medical curriculum.
7DD3 (22274)
Work in progress: A process of curricular reform

Sergio Zaidhaft*, Faculdade de Medicina. Universidade Federal do Rio de Janeiro, Psychiatry, Rio de Janeiro, Brazil

Background: Our medical school is 206 years old, its traditional teaching model is primarily centered on the professor as well as focused on in-hospital practice, and the basic and clinical cycles are not integrated. The Medical Education Program (PEM) has been debating our curriculum in order to fit the Brazilian National Guidelines since 2009.

Summary of Work: In order that the debate on curriculum reform was not limited to a time-based dispute, we elaborated Vision and Mission of the institution, the competencies that must be developed and all the proposals were approved. Nevertheless, there is still a disengagement of several professors with the undergraduate teaching and a resistance to the field of Medical Education. We have also faced difficulties concerning the funding of the University Hospital, our main teaching scenario. These problems and many others have made us name PEM as “Fol espoir” (crazy hope), a boat in a play by Théâtre du Soleil.

Summary of Results: Despite all this, we have drawn the axes of the curriculum and their general and specific skills, which will serve as a frame to the integrated basic-clinical modules. The axes are: clinical, scientific, ethical / humanistic and social accountability.

Discussion and Conclusions: Each institution has its own way to reformulate its curriculum. The strategy of offering a frame to the modules provides our school an identity and it’s a sprout of our future Political-Pedagogical Project. Thus, “La nave va” (the boat sails on).

Take-home messages: Avoid implementing others’ reform processes within your school. Find your own way. You can’t always get what you want. Learn to differentiate what you can change from what you can’t.

7DD4 (21135)
How to maximize consensus among faculty for curricular reform? The Muenster experience

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Désirée Burghaus*, Medical Faculty, University of Muenster, Institute for Medical Education, Muenster, Germany
Bernhard Marschall, Medical Faculty, University of Muenster, Institute for Medical Education, Muenster, Germany
Ara Tekian, University of Illinois at Chicago, College of Medicine, Chicago, United States

Background: Curriculum development is a dynamic process, however, introducing change and involving a range of teaching faculty is a challenging task. The upcoming German competency-based learning objectives catalogue (NKLM) is the impetus for curricular reform within the country.

Summary of Work: The Deanship of the Medical Faculty in Muenster organized a two-day retreat and invited 42 basic and clinical science professors to participate. The CanMEDS roles were adopted as the conceptual framework and participants were divided into seven groups according to the roles. Each group analyzed one role, and subsequently one member of each group presented their respective role to another group composed of representatives of the seven roles. During the second day, each group tried to integrate their assigned role into the undergraduate curriculum, and provided examples of how to teach and assess. Group presentations were followed by active discussion, and this process increased the interest, acceptability, and teamwork spirit. The workshop was evaluated using an online questionnaire.

Summary of Results: By adopting a bottom-up approach and a well-planned and executed retreat, the initial skepticism was decreased. Three major Task Forces were created to integrate the seven roles within the next six months and to engage with experts in other medical schools. 30/41 participants completed the questionnaire, 83% regarded the group work on CanMEDs roles as important, and 70% saw a need for curricular change after the retreat.

Discussion and Conclusions: A well-organized and interactive retreat with strong leadership improves consensus building among a diverse group of faculty, and creates a platform for collaboration with other medical schools.
**7DD5 (19276)**

**Professional practice outcome of curriculum change, lessons from implementing a new paediatric module for dental students in Singapore**

DD Raigor, Yong Loo Lin School of Medicine, National University of Singapore, Department of Paediatrics, Singapore
YYB Mok, National University of Singapore, Faculty of Dentistry, Singapore
DD Samarasekera, Yong Loo Lin School of Medicine, National University of Singapore, Medical Education Unit, Singapore

**Presenter:** Chee Wen Terence Lim*, Yong Loo Lin School of Medicine, National University of Singapore, Department of Paediatrics, Singapore

**Background:** It is difficult to comprehensively evaluate the impact of medical curriculum change on real life professional practice as student satisfaction surveys are often only conducted at the end of an educational module rather than when students are practicing professionals. As such, a superficial sense of effectiveness may be misleadingly conveyed which has no practice-life relevance whatsoever. Evaluating apparently great student feedback to see if it extends into professional practice life is thus of utmost importance when ascertaining educational effectiveness.

**Summary of Work:** We implemented a new practice centered paediatric module for dental undergraduates in Singapore in 2010 and systematically evaluated its effectiveness with a standardized post module student survey of both cohorts. Both ‘old’ and ‘new’ curriculum cohorts were then followed up into their practice years and another standardized survey assessing confidence and readiness for practice was administered to both groups. We discuss the results and wider implications.

**Summary of Results:** Student on the ‘new’ curriculum rated their educational experience significantly better than those on the ‘old’ curriculum. This was seen across all domains and particularly on questions regarding issues of clinical relevance to practice. When surveyed in their practice years however, both cohorts indicated no difference in their clinical confidence or apparent competence.

**Discussion and Conclusions:** Readiness for practice is a complex educational issue in which standard post module teaching evaluations only incompletely reveal. 

**Take-home messages:** When assessing the impact of curriculum change it is thus important to rely on more than one barometer of efficacy.

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**7DD6 (19938)**

**Effects of Affirmative Action on Motivation for Medical Teaching**

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Paul Stuyt, Radboud University Medical Center, Department for Evaluation, Quality and Development of Medical Education, Nijmegen, Netherlands

**Background:** Affirmative action, organizational policy initiatives that aim at leveling the position of medical teaching to that of medical research, could influence motivation for medical teaching within the context of university hospitals. The aim was to explore relations between motivation for medical teaching and two organizational policy initiatives involving a financial incentive: (Junior) Principal Lecturer predicates ((J)PL predicates) and Subsidized Innovation and Research Projects in Medical Education (SIRPME’s).

**Summary of Work:** An online questionnaire was used to collect data about medical teaching within the setting of a university hospital. We developed the Medical Teaching Motivation Scale (MTMS) to measure feelings of autonomy, competence and relatedness towards medical teaching. We examined the relations between (J)PL predicates and SIRPME’s and motivation for medical teaching, and studied the causality of the relations.

**Summary of Results:** 767 Medical teachers participated. The initiatives seem to have different beneficial outcomes on motivation for medical teaching. Both trigger the interest of colleagues for medical teaching. The MTMS proves valid and reliable for measuring motivation for medical teaching.

**Discussion and Conclusions:** Motivation for medical teaching can be promoted by affirmative action. Additional research needs to further scrutinize the causal relations and to determine more specifically optimal conditions for affirmative action.

**Take-home messages:**
- Organizational policy initiatives for affirmative action that involve a financial incentive, seem to be related to a more intrinsic motivation for medical teaching. This relation is clearer when the financial incentive is labeled for medical teaching.
- Affirmative action triggers direct colleagues’ interest for medical teaching.
- The MTMS proves valid and reliable for measuring motivation for medical teaching.
7DD7 (20920)
Impact of Accreditation on Institutional Development

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Tserendagva Dalikh, National University of Medical Sciences, Ulaanbaatar, Mongolia

Background: Accreditation of higher educational institution is an important process which aims in identification of the development of institutional policies and implementation of procedures for future planning. School of Nursing was evaluated by the Asia-Pacific Accreditation and Certification Commission (APACC) and has been successfully accredited and awarded by this committee. The aim of this study was to evaluate the impact of accreditation programs on quality assurance and institutional change and identify parties which have been changed mostly during the accreditation process.

Summary of Work: The aim of this study was to evaluate the impact of appreciative inquiry-based accreditation on quality assurance and institutional positive changes. This study was a cross-sectional study and we interviewed a total of 72 faculty members and staff who have been employed at the School of Nursing in Mongolia from 2007. The study participants were divided into four groups based on the duty of involvement for accreditation process at the School of Nursing. Data were entered in Microsoft excel and statistical analyses were performed by SPSS version 17.

Summary of Results: The mean year of work experience among 72 study participants was 7.8 (SD, 6.3) years. Team leader constituted 3 (4.2%), team members 27 (37.5%), teachers 36 (50.0%) and remaining 6 (8.3%) were officers to duty of participants in the accreditation process. By position level at the school, 26 (40.6%) respondents were junior lecturers, 24 (35.7%) were lecturers, 10 (15.6%) senior lecturers, and 4 (6.3%) associate professors.

Discussion and Conclusions: 1. “Accreditation” is a voluntary process that positively impact for the development of organization.
2. Personal development was more changed by the participating on the accreditation review process. The level of evaluation and perceiving of individual participant was poor associated with enrollment of accreditation process.

7DD8 (23013)
The experience of 15 years of measuring workload of university students and teachers. From paper to web and back

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Background: Measuring workload in the context of a thorough curriculum change, is still more important than in a steady state of an established curriculum. In Ghent University, we developed a prospective, random sampled method which was presented at the AMEE 2005-conference.

Summary of Work: At the start the registration forms were paper versions. From 2009 on the whole system was incorporated in the web-based learning platform. Unfortunately this tool didn’t result in enough relevant information concerning clinical clerkships or internships. In 2013 we developed a new registration tool and returned to a completely different paper version with optical mark recognition.

Summary of Results: A benchmark database based on 309,946 24-hour registrations reported by 14,269 university students during 11 academic years (2002-2013), is used for comparing time allocation of students for each of the 2407 individual course units and for each of the 257 curricular years involved. We will present examples of the relevance of this information and the first results of the pilot study of the new registration in clinical clerkships.

Discussion and Conclusions: The major challenge of the new registration in clinical clerkships was to develop an easy and reliable tool for this specific learning environment in order: to know if students spread their time proportionally; to estimate if they spend more time in appropriated learning activities; and to measure workload of teachers and mentors.

Take-home messages: Measuring workload of students and teachers in medical and other higher education is feasible and reliable. It is worthwhile not only for monitoring but also for evaluation of impact of curriculum change. Despite huge advantages of web based information gathering, paper registration comes again in the picture.
7DD9 (23087)
Labour Market of Physicians in Chile: How to solve the lack of physicians, considering the quality of training?

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Soledad Armijo, Escuela de Medicina, Universidad Diego Portales, Santiago, Chile

Background: The lack of doctors in the Chilean public health system and measures to alleviate this deficit have been the subject of much debate in recent decades. This paper will seek to assess the supply of physicians and their 5-year projection, considering the observed failure rates of EUNACOM as origin of the degree, according to the current approval criteria and higher levels of demand.

Summary of Work: Official and public data on total enrollment and program numbers of Medicine, from 2005 to 2011, 2003 EUNACOM scores, number of physicians accredited to Chile at 2003, population projections, were obtained. From these data, projections of the availability of doctors to the Chilean labor market and the rate of doctors per thousand inhabitants were made, from the years 2012 to 2018, whereas the percentages of approval exam and the origin of the degree.

Summary of Results: In addition to the approval criteria in force (51%), the number of participants who had approved in case of increasing the requirement to 60% and 75% were evaluated. Under these latter criteria, the number of physicians trained in these 6 years of analysis, decreased in 23% and 78%, respectively. In 2008, when added to surrender foreign medical examination, a significant increase in the dispersion of scores in relation to previous years was observed, with no differences in the results between the types of national universities.

Discussion and Conclusions: This work shows that it is currently not possible to increase this threshold without substantially affecting the number of doctors legally qualified to practice in the public health system.

Take-home messages: The control of the State in recruiting physicians EUNACOM approved, according to the current legislation, becomes central to the receipt of the population served in the public health system.

7DD10 (21912)
Impact of Thailand’s political crisis on learning and teaching processes among medical students and doctors

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Itthipon Wongprom, Mahasarakham Hospital, Mahasarakham, Thailand
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Background: Thailand’s political conflicts has been ongoing and caused high tensions among Thai people since the announcement of a controversial amnesty bill by the parliament in late 2013. The purpose of this survey was to assess the impact of political crisis on learning and teaching processes among the fourth year medical students and doctors in Mahasarakham hospital.

Summary of Work: Questionnaires using a five point Likert scale were developed and sent to explore opinions of medical students and doctors about the political crisis situations in Thailand from late 2013 to early 2014. Two open ended questions were also included investigating the impact of the political crisis and the solutions.

Summary of Results: A total of 34 questionnaires were returned from 13 medical students and 21 doctors. Interests of politics and concerns about the political situation were high. Impacts on living were intermediate and on learning and teaching process were low. No significant difference following on four main questions was found among medical students and doctors. Two open ended questions were variably described.

Discussion and Conclusions: Despite high interests of and concerns about Thailand’s political crisis, the impact on learning and teaching processes among students and doctors were low.

Take-home messages: Further survey should be developed to evaluating stress caused by continuously political crisis.
Improvement of the nursing professionals training in the Republic of Kazakhstan

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Summary of Work: Decrease of the ratio “doctor:nurse” in Kazakhstan has led to an increase in the workload of physicians and to a decrease of the nurse role in health care process. The health system reform task of improving nursing requires improving professional competency of nursing and implementation of applied baccalaureate programs. The program of applied baccalaureate is distinguished by its practice-oriented training.

Summary of Results: Our study results in the development of the applied baccalaureate education program based on the best international practices and taking into account the peculiarities of the national health system of Kazakhstan. This program will increase the level of professional competency of nursing and promote the rational use of nursing staff.

Discussion and Conclusions: An education program of the applied baccalaureate based on the best international practices and peculiarities of the national health system of Kazakhstan will increase the level of professional competency of nursing and promote the rational use of nursing staff.

Take-home messages: Improvement of the nursing professionals training in the Republic of Kazakhstan by the way of the applied baccalaureate implementation.

Pattern of Medical Graduates Joining the Internship Program in Bahrain

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Fouad Ali, Salmaniya Medical Complex, Pediatric Department, Manama, Bahrain
Zakiya Almosawi, Salmaniya Medical Complex, Pediatric Department, Manama, Bahrain

Summary of Work: To review the pattern of Bahraini graduates joining the internship program at Salmaniya Medical Complex (SMC) in Bahrain, between 2005 and 2013.

Summary of Results: Total 676 interns joined the program. Female:Male ratio was 2:1. Local graduates were 309 (46%), 78% of them from Arabian Gulf University, 18% from RCSI Bahrain and 4% from AMA Bahrain. Overseas graduates were 367 (54%), 30.5% from Eastern Europe (80% from Ukraine), 28% from Egypt, 9.5% from UAE, 7% from Saudi Arabia, 5% from Pakistan, 4% from China, the remaining from Iraq, Oman, Sudan, Yemen, UK, India and Syria. Interestingly, there was no graduates from America, Australia or other European countries. The intern graduates of government and private high schools accounted for 81.5% and 12% respectively. High school grades for interns from local medical colleges ranged between 90-100%, while the grades for interns from overseas colleges ranged between 56-99%. The lowest high school grades graduated mainly from Eastern Europe, China and Egypt private medical schools. The correlation between the high school grades and performance in medical colleges, including the length of study in the colleges will be presented, emphasizing on those with low high school grades.

Discussion and Conclusions: The study showed that female interns, and graduates of government high school are predominant. The performance of students with very low high school grades accepted by some medical colleges raises the question of whether the high school grades is still one of the most important selection criteria for application to medical colleges, and what is the lowest acceptable high school grades. We believe that the selection criteria to medical colleges should be reviewed.
Supporting Clinical Supervision seriously

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Margaret Batchelor, East Kent Hospitals University NHS Foundation Trust, Medical Education, Kent, United Kingdom
Prathibha Bandipalyam, East Kent Hospitals University NHS Foundation Trust, Medical Education, Kent, United Kingdom

Background: With limited information on trainee posts, corresponding named supervisors, and time in job plans for trainers, an audit was undertaken at East Kent Hospitals University NHS Foundation Trust (EKHUFT) to establish an accurate and robust database. Available data was required to be validated, verified and updated against a perceived lack of funding for supervision.

Summary of Work:
• Validation of existing information, mapping against varying data sources and databases
• Audit undertaken to identify educational and clinical supervisors for all trainees, time in job plans and accurate trainee post numbers
• Triangulation of data between job plans, post numbers and supervisors verified with education commissioner and local information
• Survey conducted with 13 Local Faculty Group Leads for all specialties to validate existing data and fill in data deficits
• Up to date database created which includes all named supervisors with dedicated time for supervision

Summary of Results:
• 100% comprehensive database of validated trainee posts with named supervisors established
• 52% of total PAs required for supervision allocated within job plans
• Business Case preparation to fund shortfall of 48% in current PAs required for effective supervision provision
• Results shared with EKHUFT Board and requirement for funding acknowledged
• Plan to include time in job plans during appraisals.

Take-home messages: For effective supervision to be provided, time for trainers must be allocated within job plans. To secure exclusive funding for supervision, reliable, valid and up to date data must be available and a database managed.
7EE POSTERS: Subjects in the Curriculum
Location: South Hall, Level 0, MiCo

7EE1 (18430)
The efficacy of physical medicine and rehabilitation teaching in medical students at Roi-Et medical education center

Niramon Ungtrakul*, Roi-Et Medical Education Center, Roi-Et Hospital, Physical Medicine and Rehabilitation, Muang Roi-Et, Thailand

Background: It is important for medical students to understand physical medicine and rehabilitation but time for study is very short. Therefore this research aimed to determine efficacy of physical medicine and rehabilitation teaching in medical students.

Summary of Work: I developed the examination of 20 questions that covered the content of physical modalities, stroke rehabilitation, chest physical therapy and therapeutic exercise. The content of the questions were validated by 3 experts in physical medicine and rehabilitation. Medical students were tested before and after the study of physical medicine and rehabilitation. Wilcoxon signed rank test was used to compare the result before and after the study.

Summary of Results: The content validity of exam was good (item-objective congruency index = 0.9). There were 24 medical students (8 males, 16 females). An average pre-test and post-test score were 10.8 (54%) and 17.9 (89.4%), respectively. The post-test score (median =18.4) was significantly higher than pre-test score (median =10.5). (T=0, p < 0.001, r=.62).

Discussion and Conclusions: The efficacy of physical medicine and rehabilitation teaching in medical students at Roi-Et medical center was good. However, due to small sample sizes, further study may be required.

7EE2 (21725)
Improving teaching and learning medical microbiology through system-based infections and trigger words

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Background: Many contents are included in medical microbiology course, thus making them difficult to memorize and comprehend. Furthermore, students cannot correlate between basic knowledge and clinical symptoms leading to the ineffectiveness for differential diagnosis. Therefore, implementation of new teaching and learning approach was applied using a combination of system-based infections and trigger words, thus making important points briefer and more highlighted.

Summary of Work: Third-year medical students with previous knowledge of infectious diseases were enrolled. The impact on their learning was assessed through pre- and post-test quizzes, and students’ satisfaction was evaluated through a questionnaire. Particularly, learners’ attitudes were graded by a five-point Likert scale (from 5 strongly agree to 1 strongly disagree). Questionnaire was circulated to acquire their feedback towards the effectiveness of this methodology.

Summary of Results: With regard to test scores for learning performance, 1) the mean post-test scores were statistically higher than pre-test scores in all students (P<0.05); 2) Post-test scores of students with grades A, B+, B, C+, C and D+ were significantly greater than pre-test scores (P<0.05), but not significant in D-grade student group; 3) Overall teaching satisfaction was fell within the range of 4 agree to 5 strongly agree.

Discussion and Conclusions: A significant improvement between the mean pre- and post-test scores was observed. Questionnaire results showed most students expressed positive attitude with enjoyed learning.

Take-home messages: Brief and highlighted contents can improve the performance of preclinical sciences teaching.
**7EE3 (22553)**

**Does patient safety module integration in the medical curriculum improve knowledge, attitude and practice of the students toward patient safety?**

**Abeer Arab, King Abdulaziz University, Jeddah, Saudi Arabia**  
**Hussain Abubakr, King Abdulaziz University, Jeddah, Saudi Arabia**  
**Rawan Benkuddah*, Saudi Arabia**

**Background:** This study aims to evaluate the impact of teaching a patient safety module on medical students' knowledge, attitude, and practice.

**Summary of Work:** A case-control study was done between two groups. The first group included students from King Abdulaziz University that offers a patient safety module as part of their curriculum compared to a second group from other five different Saudi universities. A self-rating questionnaire was designed to measure knowledge, attitude and skills toward patient safety.

**Summary of Results:** 392 final year medical students filled the questionnaire, with current response rate of 60.3%. In the first group, 77.8% claim to understand the definition of medical error, while 62% only from the second group think they do. Only 40.5% from the first group declared they know how to report an error with 18.8% from the second group (P-value= .094). Only 52.5% of the first group and 41.9% of the second group agreed that competent physicians do not make medical errors that lead to patient harm (P-value= .842). Both groups agreed on the need for teaching a patient safety curriculum Moreover, 55% of the first group answered the hand hygiene practice questions correctly compared to 42.4% only from the second group. That difference was consistent for other questions but more prominent with questions related to vital safety practice as needle safety and medication errors.

**Discussion and Conclusions:** Our study concluded that Students who participated in patient safety module through their curriculum were more knowledgeable and alert regarding WHO objectives of patient safety. Further data will be presented at AMEE2014.

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**7EE4 (19222)**

**The use of individual feedback and education on prescribing errors to improve the quality and safety of prescribing in Paediatric medicine**

**Ciara Holden, Worthing Hospital, Paediatric Department, Worthing, United Kingdom**  
**Hannah Linford, Worthing Hospital, Paediatric Department, Worthing, United Kingdom**  
**Christian Chadwick*, Worthing Hospital, Paediatric Department, Worthing, United Kingdom**  
**Anna Mathew, Worthing Hospital, Paediatric Department, Worthing, United Kingdom**  
**VJ Kannian, Worthing Hospital, Paediatric Department, Worthing, United Kingdom**

**Background:** Almost 15% of medication errors reported to the national patient safety agency involve patients aged from 0-18 years. Half of these errors were due to an unclear or incorrect dose of medicine being prescribed. Previous studies have shown improvement in quality of prescribing when mistakes made by individuals are highlighted to them. Due to the transient nature of medical staff, interventions made to highlight mistakes to individuals may be better made by a permanent member of staff such as a clinical pharmacist in order to achieve sustained improvement.

**Summary of Work:** The clinical pharmacist assessed each paediatric inpatient drug chart daily for prescribing errors. Individual feedback was given to colleagues who had carried out a prescribing error in a confidential way using secure email. A 10 point proforma highlighting ideal prescribing standards was used to assess 10 drug charts weekly before and after the interventions described.

**Summary of Results:** The current data shows a significant improvement in prescribing practice since the described interventions were made. An improvement was seen in 9 out of 10 of the parameters audited after feedback had been implemented.

**Discussion and Conclusions:** Our data shows that individual education and feedback on prescribing errors by a permanent staff member can improve prescribing standards.

**Take-home messages:** We recommend that this is an achievable and transferable approach to other departments and hospitals.
7EE5 (22747)
Can medical students use statistics describing risk to make rational prescribing decisions?

Katy Harries*, University of KwaZulu-Natal, Division of Pharmacology, College of Health Sciences, Durban, South Africa
Julia Botha, University of KwaZulu-Natal, Division of Pharmacology, College of Health Sciences, Durban, South Africa

Background: For doctors, rational prescribing involves comparing different risk statistics to select treatment options. We investigated the ability of first years to interpret risk statistics.

Summary of Work: Students were asked to imagine they had a disease which could be modified with medication. Given information about the relative risk, absolute risk and the “number of patients needed to treat” of the medication, they were asked which of these would convince them to take it long-term. They were not told that these statements represented equal risk calculated from the same study. Students who could be contacted telephonically were asked to explain their reasoning. Response combination frequency and demographic influences were determined using Epi-Info (version 3.5.3).

Summary of Results: Of 157 participants, the relative risk, absolute risk and number needed to treat information convinced 79%, 55% and 26% respectively to take the drug. Thirty one students (20%) gave the same response for all three options. However the 13 of these that were interviewed telephonically were all surprised that these statements described the same risk. For the 126 students remaining (80%), 47 responded positively only to relative risk, and 46 to both relative and absolute risk. There were 33 (21%) responses lacking logic even if the numbers are taken at face value. Non-English home language was associated with this illogical response (p = 0.038).

Discussion and Conclusions: Most students were unable to interpret different risk statistics.

Take-home messages: Students are easily fooled by different representations of risk. Training is required in this essential rational prescribing skill.

7EE6 (19671)
The evaluation of a professional development program on proper prescribing of controlled prescription drugs

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Marine Ghulyan, Vanderbilt University School of Medicine, Internal Medicine, Nashville, TN, United States
Anjali Shah, Vanderbilt University School of Medicine, Internal Medicine, Nashville, TN, United States
William H. Swiggart, Vanderbilt University School of Medicine, Nashville, TN, United States

Background: Substance abuse with controlled prescription drugs is at epidemic proportions in the U.S. Many health care providers are not well trained to identify substance abuse or manage patients who are abusing controlled prescription drugs.

Summary of Work: We evaluated a 3-day professional development program using Kirkpatrick’s Model for Evaluating Training Programs in order to assess the efficacy of the course to reduce misprescribing and improve knowledge, skills and patient safety.

Summary of Results: Level 1 – participant satisfaction was high. Participants ranked the course (mean 4.8/5) and presenters highly (mean 4.8/5). Level 2 – participants’ knowledge scores (N=174) on pre/post assessments increased significantly (p=<.0001) as did attitudes (N=137) toward substance use (p=<.0005). Level 3 - results for transfer demonstrated that most of survey respondents made professional changes (94%) and changes to office policy and practices around prescribing (80%). Between 63-76% improved screening, monitoring and referring patients for substance misuse. Up to 93% shared new information/experience with other health professionals. Comments related to the impact of the course included: “All medical students and residents should be taking this course.” “I really feel our office is in great compliance due in great part to the information from the course.”

Discussion and Conclusions: Using Kirkpatrick’s model of program evaluation demonstrated impact on three levels but further study is needed to measure direct impact on patient outcomes and return on investment (ROI) at level four.

Take-home messages: Applying the Kirkpatrick model helped identify the strengths and values of the content covered in a professional development program.
**ABSTRACT BOOK: SESSION 7**

**TUESDAY 2 SEPTEMBER: 1045-1230**

7EE7 (21508)

**Neurophobia, localising the deficit**

*Magdalena Niestrata-Ortiz*, Chelsea and Westminster Hospital, London, United Kingdom
Emma Horton, Chelsea and Westminster Hospital, London, United Kingdom
Nia Williams, Chelsea and Westminster Hospital, London, United Kingdom
Pooja Gulati, Chelsea and Westminster Hospital, London, United Kingdom
Suveer Singh, Chelsea and Westminster Hospital, London, United Kingdom

**Background:** Neurophobia, ‘fear of neurology’, is prevalent among medical students and junior doctors. We investigated its extent and underlying reasons, prompting the creation of a junior doctor-led (“near-peer”) neurology revision course for final year medical students.

**Summary of Work:** An online questionnaire was designed evaluating which specialties were perceived as most challenging to learn at medical school and why. In response to the results, a one day neurology revision course was organised and offered to London final year students by junior doctors. Pre-course standardisation briefing of teachers was undertaken. The course included interactive lectures, extended matching questions (EMQ) session, and clinical examination circuit of patients with neurological conditions. Feedback was collected from both students and tutors.

**Summary of Results:** The online questionnaire received 179 responses: 136 (76%) from medical students and 43 (24%) from junior trainees. The majority of respondents identified neurology as the specialty they found most challenging (59.2%; CI 95% ± 7.2%) and were least confident in when taking their final exams (71.5%; CI 95% ± 6.6%). The main reason identified was too little exposure to patients and too few clinical attachments (87.5%; CI 95% ± 5.7%). All students and tutors (n=45) felt their skills, knowledge and confidence in neurology had improved following participation in the revision course. The most useful aspect of the course was the examination circuit (75%).

**Discussion and Conclusions:** Students and trainees feel most challenged when assessing neurological patients. This diffidence may be partly related to perception of limited dedicated undergraduate teaching in neurology.

**Take-home messages:** Near-peer teaching and patient-based teaching are valuable tools which improve confidence in neurological assessment and may desensitise neurophobia.

7EE8 (23095)

**Knowledge level, perceptions and information that students of Faculty of Medicine of Universidad Mayor have on violence against women in Chile**

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**Background:** Gender Violence requires health experts who know the subject and know how to act. For WHO, preventing violence and supporting victims is a public health priority. Of complaints to the Chilean police of violence in Chile in 2012, 80.3% were from women.

**Summary of Work:** To determine level of knowledge and information management that 4th year- students of the Faculty of Medicine, Universidad Mayor, Santiago, have regarding gender violence. To determine if these topics are covered in curricular activities during the career. Exploratory and descriptive study data obtained through validated self-applied survey adapted from R. Siendones et al. with item, Likert scale-type, revealing the level of agreement with statement. The selected sample was applied randomly to 170 students in September 2013.

**Summary of Results:** The preliminary analysis shows that students considered the topic of violence as very important although the academic activities in which these topics are addressed are still scarce, with the exception of Obstetrics and Medicine that cover these topics in Legal Medicine.

**Discussion and Conclusions:** Ignorance and demotivation of abuse decrease the detection. The failure is in not investigating symptoms of GV, or minimizing the abuses, not believing in the victim. The curricular activity must prepare professionals with tools for detecting cases, and supporting and guiding patients.

**Take-home messages:** Eliminating Gender Violence is everyone’s responsibility.
7EE9 (22272)
Sexual health competencies in health professions education: Educating the whole person
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Background: In the United States, health professions education on sexual health knowledge, attitudes, and skills development is often inadequate and may negatively impact patient care and well-being. The current study explored personal and educational factors that influence students’ perceived sexual health competency in order to guide curricular enhancement across health education disciplines.

Summary of Work: Health professions students (e.g., medicine, nursing, physical therapy) from a health sciences university and mental health graduate programs (N = 491, mean age = 28.3) completed an author-derived sexual health questionnaire to assess comfort and skill, an author-adapted Human Diversity Measure (Dixon-Woods et al., 2002) to assess knowledge and attitudes, and a demographic survey.

Summary of Results: A variety of personal and educational factors influenced self-assessment across dimensions of sexual health competency. Notably, religion and spirituality variables were particularly salient to perceptions of sexual health comfort and skills whereas educational variables were marked in perceptions of sexual health knowledge. Sexual health attitudes were related to a number of educational and personal factors.

Discussion and Conclusions: The results of this study support that dimensions of sexual health competency may be differentially influenced by personal and educational factors. This suggests that a tailored approach to curricular development for individual sexual health competency dimensions may be warranted.

Take-home messages: To promote competent delivery of sexual health services to patients, a whole-student, self-reflective approach to education would include consideration of student background and values, life experiences, and educational needs.

7EE10 (19586)
Geriatric Clerkship: A Multidisciplinary Approach
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Background: Given the rapid growth of the world’s aging population, physicians are expected to knowledgeably and competently address geriatric concerns. This study aims to present the structure of multidisciplinary geriatric clerkship program and students’ feedbacks on it, which initiated by the Faculty of Medicine at Gazi University, Turkey in the academic year 2009–2010.

Summary of Work: The university administration formed a multidisciplinary education council to design geriatric training for the period during which no geriatrician was available in the faculty. The council members were from departments, internal medicine, orthopedics, physical medicine and rehabilitation, psychiatry, public health, medical education and neurology. The council was responsible for executing course. A total of 181 students participated, of which 138 (76.2%) completed the feedback form.

Summary of Results: The clerkship consisted of three components: independent time (2%), theoretical (76%) and practical courses (22%). The participants spent 60% of their apprenticeship engaging in practical study at nursing homes, and 40% in the psychiatry, neurology, and physical therapy rehabilitation clinics of University Hospital. The purpose of the clerkship and training objectives were detailed in the curriculum, which was included in the clerkship file. The final student grade was calculated by averaging the evaluation scores earned during the training period and the results of written and oral examinations. According to the feedbacks, 61.6% of the trainees regard the allocated time for training as adequate, and 39.1% strongly believe that the clerkship program met its training objectives.

Discussion and Conclusions: Geriatric training programs that are structured for a given clinical period, and emphasize practice and real-world situations, more effectively satisfy educational purposes and training objectives.

Take-home messages: Geriatric clerkship can be constituted with a multidisciplinary approach in order to meet learning objectives, practical component of the course should be increased.
Personality traits and attitudes toward caring for the dying among undergraduate medical students: Which are the links?

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Background: Caring for dying patients requires specific attitudes. Extensive research indicates that medical students feel unprepared to cope with issues related to the end-of-life care, as they are unsure if they have properly developed those attitudes. Little is known about the relationships between personality traits and attitudes toward caring for the dying and then it is difficult for medical educators planning tailored training suited to prepare students to palliative medicine.

Summary of Work: The present work aimed to investigate the role of personality traits in predicting the attitudes toward the care of the dying. A cross-sectional methodology and a self-assessment procedure were used for data gathering. Participants were 880 second-year Italian medical students. The attitudes toward caring for the dying were detected through The Frommelt Attitude Toward the Care of the Dying Scale form B; for the personality assessment, the Temperament and Character Inventory was used.

Summary of Results: Significant gender differences emerged in students’ personality profiles. Multiple regression models showed how low harm-avoidance and high self-directedness personality traits seem to predict more developed attitudes toward caring for the dying.

Discussion and Conclusions: Study findings suggest significant links between more self-directed and less harm-avoidant personality traits and more developed attitudes toward caring for the dying.

Take-home messages: Personality assessment in medical curriculum seems important, not merely to help teachers in planning tailored training, but also to encourage in future doctors the propensity to develop a patient-centered therapeutic alliance with the dying patients they will care for.
7EE13 (20860)
Medical students' gap in confidence in palliative care competency

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Background: Palliative care requires unique competencies. Not only knowledge about medical sciences but also delicate communication skills is essential, the latter of which demands time for practice. This study evaluates the gap of confidence of medical students in some of the communication topic in palliative care.

Summary of Work: Using care of palliative patients admitted to PSU hospital as study module, the medical students year VI have had direct experiences of interview, physical examination and interpretation with real patients. While students were working in the department of surgery or OB-GYN and Internal Medicine, they were assigned to assess a palliative patient. In the class, students then presented the case to the group followed by group discussion. Then facilitators led the group to do bed-side approach. The final section was a reflective session that every student reflected what he/she saw or felt from the whole experiences. Assessment form from every student after the activity finished was collected. The questions “how confidence you have…” on various subjects related to palliative care were asked.

Summary of Results: 1. Ninety two (92) year-VI medical students were enrolled in this study. 2. The area medical students felt least confidence was talking about prognosis. 3. Topic medical students would like the faculty to add or increase learning experience include breaking the bad news, talking about prognosis and various scenario of pain management.

Discussion and Conclusions: Communication in palliative care is relatively advance skill. Not only knowledge, but also period of practice and adjustment of attitude is required which demands consideration of how to arrange and how much time needed for adequate learning experiences.

Take-home messages: Communication in palliative care needs both knowledge, skill and, extremely importantly compassionate heart.

7EE14 (20453)
Integrating public health in the Medical curriculum, Suranaree University of Technology

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Background: Medical Curriculum, Suranaree University of Technology (SUT) has outcome based integrate curriculum and adopted village in Nakhon ratchasima as a part of community training for teaching public health to develop professionalism.

Summary of Work: After engaging in rural studies, the medical students will be able 1) to generalize knowledge, attitudes and skill in public health concepts; 2) to justify knowledge by approaching public health pattern of illness in population and health care setting; 3) to apply epidemiological and public health principles in solving public health problems; 4) to develop a positive attitude toward the need to incorporate epidemiological, social, environment, effectiveness, health promotion. Students study in 1) conceptual framework for integrating public; 2)Natural history of disease; 3) Key public health dimension. We evaluated effectiveness in achieving the outcome by questionnaire.

Summary of Results: 60 Medical students participated in eight questions. 1) can insight into family and community medicine 2) improve clinical skill 3) Enhance professionalism, ethics 4) Contribute to self-directed learning 5) able to apply clinical skill 6) can insight into disease prevention 7) Developed critical thinking 8) can apply basic science were 4.05, 4.22, 4.15, 3.98, 3.97, 3.97, 3.85, respectively.

Discussion and Conclusions: The community based training provides the best activities to achieve professionalism in teaching Integrated public health in SUT Medical curriculum.

Take-home messages: SUT has outcome based integrate curriculum and adopted village for teaching public health. After engaging in rural studies medical students will be able 1) to generalize knowledge, attitude, skill in public health concepts; 2) to justify knowledge by approaching public health pattern of illness in health care setting; 3) to apply epidemiological and public health principles in solving public health problems; 4) to transform positive attitude. Student study in Conceptual framework for integrating public health: role model, medical ethic, medical doctor, health care provider, teamwork and community research.
Popular Education in Health Care

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Background: Since 2013 the Health Ministry identifies and recognizes the role of popular education in health (PEH). The PEH established an educational point of view where the less fortunate stop being just viewers and start being fully active at the definition of their own cultural, political and economic guidelines.

Summary of Work: The objective of this work was to inform and promote health to the group of pregnant women at the Unit of Basic Health, in Guarulhos, Brasil. The medical students have inside their curriculum some activities related to health education. During the 8 months that the students work in the basic attention, they've practiced popular health with different groups, but since 2001 the focus has been with the pregnant group.

Summary of Results: Based on the SUS Integrality principle that states that not only the care in all levels must be integral, but also the knowledge that the people have, their practices and life experience, we've used as support for our work the life experience of the pregnant group that live in this scenario with an emancipatory, creative, communicative and participative point of view that contributes to the user autonomy. We approached themes like sexuality, the body changes during pregnancy, breast feeding, delivery mechanism, family planning, STD and group therapy. After studying the different methodologies that we could apply, we have opted for group discussion, activities with the body, group therapy and lectures.

Discussion and Conclusions: As students, this work made us realize the different sort of methodologies applied, and with that, comprehend the real needs of the community.

Take-home messages: As students, this work made us realize the different sort of methodologies applied, and with that, comprehend the real needs of the community.

Enhancing Medical Student Competency in Health Administration: Understanding Gaps in the Medical School Curriculum and Studying the Impact of a New Health Administration Selective

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Background: In order to provide quality care as future physicians, medical students must be proficient in health care policy, understand hospital financial management, and learn how to properly utilize hospital resources. Currently, many medical school curricula do not familiarize students with the basics of healthcare management. In this study, we explore if students desire more guidance related to health administration in medical school.

Summary of Work: Medical students were surveyed on the importance of health administration to gather preliminary data. A one-week selective was designed to allow students a first-hand look into the workings of administrative practices at the Mayo Clinic. During this course, students shadowed and listened to lectures from administrators, physician leaders, financial analysts, lawyers, hospital practice committees, and revenue representatives. Surveys were given prior to and after the selective to assess students' knowledge and opinions towards health administration.

Summary of Results: Preliminary survey data from 80 medical students indicated that 80% of students agreed a lack of health administrative knowledge can negatively impact patient care while 77.5% wished that more health administrative knowledge was imparted to them in medical school. Post-selective data indicated a 50% increase in health administrative proficiency as well as a 100% satisfaction rate.

Discussion and Conclusions: There is a significant discrepancy between what students want to learn and what they are taught in medical school with respect to health administration. A selective in health administration has mitigated this discrepancy and improved students' understanding of healthcare management.

Take-home messages: Health administration should be taught in medical school curricula to improve quality of care in the long-term.
7EE17 (21790)

Putting Stewardship on the Medical Education Agenda: A review of the literature

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Background: Rising health care expenditures require attention on several levels. The role of training has been acknowledged. Various interventions have been implemented to make physicians more aware of elements contributing to sustainable health care and their stewardship. In a review of the literature we sought to answer the questions 1) which types of educational interventions have been implemented to train physicians to become stewards of sustainable health care? 2) to what extent were these effective?

Summary of Work: Using different scientific databases like Pubmed and EBSCO we reviewed medical educational, medical, health economical and health policy literature to identify and describe interventions.

Summary of Results: Notably knowledge transmission through audits and lectures was used in the majority of interventions. They focused purely on decreasing health care expenditures, rather than focusing on the larger picture of stewardship and sustainable health care. Outcome measurements included changes in utilization, charges per patient, and self-perceived attitude/knowledge about health care costs. Follow-up data were lacking. Behavioral change or effects on clinical environments were not investigated. Few interventions were grounded in educational or behavioural change theories.

Discussion and Conclusions: Results indicate that focusing on specific aspects of stewardship of sustainable health care can be effective in short term, but interventions addressing the actual complexity of stewardship are scarce.

Take-home messages: Stimulating stewardship in doctors requires interventions based on educational and/or behavioural change theory.

7EE18 (23097)

Impact of problem solving learning strategies in Epidemiology on students’ performance

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Background: Epidemiology is an essential component of the generalist shaping in medicine, even so rarely it has been recognized as a valuable competence to be developed by the regular medical curriculum. Moreover, the learning process is fragmented and quite often occurs by the teacher-centered model, an inefficient strategy where the learner merely master limited sets of knowledge, without addressing actual process-skills as needed in professional practice. Problem-solving represents a more active process that involves overcoming obstacles by generating hypotheses, testing those predictions, and arriving at satisfactory solutions.

Summary of Work: We implemented the problem-solving strategy in the learning process in Epidemiology in the last year of the Clerkship and analyzed the impact of this intervention. To verify this effect we compared students’ performance before and after the intervention in the Medical Council Examination, which is applied at the conclusion of the medical course for students of every Institution located in the Sao Paulo State in Brazil.

Summary of Results: The mean score in Epidemiology and Public Health tests of the students from our institution increased before and after the intervention from 47.9% to 63.64%, respectively. This improvement was also visible when the difference between the mean score of our Institution and the global mean (from all Institutions) was compared before and after the intervention, increasing from 1.8% to 4.87%, respectively

Discussion and Conclusions: The problem-solving strategy may improve the learning process in Epidemiology, leading students to improve their performance in competence final examinations.

Take-home messages: More active Learning processes, most satisfactory solutions in medical education.
7EE19 (21740)
To Investigate the current attitudes of Medical Students towards participation and interest in Women’s Health Track at Baylor College of Medicine (BCM)

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Background: The medical student curriculum at BCM comprises of preclinical and clinical components. To enhance learning and training in various subspecialties of medicine, voluntary participation in pathways, tracks and electives also exist. The Women’s Health curriculum in most medical schools in United States is historically fragmented. We planned to investigate the interest of medical students (MS) in this field before introducing a Women’s Health Track with structured research, didactic and clinical curricular elements.

Summary of Work: We designed two online surveys to categorize variations in response to answers, among MS1, MS2 and MS3, MS4. The survey and reminders were emailed and posted on medical school online blackboard.

Summary of Results: Survey 1: 53.54% MS1 and 46.46% MS2 students responded. 70.10% expressed interest in Women’s Health Track. 96% preferred a customizable curriculum tailored to meet their interests and goals. 65.9% students were interested to pursue a career in Women’s Health after graduation. Survey 2: 51.43% MS3 and 44.29% MS4 students responded. 56.86% expressed interest in Women’s Health Track. 22% students were interested to pursue a career in Women’s Health after graduation.

Discussion and Conclusions: A significant interest in Women’s Health education among medical students is evident. We predict more effective participation of MS1, MS2 as compared to MS3, MS4 in Women’s Health Track.

Take-home messages: Medical students are under immense pressure to meet the requirements of the basic curriculum for graduation. To ensure their successful participation and completion in an optional educational track their interests and feedback should be investigated before designing a dynamic curriculum for Women’s Health Track.

7EE20 (21160)
Integrating gender in holistic patient care in the 4th year medical students

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Background: Patient care currently focuses on the disease without taking into account other factors such as gender that may influence illness. The objective of the study was to evaluate and improve medical students’ understanding and attitudes toward gender in providing health care.

Summary of Work: The gender dimension that may affect patients’ health behavior and illness was integrated and taught in “working with patient in different gender” to the 4th year medical students as part of community medicine. They learned through short films, case-based discussion and lecture. Their understanding and attitudes were evaluated using a panel discussion, before and after classes and exams.

Summary of Results: Teaching students to understand the differences in the gender condition that affects the illness allowing students to focus on patient care changed for the better. They did not focus on the disease alone. There was a more holistic approach to patient care and more sympathy to patients.

Discussion and Conclusions: Teaching students to be aware of the various factors affecting the illness rather than focusing on the disease alone helps students understand an holistic approach to patient care.

Take-home messages: Medical students’ understanding on the effect of gender difference in illness may result in a better quality of care.
The attraction of Medicine and Medical specialties: Perception of Medical Students in Georgia

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Background: Georgia traditionally has the highest density of health workers, particularly physicians. Despite this tendency the number of medical students increases year in year out. What motivates students to study medicine in Georgia and what is their expectation about career choice? In Georgia the studies addressing these questions are very limited.

Summary of Work: The objective of this study is to explore nature of primary motivation for studying medicine and expectations about future careers among medical students in Georgia. The Special questionnaire was developed for this study. Students from all medical schools were invited to participate in the survey.

Summary of Results: The three most important motivations for the students are: “care of patients” (85%), “caring for the relatives” (81,4%) and ”interest toward medical activities” (80,8%). Two significant correlations were found between gender and motivations: Caring on the well-being of society (F(1)=7.74; p<0.02) and Caring of patients (F(1)=6.3;p<0.02). Future career choice shows that most popular specialties are: surgery (26,3%), cardiology (10,4%), obstetrics-gynecology (10,4%), pediatrics (8%).

Discussion and Conclusions: This study has found that students in Georgia are more influenced by intrinsic motives and students place priority emphasis on the caring and helping people. The majority of male students have chosen surgery-related specialties as a future specialty and female students mainly care-related specialties.

Take-home messages: It is very important to understand students' motivation and career choice in order to enhance motivational paradigm of curriculum and to create counseling service in medical schools in transitional countries.

Inspiration to be a medical physician

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Background: Currently, developing countries are in need of physicians, including Thailand. It is important to encourage and promote medical school to young generation. What are the main factors students choose to pursue medical school?

Summary of Work: The data were collected from 112/166 medical students studying in 4th-6th year in academic year 2013-2014 by using yes/no and open-ended questionnaires, percentage for statistic analysis.

Summary of Results: In the past, about 20% would like to be physicians (girls 64.1% and boys 35.9%), 28% would like to be superheroes or fairy tale characters and 12% wants to be teachers. External motivation such as their parents' expectations or social popularity were the main reasons to learn medicine, 63.4%. They thought physicians were prestigious 66%, rich 48.3% and smart 27.6%. Now they thought that being physician is tiring77.7%, sacrifice 69.7% and high stress job 54.3%. However, 58% perceived that physician is a good career to be proud of. In the near future, 80.4% wanted to pursue this career, 10.7% had not made decision yet, 7.2% wanted to quit and do different jobs.

Discussion and Conclusions: More girls dreamt of being a physician than boys. External motivation was the main factor in decision making. However, once they join medical school, their teachers as role models and the learning process became the internal motivation to be good physicians. External motivation plays an important role in decision making but the medical learning process can be a major influence and become their internal motivation.

Take-home messages: Attitude and parents' expectations are key factors for children in choosing their future careers.
“Supertutors” inspire medical undergraduates into primary health care

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Background: Primary health care has had a waning reputation and the general practitioner’s (GP) work has become less tempting for young doctors worldwide. It was evident that gaining a more inspiring curriculum of general practice was needed.

Summary of Work: Until 2007 3rd and 4th-year medical students’ practical training consisted mainly of observing GP’s work at health centers. In 2007 students were offered a course to practice their consultation skills with real patients, instead of being merely observers. Ten GPs, “supertutors”, were hired as part-time clinical teachers, and pedagogical training was offered to them. During the course students treated patients first independently and then in collaboration with a “supertutor” and instant feedback was given directly to students in-between consultations. The tutors also assessed students’ performance in feedback discussions by using a structured form. Course feedback was gathered electronically. The students rated the overall impression of the course on a 1-5 Likert scale and free-form answers. These numeral ratings were compared before and after the new “supertutor” courses were implemented.

Summary of Results: Evaluations have improved significantly. The overall impression of the course was 2.36 in 2006, compared with 4.44 in 2012 (1=poor, 5=excellent). The undergraduates are more confident with their own practical skills, and they appreciate the immediate feedback from the “supertutor”.

Discussion and Conclusions: Early patient contacts under supervision of trained “supertutors” inspire students and enhance their professional development.

Take-home messages: Professionalism and enthusiasm for primary health care can be achieved by modifying the curriculum. Contribution of several committed part-time clinical teachers seems to be one key to success.

20 years of The Collaborative Project to Increase Production of Rural Doctors: Producing doctors for sustainable rural health service

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Background: To relieve the problem of doctor shortage in rural areas of Thailand, Ministry of Public Health (MOPH) and Ministry of Education signed an agreement to establish the Collaborative Project to Increase Production of Rural Doctors (CPIRD) in 1994. This started the resource sharing strategy in the production of rural doctors for Thailand. In the first 3 pre-clinical years, medical students would study in the collaborated universities. While the later 3 clinical years, students study in the hospitals of MOPH called Medical Education Centers (MEC).

Summary of Work: Multiple aspects of management were deployed in these MEC. These included student selection, area-based quota of recruitment, curriculum development, faculty development, assessment, program evaluation and graduates follow up evaluation. Now CPIRD collaborated 37 MECs with 14 universities nationwide. Each MEC trained 24-60 medical students in each batch according to the size of the hospital. The global budget for CPIRD increased from USD 19.5 million in 2006 to USD 54.3 million in 2013. This corresponded with the number of students increasingly trained in this innovative system.

Summary of Results: CPIRD increased the production of rural doctors from 8 graduates in 2000 to 876 in 2013. The proportion of doctors produced from this track comparing to the regular university track was 13.5% in 2006 and increased to 49.5% in 2013. All the graduates passed the same quality control system of the Consortium of Thai Medical Schools and Thai national medical licensing system of Thai Medical Council.

Discussion and Conclusions: With the concept of local recruitment, local training and changing from mere affiliation to synergistic collaboration, CPIRD could help producing large number of rural doctors for Thailand.

Take-home messages: Resource sharing between MOPH and Ministry of Education is an interesting strategy with successful result in producing doctors for sustainable rural health service.
**7FF5 (22823)**

**Draw your dream: An artistic tool for reflection on students’ career choices**

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**Background:** Towards the end of their clerkships, many students are concerned about their choice of specialisation and about balancing professional and personal life. At VUmc, clerks attend a series of small group reflection classes. These classes do not provide easy answers but may give students insight in their personal qualities and aspirations, and help them weigh benefits and drawbacks of career choices. We developed a simple tool to make students reflect on these choices.

**Summary of Work:** During one of the last reflection classes, students sit in pairs, taking turns in questioning each other on each one’s dreams for his/her future life in ten years time. Then each student makes a large drawing depicting this ‘dream’. Any practical problems or worries are ‘parked’ (written down) in a small square in a corner. Students then discuss their dreams and concerns in a ‘poster presentation’. This leads to further reflection on what is really important in each one’s life, shared dreams, but also surprising (gender) differences.

**Summary of Results:** At first there may be resistance, but usually students get very engaged, working on and discussing their drawings. Many students take their poster home. Some groups decide to meet up in ten years time.

**Discussion and Conclusions:** This simple approach, working in pairs, using artistic materials, has proven to be helpful to engage all students in reflection. By depicting their ideal future work situation, students get in contact with their emotions and personal motivators. The element of ‘parking’ your concerns ‘in a square’ makes it easier to address worries and dreams separately.

**Take-home messages:** Resistance to reflection is often a problem. A simple tool, using artistic materials, may help students engage in reflection on issues concerning their choice of career.

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**7FF6 (19086)**

**Growth trends in urologic education in Iran**

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**Background:** The aim of this study is to describe and analyze the growth trends in urological specialty education and urological surgical workforce and fellowships by gender from 1980 to 2013 in Iran. This article provides important information on Iran “Urologic education achievements and trends”, which can be used by medical education policy makers.

**Summary of Work:** This comprehensive national study was performed in Iranian Academy of medical science. The data of urologic admission was gathered from The Iran Medical Education and Specialty Training Council of Ministry of Health and medical education. Information on urologist workforce was obtained from Iran Medical Council and quantitatively analyzed.

**Summary of Results:** Over the 3 decades, the number of trained Urologic surgeons and fellowships in Iran have been increased significantly. The number of Iranian Urologists increased from 335 in 1980 to 1670 in 2013. Now, there are 120 female urologists in Iran. Updated data shows that only 7.2 % of Iranian urologists are women. Urology fellowships are offered in 6 fields in Iran. The number of urologist fellows who are graduates of Iran medical schools, grew sharply after 2000, and reached 235 in 2013.

**Discussion and Conclusions:** The current urology specialty training is successfully designed to improve health care and expansion of the urologist workforce. Along with expansion of urologist supply, increase of fellowship training in the various sub-specialty areas is vital to the long-term community health and academic progress. In the last decade, Iranian Urologic educational centers have intensified their efforts to absorb women into the specialty.
Empathy and Residency Selection

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Background: Many factors influence residency selection and ultimate career choice, such as debt, lifestyle, personality and learning preferences. Few studies, however, have analyzed if students’ empathy is associated with their choice of residency. We predicted that students choosing non-procedural and primary care specialties would be more empathetic than those choosing other specialties.

Summary of Work: Objective: To assess if student empathy score, as assessed on a validated instrument, is associated with choice of residency.

Summary of Results: 593/764 George Washington University third year medical students in 2007-10 completed the perspective taking and empathy subscales of the Interpersonal Reactivity Index (IRI), which measure cognitive and affective empathy respectively. Empathy scores in students choosing patient-oriented vs procedure-oriented specialties and primary care vs surgical specialties were compared using ANOVA. Students selecting ENT and plastic surgery had significantly higher IRI scores; urology had lower scores.

Discussion and Conclusions: There was no expected statistical correlation between high empathy expression and primary care career choice.

Take-home messages: Assumptions that medical students with the highest expression of empathy choose primary care specialties as their career choice were not confirmed by this study.

Health Education Kent, Surrey and Sussex School of Surgery: Where are our core trainees now?

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Background: Surgical training in the UK has undergone changes following the Modernising Medical Careers Programme, 2005. Outcomes of surgical core trainees after they have completed basic training within our Local Education Training Board (LETB) is unknown. The aim is to assess whether these trainees have remained within the UK surgical training pathway.

Summary of Work: A telephone survey was conducted. Core surgical trainees from Health Education Kent, Surrey and Sussex were contacted who had completed their training between 2010–2012 and undergone the revised recruitment selection process for higher surgical training in the UK.

Summary of Results: 61 trainees were contacted. 35% (n=21) had successfully obtained a higher surgical training post. 18 of these were within their first choice surgical specialty. 3 were within the trainees’ first choice region within the UK. The remaining 65% (n=40) of trainees were in non-surgical training posts. 5 of these had applied to higher surgical training unsuccessfully. 31 of these were currently general practice trainees, 5 of these were radiology trainees, 3 were in non-medical professions and 1 was a microbiology trainee.

Discussion and Conclusions: A third of surgical core trainees progressed to higher surgical training in this sample. The vast majority change careers, predominantly to general practice. Reasons cited were failure to progress and different expectations of surgical training and lifestyle.

Take-home messages: Results may reflect a need for a revised selection process for entry into core surgical training and the need for more career advice at an undergraduate level. Further correlation is needed with outcomes from other UK LETBs.
7FF9 (19696)
Inspiration for Specialty Training from the Recently Established Vachiraphuket Medical School

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Background: The medical students in the recently established medical school lacked desire of specialty training due to a limited number of medical teacher role models, lack of education material and special wards. The first generation of our medical students will graduate this year. Mostly of them work in community hospitals to supplement their funds. This study has been done to find out the factors to gain inspiration for their specialty training.

Summary of Work: Interview and questions were asked from the start of training in the clinical ward from 4th year followed by 5th year and finally in 6th year. The students had to give their quotes to the ward, their role model teacher and favorite ward each year. Chi square was analyzed 95% significance for each factor.

Summary of Results: Our medical students want to attend specialty training 79.2%. The highest score was Obstetrics-Gynecology equal with Surgery 21.1 % and each 10.5% in pediatric, orthopedics and forensic medicine. Furthermore students want to attend specialty training in ENT, Ophthalmology, Internal Medicine, Psychiatry and General Practice each specialty 5.3% . Analyzed with chi-square, favorite ward in the 6th year was significant (p < 0.05) but other factors were not (p>0.05). Mean GPA was not significant in training ( p>0.05) but grading in ward for training was significant (p < 0.05).

Discussion and Conclusions: Inspiration for training in our medical students was significant on the favorite ward in 6th year and grading in ward for training.

Take-home messages: Favorite ward in 6th year was important to get inspiration for future specialty training in new medical school.

7FF10 (21807)
To be or not to be a therapeutic radiographer? A study to identify the reasons for exiting or continuing on a radiotherapy programme

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Background: Attrition rates for radiotherapy programmes have been a cause for concern both nationally and locally for some time. Why is it that, despite robust admissions procedures, many radiotherapy students do not complete their studies? Could it be that the learning environment provided is somehow less than optimal for each diverse cohort of student?

Summary of Work: Consequently, this project aimed to explore the experience of a single cohort of undergraduate radiotherapy students so as to reduce attrition rates and improve retention for future cohorts. An explanatory case study approach using an innovative data collection tool, a timeline for completion by the participants themselves, was used alongside interrogation of recorded data.

Summary of Results: Thematic analysis of the data revealed six main themes (practical, academic, clinical, the milestones, commitment and support mechanisms) with corresponding subthemes of issues. Additionally, more students considered exiting in year one and two than three but remained vulnerable throughout the programme with the main motivation for completion being the ambition to become a clinical radiographer. Peer support was identified as the key means of support with the main reasons for leaving the programme recorded as; academic failure, wrong career choice and personal reasons.

Discussion and Conclusions: A list of recommendations was generated with the suggestion that further research is necessary to compare the experience of similar students on other vocational health care programmes.

Take-home messages: The radiotherapy programme presents a number of particular challenges for our students but if expectations of the profession are realistic and strong relationships are developed then perhaps more students might be successful.
Changing Trends in the Influence of Gender on Medical Specialty Choice

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Background: Medical specialty choice may be influenced by several factors, including gender. We have previous shown (Academic Medicine 1997;72:68-70) a change in the pattern of specialty choice in our medical school. There was an increase in the preference for support specialties, such as Anesthesiology and Radiology, with significant differences between male and female graduates. This work aimed at reassessing the relationships between gender and specialty choice in Brazil, using a broader database.

Summary of Work: Data for the 1842 candidates (45.6% female) to the 2014 medical residency programs of our institution (Ribeirao Preto Medical School University Hospital) were analyzed. These programs cover 19 different medical specialties. We focused on the association between gender and specialty and compared results to those from the previous series.

Summary of Results: There were a statistically significant predominance of men in General Surgery, Neurosurgery, Orthopedic Surgery, Radiology and Anesthesiology, whereas women predominate in Dermatology, Gynecology/Obstetrics (GO), Pediatrics and Rehabilitation Medicine. There were no significant differences between genders in the remaining 10 programs. In comparison with the previous series, the increased preference for support specialties were not confirmed, particularly for the female gender.

Discussion and Conclusions: Gender still influences medical specialty choice, with men showing preference for surgical areas and women for clinical areas and for GO.

Take-home messages: Despite the social changes that occurred in the last decades, women still choose medical specialties favoring an increased relationship with patients.

Characteristics of Role Models Who Influenced Medical Residents to Choose Surgery as a Specialty

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Background: Influence of role models is regarded as an important factor determining medical specialty choice. Nevertheless, the characteristics of positive models in relation to influences in specific areas of training have not been much investigated. This work aimed at assessing the influence of role models in medical residents who choose Surgery, and at determining the most influential model characteristics.

Summary of Work: Sixty four out of 96 (66.6%) medical residents (49 men, mean age: 28 years) were surveyed on the factors determining their choice of Surgery as a career. Questions included items on whether or not a role model had influenced them in choosing Surgery, and which were the main personal or professional characteristics of the models that they think had been most influential.

Summary of Results: Fifty-three (82.8%) residents acknowledged having been influenced by role models. Sixteen different model characteristics were indicated as important in 139 mentions. Characteristics classified as technical skills (55%), such as “medical knowledge” and “manual dexterity” predominated over humanistic characteristics (35%), such as “patient-physician relationships” and “ethical behavior”. However, this difference were not statistically significant (Fisher test, p=0.11).

Discussion and Conclusions: As in other specialties, influence of role models is an important factor determining the choice of Surgery as a career. Individual characteristics of models, which were most influential for trainees in Surgery, included not only technical, but also humanistic qualities.

Take-home messages: Humanistic characteristics also contribute to the influence that role models exert in trainees choosing Surgery, and should therefore be considered in faculty development programs for surgeons.
The “mini-residency” for musculoskeletal care: An effective model of continuing education and professional development

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**Background:** In 2012, the Veterans Health Administration established an interprofessional “mini-residency” in musculoskeletal care for primary providers, with the goal of enabling them to manage many patients with musculoskeletal complaints appropriately in their clinics, rather than refer. This program was created and developed at the Salt Lake City VA Health Care System, and has now been disseminated to twelve additional sites across the United States.

**Summary of Work:** The mini-residency is an intensive 3-day mixed-method course, focusing on the appropriate evaluation and management of shoulder and knee pain. Curriculum includes didactics, hands-on sessions with peer-teaching, simulated patients, and technologically-enhanced simulations. Learning is assessed by self-report using a 5-point Likert scale (declarative knowledge) and by a 2-station objective structured clinical examination (OSCE) at the conclusion of the course (competence). Program development and evaluation are informed by Kirkpatrick’s model of assessing educational effectiveness, Moore’s Expanded Outcomes Framework for Planning and Assessing CME Activities, and Phillip’s concept of Return on Investment.

**Summary of Results:** To date, 138 mini-residents (74 physicians, 31 nurse practitioners, 21 physician assistants, and 12 medical trainees) have participated. Scores representing overall satisfaction, declarative knowledge, and OSCE were high (mean = 4.9, 4.8, and 4.5 respectively), and participants felt that their job performance would improve (mean = 4.7). Data regarding impact on performance are being collected.

**Discussion and Conclusions:** An interprofessional “mini-residency” in musculoskeletal care is an innovative and reproducible model for continuing education and professional development (CEPD).

**Take-home messages:** The interprofessional “mini-residency” model, effective for CEPD, is informing future medical student and resident educational experiences, particularly in the primary care setting.

**7GG2 (22753)**
Estimation of a Social Cognitive-Based Model of Lifelong Learning Commitment Using a Structural Equation Estimation

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**Background:** With the expansion of medical knowledge, the need for lifelong learning is indisputable. Social learning theory has been found to be an effective model in a number of healthcare-related processes. This report is on the applicability of a social learning model to postgraduate education.

**Summary of Work:** Data were gathered on a population of 600 physicians. The data were gathered in four waves of surveys. The resulting sample, depending upon analysis, constituted some 200 replicates. Estimation of the model was undertaken using Mplus 7, Muthén & Muthén, Los Angeles. Where possible, the unobserved variables were estimated utilizing structures that had previously been confirmed. The outcome variables of interest were choice to participate in education and the individual’s score on the Jefferson Lifelong Inventory.

**Summary of Results:** The model that demonstrated both the fewest constraints and the best consistency with theory is presented. This model shows links from attitudes toward learning to intent to learn; links from sense of self-efficacy to both motivation to change and barriers to change; and, links from barriers and intent to choice for participation, and, finally, the Jefferson Lifelong Learning score.

**Discussion and Conclusions:** These data substantially support the efficacy of a social learning model in application to the choice to participate in lifelong learning. The advantage of this style modeling is that it provides the educational community a number of areas in which individuals might receive support to increase their participation in this critical process.

**Take-home messages:** Determination of intervening variables between knowledge acquisition and practice change and the relationships between those variable can be helpful to educators in promoting the adoption of lifelong learning practices.
7GG3 (20170)
Evaluation of a novel comprehensive online CME curriculum in geriatric psychiatry

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Background: The Canadian Academy of Geriatric Psychiatry launched an asynchronous online study group in October 2012 to consolidate learning of geriatric psychiatry in an innovative, interactive, and fun manner, and assist with preparation for Royal College certification examinations.

Summary of Work: For each of a series of 22 two-week long modules taking place over a 10-month period, small groups of 50 participants from across Canada log on, read 3 suggested references, and engage in answering short answer and reflective questions, case discussions, and critical appraisal, in a discussion-group format. Archived recordings of recent lectures on a subset of the topics are made available. The program brings together physicians from across the country, with varying levels of experience and scope of practice. Between 19-48 participants evaluated each module, and 29 participants consented to a structured retrospective study of their learning experience. Wilcoxon signed-rank tests were used to evaluate changes over time.

Summary of Results: Mean global instructor evaluations ranged from 3.17-4.45 out of 5. Self-efficacy regarding passing the examination increased in 79% of respondents, (z=3.69, p<0.05).

Discussion and Conclusions: The majority of participants enjoyed the program and found it to be useful in enhancing their preparedness for certification examination. Challenges exist regarding engaging all participants and sustaining the engagement over a long “semester”, and this deserves further exploration.

Take-home messages: Attention should be directed toward participants’ suggestions for improvement to ensure a stronger program offering in the next iteration.

7GG4 (22525)
How to translate a CPD activity into improved practice management of allergy patients, using "commitment to change"

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Background: There is a tremendous need to improve the effectiveness of Continuing Professional Development activities. Too often medical teaching is not linked to physician’s change in behavior or patient outcomes. Cognitive dissonance is an important factor to identify the need for change in clinical practice; it supports the need for reflection and stimulates CTC statements.

Summary of Work: A CTC method was introduced to 31 Swiss primary care pediatricians on a modular allergy course. Seventy-four CTC statements were produced. Forty-seven statements were the basis for semi-structured personal interviews with the goal to find possible patterns why pediatricians commit to clinical practice changes and how they use “reflection” as a means to committing to changes.

Summary of Results: Self-perceived knowledge gaps, insecurity, and feelings of dissonance were described as motives both for CTC statements and course attendance. Data analysis revealed three main themes that stimulated a change intention: (1) problem-oriented learning, (2) convenience in translation and implementation, (3) situated learning by learning from each other and through reflection.

Discussion and Conclusions: The CTC strategy and the systematic use of reflection were new to most course participants. It initially evoked uneasy feelings in some, while others perceived it as very welcome. Providing space and time for reflection on goals and values proved popular, helpful, and important for effective learning.

Take-home messages: Future allergy courses need to provide practice-relevant information and include reflective exercises. CTC should be an integral part because it facilitates the process from recognizing discrepancies to formulating intended changes.
7GG5 (18929)

Awareness of opportunities and its effect on the engagement of Specialty and Associate Specialist doctors in their Continuous Professional Development

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Background: Commencing in 2008, The Department of Health, UK allocated substantial funding to improve the professional development of Specialty and Associate Specialist (SAS) doctors. As a result, a number of training programmes were commenced to achieve this. The aim of this study was to explore in depth whether awareness of Continuous Professional Development (CPD) opportunities affect the engagement of SAS doctors with these programmes. It was a case study involving 60 SAS doctors from a District General Hospital.

Summary of Work: One focus group discussion with a representative group of seven SAS doctors and six individual semi-structured interviews were conducted. The results were analysed by themes.

Summary of Results: The data suggests that lack of awareness of CPD opportunities and one's own development needs limits the extent to which SAS doctors engage with them. Awareness of personal needs was linked to the processes of induction, appraisal, Professional Development Plan (PPD), job-panning and mentoring. Awareness of opportunities depended on organisational structure and communication. Other factors supporting or interfering with this awareness were SAS Local Faculty Groups, SAS Forums, SAS Specialty leads, time available to participate in the CPD activities, support available for the Certificate of Eligibility for Specialist Registration (CESR), e-portfolios, and one-to-one professional learning conversation with an educationalist.

Discussion and Conclusions: A well designed programme of Continuous Professional Development which addresses individual awareness of training needs and enhanced awareness of the CPD opportunities is likely to lead to higher engagement.

Take-home messages: CPD programmes for trainees should be individually tailored and every attempt should be made to enhance their awareness.

7GG6 (19530)

Quality improvement through academic detailing among Ontario specialists

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Background: Research has shown that academic detailing (AD) is one of the most effective forms of Continuing Medical Education (CME) for improving prescribing practices and reducing drug costs. This project was designed to investigate the feasibility and acceptability of AD as an educational tool among psychiatrists and its ability to improve practices in antipsychotic prescribing.

Summary of Work: All psychiatrists practicing in Southwestern Ontario were invited to participate. Participants (32/299 [10.7%]) were provided with 2 educational sessions by a detailer consisting of an evidence-based overview of antipsychotic prescribing. Participants completed an AD evaluation, evaluating the quality of the visits, and a pre- and post-assessment questionnaire measuring practice change.

Summary of Results: Over half of the participants felt that the AD sessions gave them useful information on tools used for monitoring side effects (61.5%) and 50.0% felt that the AD sessions gave them useful information on documentation when using polypharmacy and monitoring of physical health parameters. Similarly, 50.0% of participants felt that the detailing sessions will change their practice in regards to using tools for monitoring side effects, and 46.2% of participants felt that the program will change their practice in documentation when using polypharmacy. No significant differences were found in participants' pre- and post-assessment questionnaire measuring practice change.

Discussion and Conclusions: To our knowledge, this is the first AD program in Canada to target specialists solely. Participants demonstrated an overall acceptance of the AD intervention and perceived it as a feasible method of CME.

Take-home messages: This program provides a credible AD model which can be applied nationally and internationally to improve patient outcomes.
7GG7 (2021)
The effect of continuing professional development training program in Lao PDR

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Background: In the rural areas of Lao PDR, medical assistants are the main medical professionals providing primary care. Through the continuing professional development training of medical assistants, it will be able to improve the quality of healthcare in the rural areas of Lao PDR.

Summary of Work: Medical faculties from Seoul National University College of Medicine in Korea and University of Health Sciences in Lao PDR worked together to develop a continuing professional development training program composed of major clinical fields for medical assistances. They provided a 1-week ‘training of trainers’ program for the medical faculties of one provincial hospital in a pilot area. Then, the trained faculties provided a 10-week training program for medical assistances. Thorough evaluation of the program is on the process covering the four levels of reaction, learning, transfer and results from the Kirkpatrick model.

Summary of Results: The trainees were quite satisfied with the training program according to the results of the 14-item questionnaire using the 5-point Likert scale, which the average scores were from 4.2 to 5.0. The learning of the trainees was evaluated by the trainers using a global rating of 6-point scale. The average score of the trainees’ performance at the beginning was 2.1, which was improved to 3.6 at the end of the training.

Discussion and Conclusions: The continuing professional development training program was planned and implemented with the full engagement and responsibility of Lao PDR medical professionals to achieve the sustainability of the program. As the program proved to be effective, it would be possible to adopt this program to other rural areas in Lao PDR.

Take-home messages: As the continuing professional development training program proved to be effective, it would be possible to adopt this program to other rural areas in Lao PDR.

7GG8 (20795)
To refer or not to refer?

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Background: Recent restructuring in the NHS and the increasing need for accountability over the cost-effectiveness of care, has seen referrals from general practice to secondary care services come under particular scrutiny to understand diversity in practice (Davies et al 2011). It is assumed that greater medical knowledge and experience leads a practitioner to make fewer, specific blood test referrals; thus by definition trainees will tend to be higher referrers. Whist some evidence exists that this may be the case, research to date has not tended to explore what lies behind this and to consider it from an educational perspective.

Summary of Work: This small scale retrospective review of referral rates for blood test in a training practice seeks to address the following research questions:

• to identify whether trainees make more referrals than experienced GPs, and
• whether there is a difference in referral rates between junior and senior trainees.

In particular the patterns of referrals will be examined in context to see how trainers may review blood test referrals with trainees in order to understand the drivers for variation and develop insight for trainees into their behaviour.

Summary of Results: The research is in progress and will be completed in the spring. The results of the work will be presented in the context of the research questions, previous research and educational potential.

Discussion and Conclusions: The outcome of the work will be to develop an educational approach for trainers which may be used to explore referrals for blood test with trainees and to consider the drivers for referral behaviour.
7GG9 (21824)
Supporting Dental Practitioners in the UK: Coach-mentor programme

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Background: In response to a growing number of fitness to practise cases referred from the General Dental Council (GDC), Health Education Thames Valley and Wessex developed a rigorous four day training and assessment programme to create a specialist team of coach-mentors. The programme works with dental practitioners who need further support, usually to resolve GDC concerns about their practice. The concerns may relate to knowledge or skills gaps or other behavioural issues.

Summary of Work: Twelve applicants attended a two day residential course, plus a third day, where they learnt about risk factors that increase the likelihood of a practitioner needing support. Advanced coaching and mentoring skills were taught and case studies were analysed to give an understanding of scenarios they could encounter. One month later, delegates undertook a challenging series of exercises to test their suitability for the role. Ten of the twelve applicants passed the assessment on the first attempt.

Summary of Results: The coach-mentor advises and supports the practitioner to agree goals and an action plan. They work closely with the dentists they support, helping them to focus on improving weaknesses in their practice. They offer guidance through the planning process and track progress against milestones using standardised documentation.

Discussion and Conclusions: The programme has been developed to provide trusted support for practitioners, with one to one, non-judgemental guidance, using standard processes tailored to the individual dentist.

Take-home messages: Close, skilled support can improve successful remediation of dentists in difficulty.

7GG10 (19943)
Effective integration of webinars in a competency-based curriculum for spine surgeons worldwide

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Background: The AOSpine Curriculum is a framework for the education and continuing professional development of spine surgeons worldwide, based on competencies and learning outcomes across six areas of pathology. Content is delivered through face-to-face events, online learning, and self-directed resources. Eleven webinars have been integrated during 3 years of Curriculum implementation.

Summary of Work: Integration was analyzed using data from: a standardized evaluation process following all webinars, needs assessments with our community, and a review of content delivered based on pathologies, competencies, and learning outcomes.

Summary of Results: 745 surgeons participated live in 11 webinars over 3 years (average = 83 participants), and a much larger number accessed the archived versions. 96.4% of postwebinar respondents rated the content "relevant to their current practice" and the majority reported an intention to make a change in clinical practice. Global and regional needs assessment data (N=848, 453) show a preference for more webinars in the future. A review of the learning outcomes provided a curriculum map showing the pathologies and competencies that have been addressed, and gaps to address in the future.

Discussion and Conclusions: Live and archived webinars are frequently used by our community, and demand is likely to increase. Improvements to our already successful integration will be made by offering more webinars, optimizing access for local needs, and including a broader range of curriculum based competencies.

Take-home messages: Webinars can be successfully integrated into a competency-based curriculum by meeting participants' needs through planned and targeted topics and learning outcomes.
**7GG11 (19802)**  
**Intended use of an educational app on medical aspects of orthogeriatrics by surgeons**

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**Background:** Apps have the potential to provide point-of-care learning to physicians by delivering education and evidence-based information during the clinical encounter. Based on data from face-to-face education and a needs analysis worldwide, an opportunity was identified to develop an app for surgeons on the medical management of elderly patients after a fracture.

**Summary of Work:** A pilot app addressing osteoporosis, delirium, and anticoagulation was designed from published evidence and algorithms by expert authors and reviewers. The pilot was provided for 2 weeks to 17 surgeons from a global network of faculty and participants. An online survey was administered before and after, including a question on intended uses.

**Summary of Results:** Before downloading the pilot, the surgeons rated their main intended uses as: "an educational tool for yourself" (n=13), "to aid decision making when managing your patients" (n=12), and "an educational tool for others in your hospital" (n=9). Following pilot use, these intended uses were confirmed and many examples of specific application in practice were described. Feedback was reported regarding several issues, including level of recommendations, compatibility with national guidelines and local protocols, integration of practice tools, add-ons (eg, links to literature), and topics to add in the future.

**Discussion and Conclusions:** Feedback to the pilot guided finalization of content and pathways in the app. Navigation and instructions have been optimized based on analysis of the application of the content by surgeons in their practice.

**Take-home messages:** The design of apps for point-of-care learning requires clinician feedback before full delivery.

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**7GG12 (20542)**  
**Professional interventions for general practitioners to improve the management of osteoporosis**

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**Background:** Osteoporosis is a common musculoskeletal problem with mortality rates that can reach 31% at one year after a hip fracture. However, the condition is largely undertreated within primary care.

**Summary of Work:** This work is part of a Cochrane review on the effectiveness of professional interventions for primary care physicians that aim to improve the management of musculoskeletal conditions in primary care.

**Summary of Results:** Twelve studies evaluated interventions aiming to improve the guideline-specific management of patients with, or at risk of developing osteoporosis. Physician alerting (via a letter or electronic message highlighting patients at risk) on its own seemed effective in two studies while academic detailing was ineffective compared to usual care. Meta-analysis of five studies assessing bone mineral density as one of the main outcomes and six studies evaluating the effect on osteoporosis treatment rates, showed that a combination of a physician alerting system with a patient directed intervention (including patient education and consultation reminder) produced significant effects \([p<0.0001, \text{risk ratio } 0.97 \ (CI 0.97-0.98) \text{ for bone mineral density and } 0.76 \ (CI 0.62-0.88) \text{ for osteoporosis medication}].\) Due to the limited number of studies we could not conclude as to whether more complex interventions are more effective.

**Discussion and Conclusions:** Interventions which are incorporated into usual clinical practice and also target patients’ educational needs seem to produce larger effects than more traditional approaches such as academic detailing.

**Take-home messages:** Level 1 evidence shows combining physician alerting and patient directed education is an effective and feasible intervention for improving osteoporosis management in primary care.  
*Note: This work was funded by the National Institute for Health Research and Arthritis Research UK*
7GG13 (18671)
Patient engagement in the continuing professional development of family physicians

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Background: Patients are experts on their experience with disease or disability. As such, patient engagement is an established component of medical education, yet is rarely incorporated into physician continuing professional development (CPD). Integrating patients in CPD could connect patients and physicians beyond the clinical encounter.

Summary of Work: This study engages a group of involved patients, the Winnipeg Regional Health Authority (WRHA) Patient and Family Advisory Council (PFAC), incorporating their feedback into a CPD series. A survey was distributed to the PFAC on the topics covered in the 2013-2014 CPD year, and responses have been thematically analysed.

Summary of Results: PFAC has been enthusiastic, and responses now form the introduction to each CPD event, setting a patient-centred tone. Topics included geriatrics, mental health, oral-systemic health, and chronic disease. Patient feedback has also led to new research questions.

Discussion and Conclusions: The PFAC represents a diverse demographic; it is important that these varied perspectives be shared to ensure physicians stay patient-centred and accountable to societal healthcare concerns. The patient perspective represents a valuable resource for CPD. This study provides a model by which organizations can incorporate patient feedback in CPD. This partnership will continue next year, and may expand into invited patient speakers.

Take-home messages: This study connects patients and physicians, empowering patients as educators. This presents a learning opportunity for physicians who should recognize patients as active partners. Patient-centred care demands that the patient voice be included in CPD to promote communication and the development of the physician-patient relationship.

7GG14 (21363)
Utilizing an evidence-based, multi-informant approach to developing a child and youth mental health curriculum for primary care physicians

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Background: Although primary care physicians (PCPs) play a critical role in child and youth mental health, few have received adequate, formal training. Continuing medical education is an important step towards improving PCPs' knowledge, recognition, assessment and management of child and youth mental health difficulties.

Summary of Work: Through the collaborative efforts of a pan-Canadian network of mental health professionals referred to as “Physician Training in Child and Adolescent Psychiatry (PTCAP)”, a comprehensive child and youth mental health curriculum is currently being developed. This will be the first, evidence-based curriculum developed for PCPs in Canada, informed by previous research addressing the educational needs of these practitioners (Steele et al., 2012), and focus groups with key stakeholders (i.e., PCPs; community mental health representatives; and families coping with child/adolescent mental health challenges).

Summary of Results: Unique design features will be incorporated to address the expressed needs of key stakeholders including: the pairing of a psychiatrist and family physician in curriculum delivery, a focus on family-centered interviewing skills and general therapeutic techniques to provide first-line care, evidence-based guidelines to address severe cases, and region-specific resources to support interprofessional collaboration and referral.

Discussion and Conclusions: Through rigorous program evaluation and knowledge translation to families living in rural and regions across Canada, we aim to support the mental health outcomes of some of the most underserved children and youth nation-wide.

Take-home messages: To truly impact primary care practice, and child and adolescent mental health outcomes, an evidence-based approach to education is needed that takes the perspectives of key stakeholders into account.
**7HH1 (20419)**

**Accelerating the Development of Expert Diagnostic Skills through Virtual Patient Simulation**

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**Background:** Medicine is a field highly dependent on the development of expertise. However, current methods of medical education may not provide an optimal learning environment for developing expertise. Insights from cognitive psychology suggest ways to develop expert reasoning more expeditiously through simulation.

**Summary of Work:** Based on the theories of mental models and recognition-primed decision making, an online virtual patient simulation scenario was developed representing a difficult to diagnose case of aortic dissection.

**Summary of Results:** The simulation scenario consists of 70 action points. Depending on the participant’s previous selection, each action point will either present information to the participant or require a decision to be made. Within the scenario, several sources of information are available to clinicians to aid them in developing an understanding of the patient’s condition. Sources of information clinicians can sample include: conversations with the patient, medical history, vital signs and physical exam findings, laboratory results and medical images, and references from the medical literature. The simulated patient’s condition continually deteriorates with time, and the information displayed to clinicians is in the same sensory modality as experienced in real life (e.g. during auscultation the participant hears heart sounds and murmurs).

**Discussion and Conclusions:** Presenting a difficult to diagnose disease via virtual patient simulation scenario to resident physicians may help the novice physician develop higher levels of expert reasoning.

**Take-home messages:** Virtual patient simulation scenarios offer a new learning format to accelerate the development of clinical expertise.

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**7HH2 (21517)**

**Interprofessional teamwork and its impact on clinical reasoning: Preliminary results of a qualitative study**

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**Background:** In-patient care requires close collaboration between doctors and nurses. We aimed to study whether and how individual and teamwork characteristics contribute to diagnostic clinical reasoning and patient management.

**Summary of Work:** Resident-nurse team performances were observed during a simulated urgent internal medicine situation. Each participant was then interviewed using stimulated recall to explore reasoning and perceptions during the simulation. A consensus-based assessment of effectiveness and collaboration using a qualitative, grounded theory approach was made. Two investigators coded and extracted common themes, iteratively comparing and contrasting the transcribed audio and video data.

**Summary of Results:** Although still ongoing, analyses of the first four resident-nurse teams suggest that both individual and teamwork characteristics can favor or hinder the effectiveness of team clinical reasoning. Nurses tended to use a physiology-based, pragmatic approach, favoring immediate management aspects, while residents used an etiological, more abstract and global approach, favoring diagnostic workup. When nurses provided concise, complete, and relevant information at the onset, or suggested pertinent elements for diagnosis or management, the team performed better. Inadequate role perceptions (e.g., “nurses should only follow orders”) hindered helpful anticipated suggestions or actions. Impeding interaction processes included low situational awareness, low mutual support, and nurse task- or information-overload by the resident.

**Discussion and Conclusions:** While interpersonal approaches may differ, recurrent individual and team characteristics influence efficiency and relevance of diagnostic clinical reasoning and patient management.

**Take-home messages:** A clearer understanding of both individual and team characteristics may help improve interprofessional collaborative skills and patient care, and inform interprofessional education programs.
Comparison of clinical reasoning skills of pediatric tropical diseases between pre-clinical and clinical year students

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Background: The development of clinical reasoning skills is a critical aim of all medical training. Acquisition of these skills is a complex process which is dependent on some factors. Literature reported that clinical experiences will affect these skills, but others explained that both preclinical and clinical medical students are considered as novice who might have equal skills of clinical reasoning. This study aimed to investigate whether there is a different skill of clinical reasoning between pre-clinical and clinical year medical students and to explore factors that influence the skills.

Summary of Work: 60 students from final year of pre-clinical year and the other 60 form clinical year who are in the pediatric rotation from December 2013 to February 2014 were took part the study. Some experts in the field of pediatric tropical diseases developed the script concordance test (SCT) which was used to evaluate skills. Scoring procedures utilized data from a panel of 10 pediatricians.

Summary of Results: Among the preclinical year students, 77% of them got low scores and 51% of the clinical year students got high SCT score. There was a significant different of SCT scores among the two groups evaluated using Mann Whitney U test (p=0.00). Among the analyzed variables, knowledge test score during the pediatric clinical rotation was the most dominant factor influencing the clinical reasoning skills.

Discussion and Conclusions: Clinical year students had better clinical reasoning skill than the pre-clinical year students. Knowledge test influenced the clinical reasoning skill.

Take-home messages: Pre-clinical year students should be presented in learning approaches which will improve their clinical reasoning skills.

Constructing Critical Thinking: A Qualitative Examination of Health Science Educators’ Understandings

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Background: There is widespread agreement that physicians must think critically to function in today’s challenging health care environment. However, there is little agreement about what critical thinking (CT) means. Educators understand CT in radically different ways, reflecting different disciplinary traditions and values.

Summary of Work: This qualitative study examines health science educators’ individual and shared understandings of CT. Participants from medicine, nursing, pharmacy and social work each completed a series of two interviews that examine how they understand CT within their unique social and historical practice context.

Summary of Results: Results confirm that there is no one “correct” definition; individual educators’ understandings of CT are unique. However, each discipline tends to emphasize particular aspects, tied to their contemporary and historical disciplinary context. Understandings of CT are discipline and value-driven; however, they are also situated in the unique contexts of individual educators.

Discussion and Conclusions: It is crucial that medical educators are able to critique the “hidden curriculum” to ensure that valuable aspects of CT are not lost because of entrenched understandings of what this term means. In order for future physicians to reflexively develop their own values and to function in a wide variety of contexts, CT should not be reduced. Examining how other disciplines understand CT will offer a more robust picture of CT in medical education, and build a foundation for collaborative practice.

Take-home messages: In order to meet healthcare challenges, medical educators and administrators must understand all aspects of CT that are relevant to the practice of future physicians.
7HH5 (20900)
Teaching how to successfully prepare students for taking selection and/or certification tests from the very first day of class

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Background: There is no doubt about the recognition of Clinical Reasoning as the core competency of the clinical praxis. As a consequence, tests of selection and/or certification are oriented to prove how the tested are capable to solve clinical cases through the determination of diagnoses, treatment, prevention, rehabilitation, prognosis and prediction, which are the intellectual abilities required for Clinical Reasoning.

Summary of Work: During the Congress of Biomedical Research organized by our Medical School last October, we offered a course to teachers around the country, about how to successfully prepare students for taking selection and/or certification tests, through the employment of clinical cases that require the determination of diagnosis even for students of the Basic Sciences.

Summary of Results: During the course, participants had the opportunity to design Best Answer Multiple Choice Questions Based on Clinical Cases according to their own academic programs. In addition, they had to integrate a portfolio with a minimum of fifty items to demonstrate their ability in the design of Clinical Reasoning Tests for the successfully preparation of their students taking tests of selection and/or certification.

Discussion and Conclusions: It is possible to successfully prepare students for taking tests of selection and/or certification by their evaluation with similar instruments from the early years.

Take-home messages: Assess students with tests based on clinical cases contributes to the successful preparation of students for selection and/or certification tests.

7HH6 (20301)
Using Cochrane Reviews to Improve Critical Appraisal Skills and Clinical Decision Making in Problem-based Learning

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Background: Problem-based learning (PBL) is a student-centered pedagogy in which students learn about a subject through the experience of problem solving. Cochrane reviews are systematic reviews of primary research in human health care and health policy. However, the effectiveness of using Cochrane reviews in PBL has not been well evaluated.

Summary of Work: PBL is held on a biweekly basis in Department of Internal Medicine in Taipei Medical University-Shuang Ho Hospital in Taiwan. Cochrane reviews are selected based on a clinical based question. During to the session, the moderator (a Cochrane reviews expert) helps the participants to understand the history of Cochrane collaboration, the concept on meta-analysis, and the critical appraisal skills. After using Cochrane reviews for an one-month period, the effectiveness of the PBL is being evaluated based on the survey among participants.

Summary of Results: Among 76 respondents, 90.8% agreed that Cochrane reviews using in PBL can improve overall learning quality, 92.1% approved it can help to understand systemic review and meta-analysis, 78.6% agreed it helped to stimulate critical appraisal skills, and 81.6% thought it can facilitate problem-solving based on evidence.

Discussion and Conclusions: We emphasize the importance of teachers. Tutors must constantly update what’s new in the cochrane database and understand the evidence-based concept. Using Cochrane reviews in PBL was appreciated by most of the participants and may improve critical appraisal skills and provide evidence-based decision making. Thus, we suggest the use of Cochrane reviews regularly in PBL.

Take-home messages: Using Cochrane reviews in PBL can improve overall learning quality and help to understand systemic review, improve critical appraisal skills and provide evidence-based decision making.
7HH7 (18568)
Using Problem Based Learning (PBL) in teaching critical appraisal: Experiences from Thailand

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**Background:** In 2013, Suratthani University-affiliated medical school integrated the subject of critical appraisal, using PBL, into a 4-week holistic medicine block for fifth-year medical students. This study aims to assess students’ resulting learning experiences.

**Summary of Work:** During the first week, groups of 3-4 students were assigned selected medical papers to appraise, using the Scottish Intercollegiate Guidelines Network guidance for critical appraisal. Students were encouraged to actively seek the information necessary to appraise the paper, such as research methodology and statistics, and mentors were made available to answer students’ questions via email for two weeks. During the third week, students presented a summary of their work to the mentors and their student colleagues. The presentations were followed by active discussions that summarized the main concepts used in critical appraisal. At the end of the block, students were asked to evaluate the class using a self-administered questionnaire consisting of two parts: 1) a question asking students to rate their experience with the subject using a 5-point scale (Very good, Good, Indifferent, Poor, Very poor), and 2) open-ended questions on the module’s perceived benefits and future applicability.

**Summary of Results:** Out of 43 students, the response rate was 93%. Learning experience was rated as “Very good” and “Good” by 35% and 45%, respectively. Qualitative results indicated that students felt positively toward the subject, in terms of both the learning process and the future applicability of the contents.

**Discussion and Conclusions:** Students’ experiences are generally positive in learning critical appraisal using PBL.

**Take-home messages:** PBL may be an effective technique in teaching critical appraisal.

7HH8 (19284)
Using SNAPPs model to facilitate diagnostic reasoning skills

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**Background:** Case presentations of medical students during clerkship tend to present traditional history that others have done. They often do not include pertinent physical findings and diagnostic reasoning. During the last 3 months of academic year 2013, we decided to use SNAPPs model to facilitate diagnostic reasoning skills as a pilot study.

**Summary of Work:** In December 2013, Pediatric staffs were given a 20-minute orientation on SNAPPs. Thereafter, this technique was taught to 6th year medical students on the first week of pediatric rotation. Students on duty on Saturday and Sunday were assigned to use SNAPPs for case presentation on Monday morning report. At the end of rotation, the evaluation forms were asked to 18 students by using 5 rating scale which 1 is strongly disagree and 5 is strongly agree.

**Summary of Results:** Students’ points of view were, the SNAPPs technique stimulated and improved their differential diagnosis 4.3, analyzed the differential 4.4, self assessment 4.7 and self directed learning 4.3. This activity gave them opportunity to practice and improved their case presentations 4.5, was useful 4.4 and should be continued 4.2

**Discussion and Conclusions:** SNAPPs, a learner-driven teaching strategy, can be used with medical students in practicing case presentation in morning report to facilitate diagnostic reasoning skills during clerkship.

**Take-home messages:** Diagnostic reasoning skills are essential and critical for clinical practice and need time consuming. To develop these skills, medical students should be facilitated repeatedly during their training program.
7HH9 (19628)
Genetic-Psychospiritual-Social-Biological (GPSB) SOAP Body mind map approach for clinical reasoning and medical record: A pilot study for medical clerkship in general internal medicine

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Background: It is crucial to integrate clinical reasoning and medical record in medical practice. Current problem-oriented medical record (POMR) format may not meet this goal. Mind-map concept has been applied in clinical reasoning. The purposes of this study are (1) to construct a mind map model of “Genetic-Psychospiritual-Social-Biological” (GPSB) SOAP Body mind map for clinical reasoning and medical record, and (2) to investigate the learners’ perspectives of effectiveness of this model.

Summary of Work: GPSB data from patient encounters was constructed into the mind map format of medical record using X-mind® software. Questionnaire survey of this pilot model was performed for 32 medical clerks attending 2-week clinical rotation at Department of General Internal Medicine, Kaohsiung Medical University Hospital in 2012.

Summary of Results: The rates of strong agreement or agreement were measured in the following aspects: 1. Supervise the patient’s status thoroughly and correctly (100%); 2. Process the clinical data efficiently into medical record (96%); 3. Avoid missing the essential examinations (89%) or treatments (89%); 4. Reduce the unnecessary investigations (75%); 5. Integrate this mind-map format into current POMR medical record (85%). 6. Overall satisfaction (100%). Major positive points included graphic thinking map, comprehensive and logic approach, and timely efficient monitoring and management plan. Major concerns included the familiarity in mind-map software and difficulty in organizing the mind-map.

Discussion and Conclusions: This GPSB SOAP Body mind map format provides efficient and effective approaches in performing clinical reasoning and summarizing medical record. It may enhance the clinical learning for medical clerks.

Take-home messages: GPSB SOAP Body mind map model integrates clinical reasoning and medical record to improve the clinical learning and practice.

7HH10 (20354)
The development of clinical reasoning in the medical student: A qualitative research

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Background: Clinical reasoning is a key competence in medical education. There are two theories: hypothetical-deductive and also illness scripts. As well, there are two processes: automatic and reflective. It is unclear when students shift from automatic to reflective reasoning. The reasoning process knowledge is crucial to teaching improvements.

Summary of Work: It is a qualitative research, with focus groups, each one with eight undergraduate medical students (first to fifth year), one group for each year. Questions were performed to evaluate the clinical reasoning process.

Summary of Results: Codes revealed how the process of clinical reasoning from easy to difficult cases is. In a traditional curriculum, in the pre-clinical phase, the students use biomedical knowledge for clinical reasoning. One of the best codes: "From the symptoms, I go to the main affected system". During the clinical phase, biomedical knowledge gradually becomes encapsulated and the reasoning turns into automatic using scripts, for this, the best code: "It becomes an automatic thing, you do not even realize it." Students of the clinical phase, in contact with difficult cases, act as preclinical phase students, seeking biomedical knowledge, now encapsulated, with the transition from automatic to reflective reasoning. For this category, the best representative code was: "In the difficult cases you think back to the biomedical knowledge."

Discussion and Conclusions: In a traditional curriculum, the illness scripts formation starts in medical semiology contents and it is consolidated throughout the medical course.

Take-home messages: The qualitative researchs could help us to understand the reasoning process in undergraduate students.
7HH11 (22000)
Game Based Learning in Medical Education – Promoting clinical reasoning skills?

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Background: Digital serious games comprise concepts increasingly used in higher education. The interactive, decision-driven process with built-in feedback may promote motivation for learning and multiple practice opportunities. A module may be built around a scenario related to a professional challenge. Little is known about what is important in the game-design for it to be perceived as useful and meaningful as a learning resource.

Summary of Work: The aim of the present study was to design and develop a complex interactive scenario and explore how students perceived the use of it to practice reasoning skills. We wanted to explore the use of a game prototype to prepare for Work, Environment and Health reasoning processes. We also explored how the current set up and game design was perceived per se. Information was collected from students after collaborative use of the game prototype.

Summary of Results: The story structure was progressively developed and a variety of feedback was added. The present design can be adapted to other scenarios. Obstacles and triggers for collaboration and learning were identified. Interview results showed that the notion of authenticity was present, prominent and important to promote meaningful learning. The module with interactive decision-making practice and multiple feedback opportunities was perceived as facilitating the integration of theory and practice, and reasoning skills.

Discussion and Conclusions: The digital interactive module was perceived as meaningful to introduce and promote development of reasoning processes in an authentic manner. The structure can be reproduced using other scenarios.

7HH12 (22681)
Assessment of IMGs for clinical reasoning skills using script concordance and situational judgment testing

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Background: The Alberta IMG Program assesses IMG candidates for entry into post-graduate residency training. Clinical reasoning, and the Professional/Manager/Health Advocate CanMEDS competencies were identified as attributes to better evaluate in the AIMG program screening process. We used a computer-based script concordance (SC) and situational judgement (SJ) testing exam to explore these qualities.

Summary of Work: In collaboration with the University of Adelaide, we developed a series of SC/SJ-based virtual patients that evaluate clinical reasoning and ethical decision-making. This was mounted on the OpenLabyrinth learning design platform. We used a reference panel of peer learners and successful participants in the target residency programs for comparison to the IMG candidates.

Summary of Results: The OpenLabyrinth platform allowed flexibility in case-authoring using the SC and SJ testing paradigms. It allowed evaluation of IMGs’ clinical reasoning and decision-making skills in reference to Canadian-trained peers.

Discussion and Conclusions: Combining a flexible scenario-based learning design tool with principles from SC and SJ testing paradigms. It allowed evaluation of IMGs’ clinical reasoning and decision-making skills in reference to Canadian-trained peers.

Discussion and Conclusions: Combining a flexible scenario-based learning design tool with principles from SC and SJ testing paradigms. It allowed evaluation of IMGs’ clinical reasoning and decision-making skills in reference to Canadian-trained peers.

Take-home messages: An SC/SJ testing approach using a flexible learning design computer platform afforded additional evaluation of key competencies in IMG candidates applying for residency positions. This enhanced the identification of appropriate learners for post-graduate training.
Evaluating teaching on reflection to undergraduate medical students: Revealing tacit assumptions in our teaching

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Background: Reflective writing is playing an increasingly prominent role in the professional development of doctors. Despite this there are many assumptions made regarding participants' understanding of the concept and little attention is given to teaching it effectively. We have designed a 20-minute teaching session on theory of reflection within a compulsory one-week undergraduate teaching skills course and in the ensuing week students submit a reflective piece linked to the course.

Summary of Work: We have evaluated our teaching by assessing the quality of submitted reflections from 3 cohorts of students (n=65) representing a high level evaluation on the Kirkpatrick hierarchy. We used the ISCE model (information, self-awareness, critical analysis, evidence of learning) to assess reflection (Atkins and Murphy, 1993). Reflections were independently assessed by both authors and consensus reached by discussion.

Summary of Results: There were varied approaches to reflective writing with few students having high scores in all 4 domains. Information was well expressed for the majority 42/65 (65%) but only 24/65 (37%) expressed feelings, only 29/65 (45%) demonstrated high levels of critical analysis and only 22/65 (34%) demonstrated high levels of self-awareness incorporating consideration for others. Clear planning of future learning was absent or vague for the majority 40/65 (77%).

Discussion and Conclusions: These data highlight the need to improve our teaching on reflection and make some fundamental points about the process explicit. These include consideration of 1. expressing feelings 2. thoughts and feelings of others 3. performance in the context of what is expected 4. setting out clear plans for future learning/progress.

Take-home messages: Reflective writing is playing an increasingly prominent role in the professional development of doctors. Reflective writing can be taught to medical students. The teaching of reflective writing needs to be more explicit for medical students.

Reasoning of an Occupational Therapist on the Initial Assessment of a Patient: A Study in a Simulated Environment

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Background: This study examines the process of reasoning, proposing ideas for the way to improve the quality of a training program for occupational therapists and to clarification the OT skills.

Summary of Work: Twelve OTs (1~12 years of experience) performed the initial assessment of a standardized patient who played dementia. The OTs first asked the patient to fill out a personal profile and then let her work on a coloring book. Before the assessment, the OTs responded to a set of questions about what/how they planned their initial assessment of a patient, and after the assessment, the OTs were interviewed by a researcher about what kinds of problems they encountered during the assessment and what they may do next to improve their performance. The questionnaires and interviews were analyzed by the Affinity Diagram. This study was conducted with the consent of all the participants.

Summary of Results: The analyzed data showed that the OT based their assessments on the patient’s symptoms and used specific reasoning to judge what they saw. Their suggestions for the next training program were classified into four categories. The top three categories were sewing, cooking, and exercise in a group. As for reasoning to be focused, their suggestions included the evaluation of execution, the exploration of possible treatments, and the effectiveness of therapy.

Discussion and Conclusions: Regarding problems during the test and ideas for the next training program, all the OTs suggested similar contents. Their reasoning appeared to be not based on the years of their experience, but the way they observed and processed information.

Take-home messages: The findings in this study will contribute to the clarification of OT therapy and the guidelines for OT students.
Characteristics of performance in clinical reasoning and clinical decision making domains on an Internal Medicine clerkship structured clinical oral examination

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Background: A structured clinical oral (SCO) examination was developed for an Internal Medicine clinical clerkship to examine, in part, clinical reasoning and clinical decision making (CR+CD) skills. The entire SCO consists of eight 9-minute stations. In three stations, students interact with examiners in structured case discussions that test CR+CD skills around the diagnosis and/or management of a patient.

Summary of Work: Simple descriptive statistics of student performance in components of the SCO and other assessment modalities in the Internal Medicine clinical clerkship were computed. Correlations between students’ performance in these components were calculated.

Summary of Results: Overall marks (%mean + SD) for 340 students on the SCO examination and rotation were 75.6% +/- 5.3 and 79.5% +/- 3.9, respectively. The overall mean mark for the three CR+CD stations was 75.6% +/- 7.0 and was considered the primary outcome for CR+CD skills on the examination. This outcome had the strongest correlation with student written examination marks (r=0.477), and reasonable correlation with work-based ward marks (r=0.259), but poor correlation with performance in ambulatory clinics (r=0.079). Regression modelling analysis suggested that 77% of the variance in the CR+CD station performance was not explained by assessments in the ward, written examination, and ambulatory clinic.

Discussion and Conclusions: Internal Medicine clinical clerk performance in tests of CR+CD correlated best with performance on a written examination. However, much of the variance in CR+CD is not explained by other assessment components of the rotation.

Take-home messages: Clinical reasoning and clinical decision making skills may be important domains to specifically assess in clinical clerkship rotations.
Development of an open-source based video-feedback-system

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Background: Simulation of medical emergencies with subsequent video-debriefing allows for the training of complex medical scenarios. Several video-feedback-systems are commercially available, but the acquisition can be expensive and could therefore restrict the spreading of medical simulation. To enable potentially patient-saving simulation training also for financially weaker institutions, we tried to establish a high-fidelity video-feedback-system based on open-source software and inexpensive hardware.

Summary of Work: After assessing the requirements at an interdisciplinary conference, a student team realized the video-feedback-system.

Summary of Results: A combination of audio technology and high-definition network cameras is used for digital recording. The open-source software “VLC media player” merges the video signal, audio signal and the vital sign monitor and generates a video stream. This stream is wirelessly broadcasted and thus playable by almost every device. Bi-directional communication between supervisor und trainees is possible through headsets. The cameras and the recording can be operated using an in-house programmed software. Following the simulation scenario, the recordings are available for debriefing as well as optionally via the internet.

Discussion and Conclusions: The open-source based approach represents a low-cost and scalable alternative to commercially available solutions. Currently, the newly-established video-feedback-system is under intensive testing and further development. In particular, maintenance effort and reliability have to be evaluated. This fully equipped system costs roughly 9,000€, but the flexible solution will enable significantly more reasonable systems as well.

Take-home messages: A high-quality video-feedback-system can be established with inexpensive hardware and open-source software. Long-term experience has to show reliability and practicability.
7113 (21390)
Development of A Simulation Based ECMO Training Program

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Anamaria Stanisic, SickKids, Perfusion, Toronto, Canada
Briseida Mema*, SickKids, Critical Care Medicine, Toronto, Canada

Background: Extracorporeal life support (ECLS) is a technology that is used to treat children with respiratory or cardiac failure to recovery or transplantation. The ECLS technology is complex and requires specialized care. In 2011 a team of clinician and education experts were tasked with re-developing the ECMO Specialist Training Activities Program (E-STAR).

Summary of Work: Kern’s framework was used for curriculum development. Data from the needs assessment, variety of instructional methods, simulation and feedback from performance audits were used to develop E-STAR. The 2 module course uses on-line self directed learning, in class assignments, interactive problem-based lectures and simulation-based training as instructional methods to teach the knowledge, skills and attitudes necessary for an ECMO Specialist.

Summary of Results: An evaluation tool using a 5 point Likert scale anchored at 1= strongly disagree and 5= strongly agree as well as an open ended question was used for program evaluation. A pre and post course multiple-choice exam was also administered to all participants. Participants for the first course included 2 physicians, 3 respiratory therapists and 6 nurses. Scores on the post-test were higher than in pre-test: 89.1 (SD 8.9) vs 76.4 (SD 11.2). The difference was significant t(19)=2, p=0.008. Survey questions scored a mean of 4.7, with the program as a whole being rated very good to excellent. The theme from open ended comments: “simulations/hands on learning were extremely useful”.

Discussion and Conclusions: A redesigned ECMO curricula using Kern’s framework was highly evaluated.

Take-home messages: A variety of instructional methods including simulation based learning improves performance of ECMO providers.

7114 (20745)
“Upping the ante”: Introduction of innovative educational tools to undergraduate medical students 2nd simulation session

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Susan DeSousa, Sunnybrook Health Sciences Centre, Canadian Simulation Centre, Toronto, Canada
Mabel Choi, Sunnybrook Health Sciences Centre, Anaesthesia, Toronto, Canada
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Isabella Devito, Mount Sinai, Anaesthesia, Toronto, Canada
Agnes Ryzynski, Sunnybrook Health Sciences Centre, Canadian Simulation Centre, Toronto, Canada

Background: University of Toronto 3rd year medical students rotate through the Simulation Centre during core Anaesthesia. Consistently, learner feedback requested: “more simulation”.

Summary of Work: Following an adopted “Flipped Classroom” approach, time was created for a second simulation with end goal to reinforce learning, entitled “Exit” Simulation. To “up the ante” we introduced innovative tools rarely used in Undergraduate medicine: • Gaming and competition; • Critical thinking; • Risk stratification; • Mental practice • Modified Situational Awareness Global Assessment Technique (SAGAT) . Course objectives were mapped to clinical areas where Anaesthetists care for patients: Preoperative, Intraoperative and Postoperative. Preoperatively, students collaborate to assess and manage a Standardised Patient incorporating critical thinking and a risk analysis game. Intraoperatively, Mental practice (2) plus operating room role assignment was introduced with physical barriers to communication and increased cognitive load. Postoperatively, modified SAGAT stops provide perceptual and cognitive feedback.

Summary of Results: Learner Feedback Preoperative: “Very realistic patient and co-morbidities”; “Great to have the opportunity to think through our own patient plan”. Intraoperative: “Good introduction to intra-operative communication. I will remember some valuable lessons”; “visualization before simulation was helpful exercise”; “I enjoyed thinking through case before it started, I will use this in future”. Postoperative: “Taught me to avoid fixating on a problem”; “Reinforced our learning”.

Discussion and Conclusions: Students consistently rank the innovative components as 4s/ 5s on a 5-point Likert Scale. Feedback strongly suggests that Exit Simulation has been effective in “closing the loop” and reinforcing their learning during core Anaesthesia rotation.

Take-home messages: The innovational tools used here have potential application across all specialties.
ABSTRACT BOOK: SESSION 7
TUESDAY 2 SEPTEMBER: 10:45-12:30

7II5 (20396)
Novel uses of simulation for students learning the assessment and management of the Acutely Ill Patient
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Background: Learning to recognise and manage acutely ill patients is core to the curriculum for final year students at Birmingham Medical School. However, opportunities for students to gain experience of acutely ill patients are sporadic, and students are often bystanders. A range of novel simulation sessions overcomes these difficulties.

Summary of Work:
- Simulated ‘Bed Side’ Teaching: Students worked through 20 simulated acutely unwell patients. Scenarios could be paused to include peer input and discussion, and so provided hands-on experience in a safe environment with formative feedback and case based discussion.
- Simulated Medical Emergency Team: Students were assigned to a ‘Simulated Emergency Team’ on a weekly basis, and were ‘crash called’ to attend a simulated medical emergency. These scenarios developed the student’s ability to work as a team under pressure.
- Trauma Day: A day course of seminars and simulation sessions teaching a structured approach to assessment and management of trauma patients.

Summary of Results: Student evaluation showed unanimous support for these varied sessions, which they felt provided a stimulating, realistic and safe learning environment, that facilitated the wide range of skills they needed to develop.

Discussion and Conclusions: These sessions facilitated final year students in developing the skills and knowledge required to recognise and manage Acutely Ill Patients. The sessions provided a safe, but realistic and stimulating environment in which the students could learn.

Take-home messages: Simulation is an effective tool for teaching the assessment and management of the acutely ill patient, and can enable deeper and richer learning.

7II6 (19463)
Designing and Establishing an Ultrasound Guided Vascular Access Workshop for Non-Radiologists: A Practical Manual from A to Z
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Simal Goman, The Hospital for Sick Children, Diagnostic Imaging, Toronto, Canada
Anne Skelding, The Hospital for Sick Children, Centre for Image Guided Care, Toronto, Canada
Rajat Chand, The Hospital for Sick Children, Diagnostic Imaging, Toronto, Canada

Background: Ultrasound guided vascular access is an increasing need in highly complex hospitals. Different specialties are interested in learning these skills.

Summary of Work: It was decided to develop a half day workshop to teach these skills. A pilot group of six participants was selected. An on-line teaching module and pre course reading material were delivered to the participants as a pre-requisite. During the workshop didactic lectures were given by an ultrasound technologist, an interventional radiologist and a vascular access nurse. This was followed by simulation based learning in task trainers. Time was given for deliberate practice and final debriefing and course evaluation were performed.

Summary of Results: The workshop was very successful with an active participation of the learners. They were actively engaged in the different activities and positive feedback was obtained from them. Advanced workshops and dedicated electives will be offered to improve their skills.

Discussion and Conclusions: Interventional Radiologists traditionally perform and teach ultrasound guided interventions. It can be difficult for these specialists to teach non-imaging related specialties. We were able to create a successful half day workshop for these professionals. We believe that having an inter-professional approach and different teaching modalities was a key for success. A successful Ultrasound guided access workshop was created using and inter-professional approach and different teaching modalities. The aim of this poster is to show in detail the steps needed for developing a successful teaching workshop in this topic.

Take-home messages: We provide tips for a successful development of an ultrasound guided vascular access workshop.
Engaging health professionals in learning about education: A flexible e-book solution

Frank Bate*, University of Notre Dame Australia, Fremantle, Australia
Carole Steketee, University of Notre Dame Australia, Fremantle, Australia

Background: At the University of Notre Dame Australia, the challenge of low participation in educational professional development was confronted through a mobile learning solution using e-books as the delivery mechanism and a simulated environment to mediate authentic learning activities. It was hoped that this solution would optimise flexibility in terms of access (time, place, and pace) and context (the extent to which the learning environment resonated with participants’ current health professional context).

Summary of Work: Educational design research (Reeves, 2006) was adopted to conceptualise, implement and reflect upon the efficacy of the program. Data was collected through questionnaires (quantitative) and synchronous/asynchronous discussions on unit websites (qualitative). Twenty six students participated.

Summary of Results: The poster discusses findings in relation to the key design principles of flexible access and flexible design. Data revealed consistently high levels of participant satisfaction in relation to the time, place and pace of learning. Participants also felt that activities allowed them to draw upon their own context and apply content to their own learning needs.

Discussion and Conclusions: Scholars of simulated learning use the term fidelity to describe the degree of similarity between learning and operational situations. Dealing with multiple health professions challenged the designers to achieve acceptable levels of fidelity which in practice shaped a simulated environment with sometimes purposefully fuzzy attributes.

Take-home messages: It is often reported that e-learning is less favourable than more traditional approaches to professional development, particularly in applying knowledge. However, the poster shows that with careful design, particularly around issues of flexibility, mobile learning solutions can equal or exceed participant expectations.

Simulated prenatal care program in Obstetrics clerkship

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Pei-Ying Tsai, NCKU Hospital, Obstetrics Gynecology, Tainan, Taiwan
Jieh-Neng Wang, NCKU Hospital, Pediatrics, Tainan, Taiwan
Yu-Ting Wu, NCKU Hospital, Pediatrics, Tainan, Taiwan
Shan-Shan Liu, NCKU Hospital, Pediatrics, Tainan, Taiwan

Background: Web-based learning provides a virtual, easily accessible and non-threatening learning environment. Students’ performance can be traced by computer during the process and teachers could give them feedback later on. In addition, using case scenarios students could experience longitudinal care of virtual patients, which is unlikely in short clinical rotation.

Summary of Work: This study used the Guidelines of Prenatal Care published by the National Health Promotion Bureau Taiwan to design a virtual prenatal care program for 5th year clerkship in a tertiary care center. The web-based scenarios is an integrated multi-disciplinary approach and used as a supplemented learning materials during clerkship of Obstetrics & Gynecology. We used quasi-experiment research method and the participants were 5th year medical students; 21 students in the experimental group who were supplemented with this program. We designed time schedule as 1 day equivalent to 1 week of gestation and students were instructed to take care of one pregnant woman up to 40 week or delivery during the 6 week rotation. Each time, students locked in the web, then followed the time progress of pregnancy up to delivery and were requested to prescribe the necessary exam or lab screening during pregnancy and make clinical decision by the guidelines. Thirty six students were in the control group who took traditional course.

Summary of Results: Data revealed that the experimental group scored significantly higher than the control group (F=27.342, p<0.001) and the average score was 4.24 higher than those of control. Pearson correlation coefficient found that a positive correlation between system login frequency and post-test scores (correlation coefficient: 0.534, p<0.05).

Discussion and Conclusions: Prenatal integrated care e-learning system enhances students’ learning and could be used as a supplemented learning materials during clinical rotation in obstetrics. Its effects on students’ clinical competency warrants further study.
7II9 (21114)
Simulated medical consultations with an extended debriefing: Students' perception of learning outcomes

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Silvia Passeri, FCM-Unicamp, Medical Course, Campinas, Brazil
Marco Antonio Carvalho-Filho, FCM-Unicamp, Emergency Medicine, Campinas, Brazil

Background: The undergraduate medical curriculum is often ineffective in providing appropriate environments for students to reflect on their daily practice and on the future challenges of their profession. This fact may contribute to the development of cynicism and loss of empathy during medical school.

Summary of Work: Fourth- and sixth-year medical students (n=344) participated in a simulated medical consultations activity with standardized patients and an extended in-depth debriefing based on the feelings of the patient and the student. Each group of eight students attended four meetings carried out once a week. After the last meeting, they completed a questionnaire about the activity and their perception on the learning outcomes.

Summary of Results: The students felt comfortable during the activity, due to "openness to dialogue", "proximity with colleagues and teachers" and the "environment free of judgment". More than half of them were motivated to study, especially the "doctor-patient relationship", "therapeutics", "most common diseases" and "medicine in general". More than 90% reported that what they learned would be useful in their professional and personal lives, providing a greater "understanding of emotions", "empathy", "ability to listen" and "ability to deal with conflicts". The extended debriefing (around 2 hours) allowed the discussion of issues related to the hidden curriculum and students' previous experiences.

Discussion and Conclusions: Medical students may be motivated to study medicine by simulation activities with an in-depth debriefing, especially when they recognize its real-world value and feel comfortable to share their experiences in a safe environment.

Take-home messages: Reflecting on disease and its impact on patients' daily life may motivate learning in medicine.

7II10 (19787)
Is it better to use teachers or patient support group volunteers as surrogate patients to train students in clinical problem solving?

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Julie Chen, The University of Hong Kong, Department of Family Medicine & Primary Care, Hong Kong
Amber Yip, The University of Hong Kong, Institute of Medical and Health Sciences Education, Hong Kong
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Background: Recruiting and training actors to play simulated patients is costly, whilst using staff lacks authenticity. Patient support-groups are a potential source of volunteers who have illness experiences and who can be easily trained to role-play themselves.

Summary of Work: A mixed-method study was conducted to evaluate the effectiveness of role-play in clinical problem-solving training and to assess the impact of support-group volunteers as patient educators. MBBS III students participating in a Family Medicine workshop were randomly assigned into either the 'intervention group' with support-group volunteers or the 'control group' with teaching staff role-playing patients. Students were assessed on their completion of a pre- and post- workshop structured history-taking form of video-taped consultations, and on their Family Medicine OSCE performance. Qualitative feedback was obtained from both students and volunteers.

Summary of Results: Six groups of 30 students participated (response rate 100%). Students' ability to complete the history-taking form improved after the workshop in both groups, although the intervention group had higher mean improvement. Students enjoyed the 'real patient' interaction, especially the constructive feedback on communication skills and their sharing of illness experiences. There was no difference in OSCE scores.

Discussion and Conclusions: Role playing is an effective approach for problem-solving training. Use of patient-educators enhances the student learning experience. It fosters better student confidence and skill, and enhances awareness of interpersonal behaviors such as eye contact and empathy. Patients appreciate the opportunity to contribute to training future doctors.

Take-home messages: Structured learning opportunities with patient educators can benefit both students and patients.
Factors influencing simulated patient training for a delirium role – is real patient exposure useful?

Morag Patterson*, University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom

Background: Delirium is a serious condition that is under-recognised and under-treated in hospital inpatients. Enhancing the delivery of delirium education is a priority posing practical challenges that may be overcome by using simulated patients (SPs) to emulate delirium. There is a paucity of information about how SPs should be trained for this role. The factors influencing their training, including whether real patient exposure is necessary, are poorly understood.

Summary of Work: A dedicated SP training programme was devised and delivered, incorporating exposing SPs to real hospital inpatients with delirium. Scenarios were rehearsed and filmed. The SPs participated in focus group discussions before and after real patient exposure. Semi-structured interview questions were used to facilitate discussion about the training process, recordings transcribed verbatim, and data analysed using thematic analysis.

Summary of Results: The significance of being a simulated patient with a life journey, past experiences, and a sense of belonging influencing the SP’s readiness for their role. Impacting on their preparedness was scenario scripting, and the acquisition of delirium knowledge. Real patient exposure indirectly influenced readiness by enhancing self-reported understanding of delirium, and magnifying the significance the SPs assigned to their role. Seeing real patients contributed to both the positive and negative effects of the role on the SPs themselves.

Discussion and Conclusions: When SPs are trained to emulate delirium there are many complex interacting factors that influence their training and perceptions of preparedness. Real patient exposure is a helpful adjunct but must be weighed against the potential negative impact on the SPs.

Take-home messages: Training SPs to emulate delirium is feasible.
7JJ (22992)

Are medical teachers who are European Resuscitation Council Instructors or Providers more successful than other medical teachers in training medical students in cardiopulmonary resuscitation?

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Gordana Pavlekovic, Croatian Association for Medical Education and University of Zagreb School of Medicine, Zagreb, Croatia
Davor Milicic, University of Zagreb School of Medicine, Zagreb, Croatia

Background: It is well known from the literature that newly qualified medical doctors have insufficient practical skills needed for the care of acute patients, including basic cardiopulmonary resuscitation (CPR) skills. It is however unknown if medical teachers should be internationally recognized CPR instructors or just giving them CPR guidelines is enough to teach CPR skills to medical students. The purpose of this study was to investigate whether the background training of medical teachers in CPR influences first year medical students’ learning outcome at CPR-OSCE station.

Summary of Work: During the academic year 2011-12 a longitudinal course “Fundamentals of clinical skills”, including a session on CPR, has been introduced at the University of Zagreb, School of Medicine. There were 380 1st year medical students. Out of 32 teachers from different clinical background there were 6 ERC (European Resuscitation Council) CPR instructors and 5 ERC CPR Providers. The course ended in July 2012 by OSCE, one station tested practical CPR skills. Data are available for students’ performance results immediately after training as well as teachers’ CPR qualifications.

Summary of Results: Results from June 2012 CPR-OSCE show better performance for the group of students trained by teachers with ERC CPR background compared to second group of students trained by other medical teachers.

Discussion and Conclusions: The practical relevance of this research is to introduce a standardised, internationally recognised training in CPR according to European Resuscitation Council for medical teachers at the University of Zagreb, School of Medicine.

7JJ2 (20118)

What makes a good surgical trainer: Trainees’ perspective

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Gill Aitken, University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom

Background: Postgraduate surgical training in Egyptian medical schools adopts the traditional apprenticeship model. This research aimed to explore the perspectives of surgical trainees about what makes a good surgical trainer.

Summary of Work: This research is a qualitative exploratory study that employed constructivist grounded theory methodology for data collection and analysis. Data were collected through individual semi-structured interviews with ten surgical trainees including basic and specialty phase trainees. Data analysis was aided by NVivo 10 software.

Summary of Results: In the trainees’ view, the construct of a good surgical trainer included four main components:- A trainer with motivational values, qualifications, and roles, the trainees as learners affected by the trainer-trainees and trainees-trainees interactions, the consequences of trainer’s actions as well as the surrounding context. A model has been created to represent the links among these components.

Discussion and Conclusions: After exploring surgical trainees’ experiences with their trainers, and their expectations of good surgical trainers in a medical school in Egypt, the researcher theorized that a trainer needs a set of qualifications and motivational values in order to be able to perform adequately his/her roles as a surgical trainer.

Take-home messages: Understanding of the trainees’ expectations of the surgical trainer should inform the improvement endeavours of the training programme as well as professional faculty development programmes. The surgical trainers’ awareness of the trainees’ expectations is hoped to improve the future training experiences.
**7JJ3 (19614)**

**Supporting paediatric educators: Ideas from around the UK**

**Hannah Jacob***, Institute of Child Health, University College London, London, United Kingdom

Caroline Fertleman, Institute of Child Health, University College London, London, United Kingdom

**Background:** Undergraduate paediatric training is mostly provided by NHS Consultants and trainees in addition to their clinical responsibilities. There is considerable variation in how well supported and valued this teaching faculty feel. Providing appropriate support to those engaged in teaching is essential to maintain high standards in undergraduate child health training. This study aimed to identify methods used in UK medical schools for supporting doctors teaching undergraduate paediatrics.

**Summary of Work:** Leads for undergraduate paediatrics at every UK medical school were contacted via email. Semi-structured interviews were undertaken with all those agreeing to participate. Participants were asked about the methods used locally to support doctors involved in teaching paediatrics.

**Summary of Results:** 21/31 (68%) undergraduate paediatric leads were interviewed between June and November 2013. Numerous strategies for supporting teaching faculty were identified, including peer-review of teaching, awards and certificates for those delivering teaching and teaching mentors for less experienced teaching faculty.

**Discussion and Conclusions:** Undergraduate paediatrics is taught by clinicians at the bedside, in clinic and in tutorials across the country. Boosting morale and providing adequate recognition of those delivering this teaching is essential to provide the highest quality undergraduate training in child health possible. This study identifies a number of methods that can help nurture and retain high quality paediatric educators.

**Take-home messages:** This work provides a mandate for the development of a network of paediatric educators in order to share good practice and provide peer support to those engaged in teaching undergraduate child health.

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**7JJ4 (22775)**

**General practitioners as clinical teachers in third year of medicine. Cross-sectional study of their performance according to students by questionnaire "MEDUC30"**

**Diego García***, Universidad de Chile, Campus Occidente, Santiago, Chile

Nadia Escobar, Universidad de Chile, Campus Occidente, Santiago, Chile

Juan Villagra, Universidad de Chile, Campus Occidente, Santiago, Chile

Daniela González, Universidad de Chile, Campus Occidente, Santiago, Chile

Tamara Ahumada, Universidad de Chile, Campus Occidente, Santiago, Chile

Iván Silva, Universidad de Chile, Campus Occidente, Santiago, Chile

**Background:** Historically, clinical teaching in medicine at University of Chile was done by specialists. Due to the curriculum innovation in Medical School at University of Chile, tutoring in hospital clinical practice in the semiology course was conducted by general practitioners in their first three years after graduating. It became necessary to evaluate the tutors’ performance from the students’ point of view.

**Summary of Work:** A cross-sectional study of the performance of general practitioners (GP) as clinical teachers was conducted using “MEDUC30”, a validated self-administered questionnaire. It consists of 30 questions grouped in eight different learning domains: patient-based teaching, learning climate, session control, objectives, promoting understanding, evaluation, feedback and promoting self-learning.

**Summary of Results:** The scale score ranged from 1 to 4 points. A score over 3 points was considered “good”, and a score over 3.5 points was considered “very-good”. 46 (100%) students in the class completed the questionnaire. The results show the following items were rated as "very-good": Tutor Global Assessment (3.78), Promoting Understanding (3.65), Learning Climate (3.63), Promoting Self-Learning (3.60) and Session Control (3.58). The rest scored greater than 3 points.

**Discussion and Conclusions:** Clinical teaching by GP had a very good evaluation by the students, who gave high scores both in the general evaluation and in the domains evaluated, especially in Session Control. This validates the use of GP in clinical teaching of third-year medical students and suggests that they may play an important role in their formation.

**Take-home messages:** It would be good to apply this experience in other subjects.
Clinicians as teachers: Pediatric inpatient clerkship in Qatar

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Ahmed Al-Hammadi, Hamad Medical Corporation, General Pediatrics, Doha, Qatar
Samar Mohmed, Hamad Medical Corporation, General Pediatrics, Doha, Qatar
Yasser Al-Samman, Weill Cornell Medical College, Qatar, General Pediatrics, Doha, Qatar
Tushar Khanna, Weill Cornell Medical College, Qatar, Doha, Qatar

Background: Teaching medical students is often challenging for physicians who practice in academic institutions, especially since medical education is becoming increasingly structured and demanding.

Summary of Work: This study was conducted to evaluate the physician’s perception of their role as teachers. An anonymous questionnaire was distributed among all the physicians of the general pediatric team at Hamad Medical Corporation, Qatar’s only teaching hospital and third year medical students from Weill-Cornell Medical College, Qatar in November 2013.

Summary of Results: Fifty one clinicians (71% were residents, 15% fellows, 14% attending physicians) and 35 medical students filled out the anonymous questionnaires. The response rate was 90% among physicians, and 59% among students. All but 6% doctors agreed that medical students were an integral part of inpatient teams yet only 43% felt that they had adequate time to get to know the students during their 3 week clerkship. Two third of physicians said their direct teaching contact with students was less than 2 hours a week while 33% physicians expressed concerns about inadequate time for bedside teaching and their in-consistence in providing feedback. The students’ survey results concurred with the physician’s opinions in most aspects.

Discussion and Conclusions: The physicians in our inpatient unit, most of who were residents and fellows, found it difficult to incorporate teaching into their busy schedule.

Take-home messages: Pediatricians, who may otherwise be excellent clinicians, are not always trained teachers. It is hence recommended that teaching hospitals provide workshops on medical education and allocate protected teaching time to all physicians, including residents, so that they can effectively participate in teaching activities along with their daily clinical practice.
Does making orientation mandatory really result in the desired level of attendance?

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Background: Understanding the structure and functioning of the environment into which a new faculty member is entering may enhance that individual’s job satisfaction and academic productivity. Exposure to some basic faculty development in teaching skills during orientation sessions helps ensure a minimum faculty standard of teaching. Attendance at orientation sessions traditionally depended on the level of interest of new faculty members. It was observed that many new faculty members did not attend the annual orientation day despite being invited.

Summary of Work: The Faculty of Medicine at the University of Ottawa decided to make orientation sessions mandatory starting with the 2011/2012 academic year. After that, the annual invitations to all new faculty members have indicated attendance is required at one of the three dates on which the same mandatory orientation day was held each academic year. Percentage of new faculty members receiving orientation to the number invited for each of the 2 years before and after orientation became mandatory were compared.

Summary of Results: The annual attendance at orientation day has approximately tripled since orientation was declared mandatory especially the first year thereafter.

Discussion and Conclusions: Although making orientation mandatory improves attendance, the percentage of new faculty members attending orientation to those invited is still below the desired level.

Take-home messages: Factors (suggested in the poster) in addition to making orientation mandatory should be considered when trying to ensure new faculty members receive orientation.

Being at Peace: Beyond the Teaching Competency

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Mansoureh A. Farahani, School of Nursing and Midwifery of Tehran University of Medical Sciences, Nursing Management, Tehran, Iran
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Background: Competent nurse teachers have an important role in the achievement of nursing students and improving the quality of nursing education.

Summary of Work: Qualitative research was conducted to determine the process of acquiring teaching competency by nurse teachers in its cultural context and the nursing education in Iran. This study, using grounded methodology and took place in three nursing school in Tehran. Nurse teachers (11) included; competent nurse teachers, nurse teacher with more than 30 years experience in nursing education and members of Iranian board of nursing. Data was generated by semi structured interviews and was analyzed through using constant comparison.

Summary of Results: Two categories emerged: (a) individual characteristics such as; spirituality, professional interest, ethical conducts, knowledge expansion and reflective practice, (b) effective organizational factors such as; solidarity culture, appropriate management of educational systems and student characteristics. “Being at peace” of nurse teachers, has emerged as the core variable which are responsible and committed to acquiring teaching competency.

Discussion and Conclusions: “Being at peace” makes a sense of commitment and job accountability in nurse teachers in order to having effective teaching and caring to students, patients, colleagues and the others. These dealing make situation toward acquiring teaching competency in nursing. The results can be used to create a peaceful approach as the basis of leading the process of acquiring teaching competency for nurse teachers.

Take-home messages: Nurse Teachers possess individual characteristics who deal peacefully could easily pass the process of teaching competency acquisition with success and move towards supremacy.
7JJ9 (21697)
Current issues in the scholarship of clinical teaching, A pedagogy of the unexpressed

Kate Hardie*, University of Toronto, Lawrence S. Bloomberg Faculty of Nursing, Toronto, Canada

Background: There is growing recognition in health professional faculties of the need for greater attention to how clinical teachers teach and how students learn in practical learning experiences. This paper proposes this need be addressed by development of a sound pedagogy and focused scholarship related specifically to clinical teaching that is a theoretical framework reflecting the unique circumstances of clinical learning (situated, experiential, often occurring in small groups and in contexts that may be unstable and unpredictable). A first step is to unseat traditional adult learning theories from their established and largely unexamined location in health professional programs.

Summary of Work: Sociologists have provided appropriate perspectives from which a pedagogy for clinical teaching could be grounded. A paradigm shift is required incorporating understandings arising from constructivism, critical social theory, critical pedagogies and characteristics of experiential learning. Transformative learning theory (Mezirow, 2000) captures the essence of pedagogy for clinical teaching and learning by attention to themes of critical questioning, social responsibility and personal growth.

Discussion and Conclusions: One of the prime features of TLT is the primacy given to the notion of self-reflection, which is defined as activities in which individuals engage to explore their experiences in order to lead to a new understanding and appreciation. (Boud et al, 1985). Principles for development of reflective teaching practice which will be discussed include making oneself open to self-assessment, examination of one’s own teaching effectiveness, seeing one’s teaching through student’s eyes and becoming aware of the influence of tacit knowledge and taken-for-granted and often unexpressed assumptions. An important challenge for the reflective clinical teacher is the ability to self-consciously consider how power and hegemonic discourse could or has influenced and shaped their own learning experiences and teaching practices.

7JJ10 (20278)
Students and faculties: Matching points on the practical assessment

Ieda Maria Barbosa Aleluia*, Escola Bahiana de Medicina e Saude Publica, Medicine, Salvador, Brazil
Lila Rmos Castelo Branco, Escola Bahiana de Medicina e Saude Publica, Medicine, Salvador, Brazil
Caroline da Silva Seidler, Escola Bahiana de Medicina e Saude Publica, Medicine, Salvador, Brazil
Mario Rocha, Escola Bahiana de Medicina e Saude Publica, Medicine, Salvador, Brazil

Background: The minicex was adopted as workplace-based assessment on the clinical skill discipline at the 5th semester of the medicine course. We identified the need of faculty development with this tool.

Summary of Work: We offered a workshop by semester in 2013 and 09/14 faculties had participated on the first and 08 on the second. Five had participated in both. We used OSTE format during the workshops. The medical students answered a five-point scale survey before and after the workshops analyzing the faculties’ competencies on assessment and teaching. Teachers had to answer pre-post tests on the workshops and make reports about the use of the minicex during the students’ bedside assessments.

Summary of Results: Faculties received positive feedback from their peers and students-actors on the OSTE. After the workshops, they felt improvement on their knowledge (100%). They evaluated the process as excellent (70%) and good (30%) in a scale varying between poor, regular, good and excellent. The students of 2013.1 semester recognized better the faculty improvement than the 2013.2, even if both groups had a positive judgment of the faculty practice.

Discussion and Conclusions: The teachers evaluated very positively the faculty development program, and the students recognized a change on the faculty practice. The OSTE promoted the experience of the faculty assessment by peers, by students and a reflection about their own practice in a simulated scenario.

Take-home messages: A faculty development program and the continuous evaluation of the process by the faculties and the students are fundamental on the course structure.
SESSION 8
Tuesday 2 September: 1400-1530

8A SYMPOSIUM: Make your teaching count: Initiatives to elevate the status of the Medical Educator IAMSE SESSION
Location: Gold Plenary, Level +2, MiCo
Panel: Katherine Hyland, UCSF School of Medicine, USA
Manuel João Costa, University of Minho School of Health Sciences, Portugal
Aviad Haramati, Georgetown University School of Medicine, USA
Amy Wilson-Delfosse, Case Western Reserve University School of Medicine, USA (Moderator)

Medical educators around the globe experience competing demands on their professional time that include research, patient care and administrative responsibilities just to name a few. In this time when most professional rewards and recognition are prioritized toward research and patient care, it is critical that medical educators consider how they can most effectively promote their teaching and research in medical education locally, nationally and internationally. In this symposium, participants will learn about three initiatives aimed at promoting careers and scholarship in medical education: (1) The Impact of Teaching Academies on the Educational Mission at Academic Health Centers in the US (Katherine Hyland); (2) Catalyzing the Scholarship of Teaching through Medical Education Research Partnerships (Manuel João Costa); (3) Creating an Institutional Mandate for CENTILE (Center for Innovation and Leadership in Education) (Aviad Haramati). The presentations will be followed by a question and answer period and general discussion.

8B SYMPOSIUM: Embracing Uncertainty in Research Findings: Exploring how research assumptions influence outcomes in qualitative and quantitative paradigms
Location: Auditorium, Level +3, MiCo
Panel: Benjamin Boerebach, Academic Medical Center, University of Amsterdam, The Netherlands
Esther Helmich, Academic Medical Center, University of Amsterdam, The Netherlands
Onyebuchi Arah, University of California, Los Angeles, USA
Lorelei Lingard, Western University, Ontario Canada

In both qualitative and quantitative studies there is a reasonable chance for researchers’ assumptions to influence research outcomes. Choices or assumptions regarding underlying theories, selected methodologies, causal relations, non-responders, sampling strategies and researchers’ perceptions induce uncertainty about research findings. Researchers tend to treat these factors as potential study limitations, but how they may impact research findings is rarely explicated and therefore mostly unknown. We will introduce innovative hands-on approaches to address and interpret potential influencing factors in medical education research. We will demonstrate how two different qualitative approaches of the same data influence the insights that emerge. We will explain how researchers can quantize the potential impact of specific assumptions on their research outcomes using sensitivity or bias analyses. Across specific paradigms, we aim to inspire researchers to address uncertainty in research findings more explicitly, for example by using alternative models to answer the same research question.

8C SYMPOSIUM: Progress Testing In Italian Medical Schools: An 8 Year National Experience
Location: Brown 3, Level +2, MiCo
Panel: Alfred Tenore, Ministry of Education, University and Research (MIUR), Italy
L. Schuwirth, University of Maastricht, Netherlands
Z.M. Nouns, Charité Universitätmedizin, Berlin, Germany
PL Castagnetti, National Agency for the Evaluation of University and Research – ANVUR

On November 15, 2006 the first Progress Test (PT) was made available to all Italian Medical Schools, on a voluntary basis, as an initiative of the Italian National Association of Deans for Medical Education. In the 8yrs that the PT has been held, the percentage of medical schools that have participated has increased from 50 to ~90% with the number of participating students increasing from 3,500 to ~20,000. Although the PT is not a new invention (dating back to the 1970’s) it is experiencing a revival because schools are becoming conscious of the importance of a longitudinal, progressive evaluation that does not assess individual course objectives rather, the overall final objectives of the medical curriculum. The Symposium will begin with more detailed information on the philosophy of this type of exam, continue with a description of the Italian experience over the last 8 years and finally, compare these results with those from invited speakers of other Universities outside of Italy where the PT has been implemented.
**8D1 (18691)**
The UK Clinical Aptitude Test: Factors predictive of success

Paul Lambe*, Plymouth University, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom
Rachel Greatrix, Nottingham University, Education, Nottingham, United Kingdom
Jon Dowell, University of Dundee, Medical School, Dundee, United Kingdom
Keith Milburn, University of Dundee, Health Informatics Centre, Dundee, United Kingdom
David Bristow, Plymouth University, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom

**Introduction:** Performance in the United Kingdom Clinical Aptitude Test (UKCAT) is a selection criterion of the majority of the medical schools and many dental schools in the UK. The UKCAT examines innate skills by assessment of cognitive ability in four domains: verbal reasoning, quantitative reasoning, abstract reasoning and decision analysis. The impact of access to advice and support on test preparation is largely unknown. However, findings from a survey of applicants to a UK medical school raised concern that differentials in access to advice and support may disadvantage some candidate groups. To assess the generalizability of this finding a survey of the 2012 UKCAT candidate cohort was conducted.

**Methods:** A self-completed online survey of candidates who sat the UKCAT in 2012 (N=25,431). Survey items asked candidates about: sources of advice and support they had received, their opinions about its quality and utility, the amount of time spent in preparation, and opinions on the association between preparation and test performance. The advice/support received at school/collage was categorised into a Support Index which was compared with UKCAT test performance and a range of contextual and background factors.

**Results:** The response rate was 24% (n=6,217), the sample was representative of the 2012 UKCAT population and the internal consistency of responses high (Cronbach’s alpha=0.8). Support Index (scale reliability coefficient =0.7), was positively associated with test performance. Those with a maximum Support Index were predicted to score 86 points greater than those with a minimum (Prob>F =0.0000), and mean Support Index was lower for state than private school respondents. 51% rated the advice they received on test preparation as less than satisfactory or poor, and were more likely to do so if in state sector education. Categories of the amount of time spent on preparation correlated (Prob>|t| =0.000) with test performance and 74% agreed that preparation enabled them to score more highly. Ethnic minority status, female sex, age, lower socio-economic class and state schooling were independent predictors of poorer performance. However, the interaction between ethnicity, age and social class, revealed the effect of age on UKCAT performance to be greater than the effects of social class and ethnicity.

**Discussion and Conclusions:** This study adds to understanding of the factors which influence performance in the UKCAT. It indicates that differences in access to advice and support disadvantage particular candidate subgroups. Given Support Index was predictive of performance and state school respondents less likely to receive support and advice, we speculate that this may be a factor contributing to the findings of a previous study of variance in UKCAT performance in favour of candidates from independent schools and higher social classes. The interaction between age, ethnicity, and social class found by this study has enabled a more nuanced understanding of sub-group variance in UKCAT performance. The use of aptitude testing in medical school selection has increased internationally but this study indicates that the extent of support and preparation affects scores. The availability and promotion of suitable resources is key to ensuring such tests improve equity of access.

**References:**

**8D2 (18753)**
Correlation between Multiple Mini Interview and Medical Career Development Inventory

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Nikki Zaidi, University of Michigan, Office of Medical Student Education, Ann Arbor, Michigan, United States
Nicole J. Borges, Wright State University Boonshoft School of Medicine, Academic Affairs, Dayton, OH, United States
Ryan D. Duffy, University of Florida, Psychology, Gainesville, FL, United States

**Introduction:** The Multiple Mini Interview (MMI; Eva et al., 2004) is a medical school preadmissions interview which has been shown to positively correlate to medical school performance, clinical decision-making, and USMLE Step II. The MMI typically uses scenarios that involve decision-making within clinical settings, challenges faced in patient care, and the practice of medicine. This study explored if students stronger in their career decision of medicine perform better on the MMI.

**Methods:** The Medical Career Development Inventory (MCDI) is a validated tool used to assess developmental tasks related to physician career maturity (Savickas, 1984), and the MCDI has been
of shadowing and/or clinical exposure. MCDI for interviewed students who have more hours research should also exam the relation of the MMI and predictors of career maturity in medicine? Further nature. Are there certain scenarios that are stronger the MMI; perhaps due to the scenarios being clinical in having higher MMI scores. Students who are further in the intermediate stages of career development

implement physician as a career choice (r=.289, N=60, was a significant correlation for male MMI scores and those tasks. Further analysis by gender indicated there performing lower on the MMI continue coping with 119 students (72% response rate) that matriculated in 2009 at one United States medical school completed the MCDI. Student MMI scores were matched to MCDI responses.

Results: A significant positive correlation (p<.05) existed between MMI score and specify physician as a career preference (r=.177, N=112, p<.051). There was no significant correlation with the MMI score and crystallize a career preference (r=.046, N=119, p=.31) or implement physician as career choice (r=.039, N=114, p=.34). Mean scores for both crystalize a career preference (M=18.91) and implement physician as career choice (M=17.46) indicate that students performing lower on the MMI continue coping with those tasks. Further analysis by gender indicated there was a significant correlation for male MMI scores and implement physician as career choice (r=.289, N=60, p=.025); there were no other significant correlations by gender.

Discussion and Conclusions: Findings suggest a relation between medical student’s career maturity and performance during their medical school interviews as measured using the MMI with students in the intermediate stages of career development having higher MMI scores. Students who are further along in their career development perform better on the MMI; perhaps due to the scenarios being clinical in nature. Are there certain scenarios that are stronger predictors of career maturity in medicine? Further research should also exam the relation of the MMI and MCDI for interviewed students who have more hours of shadowing and/or clinical exposure.


8D3 (18796)
A Multi-Perspective Critical Discourse Analysis of an Admissions Process to Medical School: Qualitative Knowledge Translation for Greater Inclusion in an Inherently Exclusive Process

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Yvonne Steinert, McGill University, Centre for Medical Education, Montreal, Canada
Mary Maguire, McGill University, Faculty of Education, Montreal, Canada

Introduction: Calls to increase the representativeness of medical classes to better reflect the diversity of society are part of a growing international trend. There is an inherent tension between these calls and the competitive process of medical student selection driven by academic achievement. How is this tension manifested in institutional discourses and experienced by those who select for and apply to medical school? How can an understanding of the discourses of student selection inform changes in selection practice to meet the challenges of achieving greater representativeness in medical classes?

Methods: We synthesize a three year interdisciplinary research program in which we analyzed the discourses of excellence, equity, and diversity in a medical school student selection process, from the perspectives of key stakeholders: 1) universities and regulatory bodies; 2) admissions committee members; and 3) applicants. We grounded the discourse analysis within the critical theories of Foucault, Bourdieu, and Bakhtin, with critical hermeneutics, and identity and performance theories (Ivanic and Goffman) supplementing this conceptual framework. Throughout this work, we have been oriented towards qualitative knowledge translation, seeking meaningful links between our discourse analysis and the practice of student selection to which it gives rise.

Results: University academic excellence discourses are in tension with the social accountability discourses calling for greater representativeness in medical classes. Regulatory body policy documents addressing demographic representativeness in medicine may unwittingly contribute to the reproduction of historical patterns of exclusion for groups whose underrepresentation the policies seek to address. Within selection practices, another discursive tension is exposed, as the inherent privilege in the process is marked, challenging the ideal of medicine as a meritocracy. Applicants’ representations of self through autobiographic submissions and the ‘performance’ of interviewing demonstrate implicit recognition of the power in the act of selection, manifested through explicit ‘fitting in’ strategies and applicants’ own marginalization of aspects of their diverse identities perceived as not fitting within the medical mold.
Discussion and Conclusions: We uncovered hidden privilege within the meritocracy ideal that drives student selection for entry into medical school. This is at the root of tensions in seeking greater inclusiveness in the inherently exclusionary process of student selection. Considering structural approaches for change in the seeking of greater inclusion, we recommend that the processes of policy development addressing diversity and equity issues in medical student selection explicitly recognize power differentials between the profession and marginalized groups, building in empowered participation of such groups as policies are developed. Focusing on agency within the selection process, we propose a model of critically transformative faculty development whereby committee members making judgments within medical student selection processes critically examine constructs such as ‘the ideal candidate’ through the lenses of privilege and capital. Ultimately, for greater inclusion, we suggest a transformative model for the discourses of selection to value multiple excellences rather than one hegemonic definition of excellence. Through this multi-pronged approach and based upon our research evidence, we call for the profession to courageously make explicit the hidden aristocratic-contained within the merit- of the cherished notion of the medical meritocracy.


8D4 (18788)
Different medical school admissions procedures: Different personalities?

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Introduction: Personality traits relate to medical school performance. (1,2) Conscientiousness, Openness, and Extraversion were found to be increasingly important predictors of performance through medical training, with Conscientiousness being the most important. (2) Neuroticism, however, was found to be inversely correlated with medical school performance. (1) Consequently, medical schools try to select students with suitable personalities. Applicants can be admitted through different procedures, and it is unclear which procedure results in the best match between medical school and personality. In most medical schools, a single admissions procedure is used for all applicants. However, in the Netherlands, students are admitted through one of the following three procedures: excellent pre-university grade average, selection, or a national weighted lottery. This situation provides a unique opportunity to assess the relation between different admissions procedures and personality.

Methods: All 1055 medical students who were admitted to the University of Groningen, the Netherlands in 2009, 2010 and 2011 were included in our study. Four groups could be distinguished: students who were admitted (i) based on a pre-university grade average ≥8 out of 10 (n=139), (ii) through a selection procedure that focused on cognitive and non-cognitive abilities (n=286), (iii) through weighted lottery after being rejected in selection (n=310), or (iv) through weighted lottery without participating in selection (n=284). Personality traits were assessed at the start of the first year of medical training using the NEO-FFI, a validated measure of the Five-Factor Model of Personality. Neuroticism, Extraversion, Openness, Altruism, and Conscientiousness were examined. To assess differences in personality traits, we performed ANCOVA analysis of variance followed by Bonferroni post hoc multiple comparisons tests. In all analyses, we controlled for gender and cohort.

Results: On the Neuroticism scale, lottery-admitted students who had not participated in selection scored higher than selected students (p<0.05). Altruism scores of students with a pre-university grade average ≥8 out of 10 and of selected students were higher than those of lottery-admitted students who had not participated in selection (p<0.01).

Discussion and Conclusions: Lottery-admitted students who had not participated in selection scored lowest on Conscientiousness, the most important personality trait in the prediction of medical school performance. Additionally, this group scored higher on Neuroticism than selected students. This suggests that non-participation in the selection procedure might be a risk factor for later performance. Selected students scored higher on Conscientiousness than their rejected peers, indicating that our assessment of cognitive and non-cognitive abilities resulted in more conscientious students. The higher Extraversion scores of selected students may be an indicator for better performance in medical training. (2) We conclude that of the four groups, students who were selected based on both cognitive and non-cognitive abilities showed personality traits that were most promising for performance in medical school.

Motivation of medical students: Selection by motivation and/or motivation by selection

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Introduction: Medical schools try to select the most motivated students through their selection procedures. Though there is a general feeling that selection positively influences student motivation (1), conclusive evidence for this is lacking. The aim of the current study was to determine the relationship between motivation (strength and type) and selection, using Self-Determination Theory (SDT) as a theoretical framework. SDT distinguishes between autonomous (generated within a person) and controlled (originating from external factors) types of motivation (2). Our research questions were: 1) Does motivation influence selection? and/or 2) Does selection influence motivation? We hypothesized that i) if motivation influences selection, all selected students, irrespective of when they were selected, would have higher strength and more autonomous type of motivation than non-selected students, and ii) if selection influences motivation, only recently selected students would have higher strength and autonomous and controlled motivation than other students. We explored why selection might influence students’ motivation by asking the students to answer open-ended questions about this issue.

Methods: Students from two distinct medical tracks (one post-high school 6-year course and one post-bachelor 4-year course) participated in the study. All selected students, irrespective of the timing of their selection, comprised the “selected group” and the students admitted through other routes comprised the “non-selected” group. First year selected students from both courses comprised the “recently selected group”, whereas students selected a few years ago and admitted through other routes comprised the “other students” group. Strength of motivation (measured using the Strength of Motivation for Medical School questionnaire) and autonomous and controlled motivation (measured using the Learning Self-Regulation Questionnaire) were compared using ANCOVA’s, treating age and gender as covariates. Selected students’ answers to open-ended questions were analyzed using inductive thematic analysis to identify reasons for change in motivation.

Results: The response rate was 61.4% (n=357). Selected students had significantly higher strength (p<0.01) and higher autonomous (p<0.01) and controlled (p<0.05) motivation than other students. Reported reasons for enhanced motivation were affirmation of their abilities (through internal and external processes, resulting in living up to expectations), feeling privileged (by being part of a special group and getting a chance), reflection on study choice (for internal and external reasons), reward for effort, getting acquainted with course material and feeling in control.

Discussion and Conclusions: Our hypotheses were partly confirmed. Higher strength, but not different type of motivation seems to influence selection. Also, selection seems to influence students’ strength and autonomous and controlled type of motivation positively. The reasons for enhancement of autonomous and controlled motivation were confirmed in the answers to the open-ended questions. Students clearly mentioned two types of reasons (internal and external) explaining the enhancement of autonomous as well as controlled motivation. The effect of selection on autonomous and controlled motivation seems to be temporary. Autonomous and controlled motivation are higher in recently selected students, but in the long term the differences are not sustained.

8E SHORT COMMUNICATIONS: Outcomes / Competency-based Education 2
Location: Brown 1, Level +2, MiCo

8E1 (22983)
Competency-based Medical Education: State of the Art and Priorities for Development from an International Expert Delphi Process

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Background: Competency-based Medical Education (CBME) is an emerging approach to training in the health professions worldwide. In 2009, the International CBME Collaborators (ICBMEC) was founded to advance the field (See Med Teacher August 2010). In 2013, the consortium reviewed the current state of CBME and priorities for further discussion.

Summary of Work: ICBMEC members undertook a modified Delphi using online surveys and teleconferences. In round 1 participants were asked to identify: a) possible CBME topic that were controversial or requiring further development and b) other educators or practitioners of CBME. Additional members were recruited from the nominees to participate in the process. In further rounds, participants were asked to prioritize the topics until consensus was achieved. Topics with >70% endorsement were included in the next round. Results of each round were distributed electronically and reviewed by teleconference before launching the next round.

Summary of Results: Consensus was achieved in 4 rounds. Survey response rates were 47%, 55%, 66%, and 100% across the 4 rounds respectively. Ninety topics were generated in round 1. By the final round, consensus was achieved on 6 major topic themes: milestones and EPAs, entrustment, assessment, implementing CBME, faculty development for CBME, CBME program evaluation, and a CBME research agenda. The final list of topics was used to design a CBME consensus conference held in 2013 in Calgary, Canada.

Discussion and Conclusions: Health professions education leaders identified 6 key issues to advance CBME worldwide.

Take-home messages: Advancing CBME will require further work on EPAs and milestones, as well as assessment, curriculum implementation, faculty development, program evaluation and key research issues.

8E2 (19102)
Devising a consensus definition and competency framework for non-technical skills in healthcare: A modified Delphi study

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Paul Baker, North Western Foundation School, School of Medicine and Dentistry, Manchester, United Kingdom
Ken Catchpole, Cedars Sinai Hospital, Los Angeles, United States
Daniel Darbyshire, University of Central Lancashire, Preston, United Kingdom
Dawn Schocken*, Tampa, United States

Background: Non-technical skills are a subset of human factors that focus on the individual and promote safety through teamwork and awareness. There is no widely adopted competency or outcome based framework for non-technical skills training in healthcare outside the surgical environment. We set out to devise such a framework and reach a consensus on a definition using a modified Delphi approach.

Summary of Work: An exhaustive list of published and team suggested items was presented to the expert panel for ranking and to propose a definition. In the second round, a focused list was presented, as well as the proposed definition elements. The finalised framework was sent to the panel for review.

Summary of Results: 16 experts participated (58% response rate). A total of 36 items of 105 ranked highly enough to present in round two. The final framework consists of 16 competencies for all and 8 specific competencies for team leaders. The consensus definition describes non-technical skills as ‘a set of social (communication and team work) and cognitive (analytical and personal behaviour) skills that support high quality, safe, effective and efficient interprofessional care within the complex healthcare system’.

Discussion and Conclusions: This consensus competency framework can be used by curriculum developers, educational innovators and clinical teachers to support developments in the field.

Take-home messages: Previously reported competency frameworks for non-technical skills in healthcare have been framed in a specific context and therefore limited. We have produced a framework that is not discipline specific to support further educational developments in the field.
8E3 (20906)
Medical students' changing perceptions of the desirable personal attributes of a doctor

Steven Hurwitz*, University of Newcastle, Newcastle, Australia, Brian Kelly, University of Newcastle, Newcastle, Australia

Background: There is a lack of consensus regarding the desirable attributes of a doctor. Research investigating medical students' views of these attributes and the trajectory of such views over time, is limited, although moral development and empathy among medical students have been found to decline during their studies.

Summary of Work: One cohort of medical students was surveyed in the first and third years of their medical program. The survey contained a list of 31 qualities or attributes of a doctor, which were rated on a likert scale, from 1 (not important at all) to 5 (vital).

Summary of Results: 158 responses were received at baseline and 135 from the third-year survey (78% and 68% response rates). The qualities respondents deemed most important were: ethically sound and good verbal communication. The mean ratings of all qualities decreased in the second survey, except for tolerance of ambiguity, ethically sound and personal insight. A principle components factor analysis found five categories of qualities: Methodical, Generic Work Ethic, Interpersonal Integrity, Role Certainty and Cognitive Capacity. The perceived importance of Generic Work Ethic (p<.01), Role Certainty (p<.05) and Cognitive Capacity (p<.01) significantly decreased over time.

Discussion and Conclusions: Respondents' ratings of the desirable qualities of a doctor changed significantly over two years of medical studies. Cognitive Capacity, Generic Work Ethic and Role Certainty decreased significantly, but Interpersonal Integrity and Methodical did not, suggesting that they remained valued sets of attributes. The findings provide insights into the values and development of professional identity among medical students.

Take-home messages: Medical students' perceptions of desirable attributes of doctors change significantly over the course of their studies, with reduced emphasis on cognitive ability and work commitment, while interpersonal skills retain importance over time.

8E4 (19914)
A Study to develop, by consultation, agreed learning outcomes for the teaching of handover to medical students using Group Concept Mapping

Patrick Henn*, University College Cork, School of Medicine, Cork, Ireland, Helen Hynes, University College Cork, School of Medicine, Cork, Ireland, Hendrik Drachsler, Open Universiteit Nederland, Faculty of Psychology and Educational Sciences, Heerlen, Netherlands, Bridget Maher, University College Cork, School of Medicine, Cork, Ireland, Carola Orrego, Avedis Donabedian Institute, Barcelona, Spain, Sasa Sopka, RWTH Aachen University, University Hospital UKA, Anaesthesiology, Aachen, Germany

Background: Newly qualified doctors feel unprepared for handover. This should not be unexpected, as there appears to be little formal teaching in handover in the USA or the UK. A systematic review of educational interventions to improve handover, showed a paucity of research into handover education and evidence of the effectiveness of current educational strategies. As a starting point we undertook this study to develop, by consultation, agreed learning outcomes for the teaching of handover to medical students.

Summary of Work: Group Concept Mapping was used to identify a common understanding of an expert group's common understanding about the learning outcomes for the teaching of handover to medical students.

Summary of Results: 45 experts contributed to the brainstorming session. 22 of the 45 (48%) from 4 European countries completed the pruning, sorting and rating phases. 10 themes were identified with which to select learning outcomes and operationally define them to form a basis for handover training for medical students. The themes entitled 'Being able to perform handover accurately' and 'Demonstrate proficiency in handover in workplace' were rated as most important. 'Demonstrate proficiency in handover in simulation' and 'Engage with colleagues, patients and carers' were rated most difficult to achieve.

Discussion and Conclusions: 10 themes identified with which to select learning outcomes and operationally define them for handover training for medical students.

Take-home messages: These learning outcomes could form the basis for future curriculum design for Handover training as newly qualified doctors need to be proficient at handover at the point of graduation otherwise this is a latent error within healthcare systems.
8E5 (22904)
The Swedish Doctor? A pilot study to create a framework of national learning outcomes for medical education in Sweden

Marina Ehlin Kolk*, Umeå University, Umeå, Sweden

Background: Since 1977, each of the seven universities in Sweden have been free to develop their own undergraduate medical curriculum, based around 16 overarching goals regulated by law. After 5.5 years of study an internship of at least 18 months is mandatory to receive the legitimation. The medical education in Sweden moves toward a more outcome based education. In 2013 a revised framework, including 21 new overarching goals, was suggested in a government report. The aim of the current study was to develop a more detailed framework of national learning outcomes (LO’s) based on the suggested new overall goals.

Summary of Work: A national conference and literature review supported the need for more detailed learning outcomes. The learning outcomes (LO’s) in “Tomorrow’s Doctor’s” from the UK GMC were selected as most relevant to the Swedish context, and these were mapped to the new overarching goals. The next phase of the study involved a pilot stakeholder opinion-survey of three of the new overarching goals with associated LO’s from Tomorrow’s Doctor’s. Thereafter the findings will be discussed with stakeholders for the medical education to find threats and opportunities for this project.

Summary of Results: It has been possible to map between three of the new 21 overarching goals and the LO’s of Tomorrow’s Doctor’s”, and to use these to gain stakeholder opinions on detailed learning outcomes for Swedish undergraduate medical education.

Discussion and Conclusions: It is possible to create detailed national learning outcomes for medical education in Sweden.

Take-home messages: We are one step closer to defining The Swedish Doctor.
The Gastrointestinal Endoscopy Competency Assessment Tool for pediatric colonoscopy (GiECAT-KIDS): Development and multicenter validation

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Jennifer R Lightdale, UMass Memorial Children’s Medical Center, Worcester, United States
Jeffrey J Yu, The Wilson Centre, Toronto, Canada
Heather Carnahan, School of Human Kinetics, Memorial University, St. John’s, Canada

Introduction: Rigorously developed and validated assessment tools are required to support competency-based education and demonstrate trainees are progressing toward proficiency. This PhD thesis aimed to develop and assess the validity and reliability of the Gastrointestinal Endoscopy Competency Assessment Tool for pediatric colonoscopy (GiECAT-KIDS).

Methods: A conceptual model for procedural competence was formulated from a systematic literature review. The GiECAT-KIDS was then developed using Delphi methodology to determine expert consensus regarding items required on a global rating scale and checklist designed to assess the competence of clinicians performing colonoscopy on pediatric patients. Forty-one North American pediatric endoscopy experts rated potential global rating and checklist items for their importance as indicators of the competence of trainees learning to perform pediatric colonoscopy. After each round, responses were analyzed and sent to the panel for further ratings until consensus was reached. Consensus was defined a priori as >/=80% of experts, in any given round, scoring >/=4 out of 5 on all remaining items. Subsequently, the GiECAT-KIDS was validated in a multicentre study. 103 colonoscopies performed by 54 endoscopists at 3 North American teaching hospitals were evaluated by an attending physician: 25 novices (500). Another observer rated procedures to assess inter-rater reliability using intraclass correlation coefficient (ICC). Construct validity was examined by comparing experience level with GiECAT-KIDS scores. Concurrent validity was confirmed through correlation scores with (a) colonoscopy experience; (b) cecal and (c) terminal ileal intubation rates; and (d) physician global assessment of skill. Test-retest reliability was determined using Cronbach's alpha. Internal consistency was achieved, with response rates ranging from 76-100%.

Results: Procedural competence was conceptualized as requiring demonstrated proficiency in 3 domains: (1) technical; (2) cognitive; and (3) integrative competencies required for safe, intelligent performance in varied contexts (e.g., communication, judgment). During the Delphi process, 5 rounds of surveys were completed before consensus was achieved, with response rates ranging from 76-100%. Seventy-five checklist and 38 global rating items were reduced to 18 checklist and 7 global rating items that reached consensus and were included in the final GiECAT-KIDS tool. During the prospective validation study, GiECAT-KIDS global rating scale (GRS) and checklist (CL) scores were found to differ significantly between endoscopists based on their level of experience (p<0.001). There was a significant positive correlation (p<0.001) between scores and (a) number of previous colonoscopies performed (GRS: r=0.82, CL: r=0.74); (b) cecal intubation rate (GRS: r=0.84, CL: r=0.70); (c) terminal ileal intubation rate (GRS: r=0.85, CL: r=0.73), and (d) physician global assessment (GRS: r=0.95, CL: r=0.85). Inter-rater reliability was excellent (GRS ICC=0.85, CL ICC=0.89). Test-retest reliability was high (GRS: r=0.94, CL: r=0.84). The internal consistency of the GRS (α=0.98) and CL (α=0.86) were excellent.

Discussion and Conclusions: GiECAT-KIDS is a feasible, valid and reliable measure of performance of pediatric colonoscopy that can be used to support training and evaluation. This thesis provides a framework educators can use to comprehensively and systematically develop and validate tools designed to assess the full breadth of technical, cognitive and integrative competencies required to perform procedures safely and proficiently.

The narrative construction of identity and the medical student-patient encounter

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Introduction: Despite the inclusion of communication skills in contemporary medical curricula, the perception persists that doctors often fail to listen attentively or demonstrate genuine care for their patients. To investigate the relational dimension of medical training, research has turned from socialisation to the formation of identity: what kinds of subjects are formed by the processes of medical education (1)? The work of Bakhtin on human relations as dialogue is the principal theoretical framework. Bakhtin argued that human existence is an event shared with others; that we construct ourselves in relation to those we interact with. This was the basis for the dialogic narrative analysis used in the project, which utilised a concept of identity as relational, dynamic and multiple, constructed in every encounter (2).

Methods: The project was designed to investigate how students and patients experience their encounters with each other during students’ first year in a teaching hospital. In response to early findings,
the research question evolved to focus on how students and patients construct their identities through the stories they tell: both during and about their encounters. An interpretive ethnographic approach was utilised, with fieldwork undertaken in a teaching hospital. Medical students, patients and clinical teachers participated in in-depth interviews, and participant observations were carried out of bedside tutorials, ward rounds and clinics. A qualitative approach using analysis of narrative data is ideal for the investigation of identity formation in interpersonal interactions. Selected stories were subjected to a dialogic narrative analysis, which focused on how stories was produced and performed in a given context, and on what was accomplished by their telling.

Results: The analysis shows that medical students and patients use stories to construct their identities in relation to one another, in particular contexts. These identities are shaped by relations of power and customary practices, which are associated with local cultural values. Patients and students play an active part in shaping their own identities, complying with those in authority but sometimes also performing acts of resistance. Students struggle to integrate the values and practices expected of their emerging professional identity with those of their established identities. Some patients tell of their awareness of students’ anxiety and how they intervene to relieve their discomfort; some make moral judgements about their character. Patients may participate actively in clinical teaching, but at times, they feel treated like passive objects. There are potential benefits and harms from patients’ involvement in medical education, yet when doctors and students enlist them, they often neglect to obtain valid consent.

Discussion and Conclusions: This study contributes to the emerging literature on identity formation and the patient experience in clinical education. Clinical teachers should acknowledge that the way they relate to patients has a powerful influence on students’ emerging identities. They need education about identity formation and support to critically examine and adjust their own practices but also to challenge local cultures. This study should contribute to the development of more collaborative clinical teaching practices and promote more effective relationships between students and their future patients.

that is recognised simultaneously as everyone’s and
no-one’s responsibility. The explicit assessment of both
practical skills and technical knowledge contrasts
sharply with the assessment of the students’ other
professional skills, and the combination of poor
formative feedback with summative grades only
strengthens this message. Finally, the nature of the
rotation assessment discourages deep learning, as
students avoid asking questions. Students look to
both role models and their rotation group to reinforce
their existing attitudes about professionalism. If
appropriate role models cannot be identified, or the
student feels unsupported by their rotation group,
they are at a greater risk of influence from the
mediators.

qualitatively driven way. Qualitative Research, 6(1), 9–
25.

8F4 (18920)
What is the nature and impact of synchronous
online clinical education in fragile states?

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Introduction: This thesis focuses on the practice of
synchronous online clinical education in fragile states
to understand the process and impact of these
programs in context. Synchronous online clinical
education (SOCE) is considered as an internet based
activity which employs real time communication for
the purpose of clinical learning. Shortages of clinical
faculty are a common problem in fragile states, and
SOCE holds particular potential to connect students to
educational resources – including human resources –
abroad. While SOCE offers apparent potential to
improve medical education in fragile states, there is as
yet no research examining this claim. This thesis
addresses the following research questions: 1) What
are the roles of students, tutors and technology within
SOCE learning activities? 2) How does SOCE align with
local medical education practices in fragile states? 3)
What motivates student participation? 4) What
learning outcomes do medical students in fragile
states perceive from participation in SOCE?

Methods: A multi-case study methodology was used
to investigate the use of SOCE in context to describe
the relationships between the socio-cultural context,
mediating tools (technology and conceptual) and
learning activities. The first case study is on
MedicineAfrica, an on-going program through the
King’s Centre for Global Health, which delivers weekly
case-based online tutorials to medical students in
Somaliland. The second case study will focus on OxPal,
an Oxford-Palestine partnership that delivers online
case-based teaching to medical students in the West
Bank. For each case study, interview data was
collected and Activity Theory used to perform a
deductive qualitative analysis. The analysis describes
an ‘activity system’ for the use of synchronous online
learning in fragile states and comparative analysis

informs development of an applied evaluation
framework for SOCE.

Results: SOCE in fragile states is mediated by the
affordances of the online platform used, and through
conceptual tools, including dialogue and pedagogy.
Case-based discussions in which students present
cases from their local wards bring local context into
the online learning. Students described a dialogic
learning process in which online interactions,
particularly guided questioning by tutors supported
their learning. This interactive approach was distinct
from local teaching styles, and motivates student
participation. Students reported learning analytic
clinical reasoning skills and gaining subject knowledge.
There are examples of students transferring both
knowledge and clinical reasoning skills learned online
to their local clinical and educational activities.

Discussion and Conclusions: SOCE allows globally
dispersed students and faculty to effectively interact,
leading students to develop clinical reasoning skills.
Due to the importance of interactions between users,
pedagogical design of SOCE may influence learning
more that technical design. Further research is needed
to investigate the ethical implications of mixing
medical cultures through SOCE.

References: 1) www.medicineafrica.com
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Toward an activity theoretical reconceptualization."
**8G1 (21814)**  
**Development of a formative competency-based progress test with MC-items constructed by students – pilot test and further development**

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**Summary of Work:** Students from seven German medical faculties were actively involved in the development of the competency-based progress test. The students were given an intensive and comprehensive training program and then constructed and reviewed the items for the test using the ItemManagementsystem. For the first pilot test in 2013 students developed more than 200 MC-items.

**Summary of Results:** 469 students from eight German medical faculties took part in the pilot for the progress test in November 2013. The item scores of the test were analyzed in total and differentiated analyses were calculated for the “subject groups” and the “competencies”. The results showed that the quality of the items created by the students was on a high level. Cross-section analyses showed an increase in knowledge each academic year in total as well as in the “subject groups” and the “competencies”.

**Discussion and Conclusions:** For the further development of the competency-based progress test in cooperation with students issues like question formats and assessment formats (e.g. Key Feature and OSCE), feedback formats and the possibility of web-based formative assessment are in ongoing discussion.

**Take-home messages:** The quality of MC-items created by students is on a high level.

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**8G2 (22031)**  
**Simultaneous progress testing in five German-speaking vet schools**

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**Background:** The German-speaking veterinary faculties of Europe have developed and implemented a progress test designed for veterinary medicine (PTT: Progressertest Tiermedizin). This new test is part of the KELDAT project, a common initiative of all German-speaking institutions for veterinary education funded by the Volkswagen and Mercator Trusts. The test is purely formative (i.e. no grading and no sanctions).

**Summary of Work:** The PTT consists of 136 MC-Questions. Test content is referring to day one of different competencies as defined by the European Association of Establishments for Veterinary Education (EAEVE). The test questions are contributed by teaching staff of all participating institutions and subject to a multistage review process. The same set of questions is being presented to all students. Besides a choice of 4 answers there is an option “I do not know” to encourage students to honestly appreciate their knowledge.

**Summary of Results:** Out of five establishments a total of 1800 students have participated in the first run in December 2013. Results show i) the level of spontaneously retrievable knowledge, ii) the amount of knowledge relative to different areas of competence, iii) the participants’ level of knowledge as compared to all cohorts of one’s own institution and, as the test will be implemented in the coming years iv) the learning progress in the course of a student’s undergraduate training.

**Discussion and Conclusions:** PTT is a feedback tool to enhance autonomy and self-monitored student learning and to improve quality of veterinary education.
Take-home messages: The simultaneous implementation of the PTT in seven institutions is a first in collaboration in veterinary education in Europe.

8G3 (20048)
Learning and collaborative action: Progress testing construction process across an Interinstitutional Consortium in Northeast of Brazil

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Background: A national assessment project was conducted by Brazilian Medical Education Association. An interinstitutional consortium of seven Northeast medical schools was assembled for implementation of progress test (PT).

Summary of Work: A faculty committee representing each school conducted the test design. Learning objectives from Medicine, Pediatrics, Obstetrics/Gynecology, Surgery/Emergency, Public Health and Basic Sciences were enrolled, based on Brazilian Foreing Medical Degree Revalidation blueprint and National Curriculum Guidelines. After, these contents were rated in relevance degree (1to5) by an each school expert panel and contents with mean ranking 4/5 were included in PT blueprint (20 per area). A faculty development in multiple choice question (MCQ) construction was conducted and an order for MCQ, contained the learning objective and clinical setting was send to schools. Three MCQ were produced for each content by different schools. First quality control reviewed was done. Of a 350 MCQ pool, a consortium meeting defined the 120 MCQ PT, after a second review and adjustment. All questions were classified at level3 or more at Bloom’s cognitive taxonomy.

Summary of Results: At the same time, schools administered PT to 2656 students (66.1% of all students from 7 schools). The mean scores were 38.75% at year 1 and 65.17% at year 6. By Classic Test Theory, 49% of questions were middle and 24% difficult, 77% had good/optimal discrimination, with reliability 0.91.

Discussion and Conclusions: The consortium provided collaborative and cost-effective work, benchmarking and assessment quality improvement, resulting in more reliability and curriculum alignment.

Take-home messages: Different strategies to encourage student participation must be used. An integrated process of TP construction increases the assessment effectiveness.

8G4 (20264)
Use of Progress Test for Monitoring the Effectiveness of the Medical Curriculum in Qassim College of Medicine

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Background: Qassim College of Medicine adopts a student centered integrated problem based curriculum with spiral approach. Continuous monitoring and re-adjustment of the medical curriculum is of prime interest. Recently, progress testing was introduced to serve for both assessment of learning and assessment for learning.

Summary of Work: The results of four rounds of progress test conducted during 2012 & 2013 were analyzed. Evaluation of knowledge growth and performance of the students at graduation were specially stressed. The potential of progress testing in prediction of overall students’ performance shown by the cumulative Grade Point Average (GPA) was also tested.

Summary of Results: Final year students of the college consistently performed higher than the average for other participants. Growth of knowledge was steady in all components of the curriculum. Basic biomedical knowledge continued growth in clerkship phase and diagnostic and case management skills were shown to develop from the early years of the program. Areas related to professionalism were also shown to build up from the start. The correlation of progress test results with the cumulative GPA was moderate.

Discussion and Conclusions: The results of study confirmed the effectiveness of the student centered integrated curriculum and the spiral approach in building up competencies needed for medical graduates as well as continuing knowledge gain. Since progress testing primarily targets knowledge and cognitive skills, it may not be useful for prediction of students’ performance in other assessment modalities.

Take-home messages: Progress testing should be an integral part of the assessment system to monitor the efficacy of the curriculum. Detailed analysis of results based upon the multifaceted blueprint can add more insight in this regard.
**8G5 (22599)**

*Are scenario-based items associated with more omitted answers in progress testing?*

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**Background:** Progress tests have undoubtedly benefited from the usage of omitted answers and penalties for wrong answers in the prevention of undeserved scores due to guessing, in the maintenance of adequate generalizability in early years and in the promotion of metacognitive skills. The International Progress Test (IPT) Committee recommended to increase the usage of scenario-based items in order to increase early exposure of students to more authentic and relevant items. Nevertheless, such measure apparently caused an increase of omitted answers in the test.

**Summary of Work:** An edition of IPT was analyzed with bootstrapped multiple linear regression models. Considering the percentage of omitted answers of each item as the dependent variable, the models included four independent variables related to item format and position (usage of a clinical scenario, stem word count, item number and number of alternatives) and sixteen dummy variables related to the content domains.

**Summary of Results:** R-square for the most complete model was 0.333. The only independent variable unrelated to content domains that was meaningfully and significantly associated to the percentage of omitted answers in all models was presence of a clinical scenario. The observed increase of omitted answers in scenario-based items gradually decreased until it disappeared in the fourth academic year.

**Discussion and Conclusions:** Scenario-based items were associated with increased omitted answers when penalties for wrong answers are used in progress testing, independently from content, number of alternatives, item length and item position, particularly in early years.

**Take-home messages:** The current progress testing framework might be associated to a delay in the engagement of students into solving scenario-based items.

**8G6 (22220)**

*Computerized adaptive progress testing in the medical domain: A study of students’ experiences*

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**Background:** Five medical schools in the Netherlands jointly construct an interuniversity progress test. All students perform a 200-item multiple-choice paper-and-pencil test four times per year during the six-year curriculum. Tailoring items to the respondent’s level, computerized adaptive testing (CAT) can yield a more efficient knowledge measurement than the traditional test. This study focused on students’ experiences with CAT for progress testing in the Dutch medical curriculum.

**Summary of Work:** Master’s students in medicine (N = 192) performed a CAT consisting of 100 multiple choice items calibrated from the traditional test. Prior to the CAT, they completed an 18-item questionnaire on their experiences with the traditional test. Eight items were adapted from a recently developed cognitive load instrument, and the other items asked about representativeness of the test for the medical domain, the extent to which performance was in line with expected performance, comprehensibility of the score, and some specific aspects of the test. Immediately after the CAT, which took on average about one hour, they completed the same 18-item questionnaire but this time tailored to the CAT.

**Summary of Results:** On average, CAT imposed a lower cognitive load on students. Moreover, CAT was perceived to be more representative for the medical domain, and to yield a more informative score in line with their expected performance than the traditional test.

**Discussion and Conclusions:** The findings appear to provide evidence for some benefits of CAT compared to traditional paper and pencil testing, including a more efficient knowledge measurement.
Take-home messages: CAT for progress testing may offer more advantages than just efficient measurement.
Effectiveness of patient feedback as educational intervention to improve medical student consultation (PTA Feedback Study): A randomised controlled trial

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Background: Educator feedback has been integral to medical student learning. The role of patient feedback in clinical teaching has not been vigorously evaluated.

Summary of Work: We evaluated outcomes in 71 medical students randomly assigned to receive written feedback on patient satisfaction with guided self-reflection (intervention group) or usual multisource verbal feedback (observation group) after five student-led consultations with patient volunteers in a teaching clinic. Student characteristics, baseline patient-rated satisfaction scores and tutor-rated consultation skills were measured. Linear mixed effects regression was used to account for random effects of students, tutors and student grouping variability.

Summary of Results: The intervention group had significantly better patient-rated compliance intent (β=0.92, 95%CI:1.72, -0.13) and tutor-rated patient centeredness (β=0.48, 95%CI:0.16,0.79). Distress relief, communication comfort, rapport reported by patients and tutor-rated clinical skills were not different. For both groups, standard multisource feedback improved patient-rated rapport (β=0.47, 95%CI:0.17,0.77), tutor-rated patient centeredness (β=0.26, 95%CI:0.03,0.49) and tutor-rated overall consultation performance (β=0.32,95%CI:0.06,0.59).

Discussion and Conclusions: The innovative multisource feedback program using immediate verbal feedback from patients, tutors and peers provided reflection opportunities and, in our study, has improved both communication and consultation skills in students. Structured written feedback from patients in the intervention group significantly further improved compliance intent of patients and patient centeredness. Guided written patient feedback provided important and additional benefit in learning communication in multisource feedback model of teaching.

Take-home messages: Structured consumer feedback has significantly enhanced multisource feedback model of teaching and effectively addressed the hidden curriculum of communication skills in medical education.

Building student ownership into formative feedback results in improved learning behaviour amongst first year undergraduate medical students

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Background: A key feature of formative assessment is the feedback generated for students to guide them in improving their performance. Effective feedback should empower the students to become independent learners. Part of the process should include dialogue between student and teacher. The aim of our study was to determine the effect of delivering formative feedback through one-to-one discussions with students. They were questioned on their study behaviour, with the aim of students developing ownership of their learning and improving their performance.

Summary of Work: Three formative assessments were staggered throughout the first semester to assist students in determining their academic progress. Students who were deemed to under-perform in the first formative met for feedback with academic or support staff. Those repeating the year completed a questionnaire based around time management and study skills to form the basis of the initial discussion. The other students were questioned more specifically about their study behaviour with the aim of raising awareness, reflection and developing ownership.

Summary of Results: Having more than one formative assessment allowed us to measure the impact of our intervention on the performance of students throughout the semester. Following the first assessment, we found there was a significant correlation between ownership of learning and student performance in subsequent formative assessments.

Discussion and Conclusions: Ownership of learning during formative feedback improved learning behaviour and led to improved student performance.

Take-home messages: Feedback focused on empowering the student was fundamental in developing successful learning behaviour and improved academic performance.
8H3 (19013)
Curriculum Emphasizing Feedback Improves Medical Students’ Comfort and Perception Surrounding Feedback

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Background: Giving feedback is an essential educational tool. However, formal instruction on how to provide it is lacking, leaving students unprepared to offer appropriate, effective feedback. This study evaluates students’ comfort level with and perceived usefulness of feedback during a handover curriculum.

Summary of Work: 34 fourth-year medical students participated in a handover curriculum that also provided instruction on delivering peers feedback on performance. Faculty provided students feedback on 3 handovers. Peers receiving these handovers rated the students’ performance and provided written and verbal feedback on the handovers’ sufficiency and usefulness the following morning. Paired t-tests compared ratings of student comfort with feedback and perceived usefulness of feedback between the rotation start and end.

Summary of Results: At the rotation start, students’ mean ratings of their comfort level with giving and receiving feedback were 3.09 and 4.09 respectively, based on a 1-5 Likert scale with higher values indicating more favorable ratings. By rotation end, students rated their comfort level giving and receiving feedback as 4.29 and 4.62, showing an improvement in their comfort level (p<0.0001). At the rotation start, students rated the helpfulness of feedback from peers and faculty as 4.35 and 4.59. By rotation end, students rated feedback from peers and faculty as 4.59 and 4.74, showing an increased perception of the helpfulness (p=0.04).

Discussion and Conclusions: A curriculum with an emphasis on feedback increases student comfort giving and receiving feedback and increases recognition of the helpfulness of receiving feedback from faculty and peers.

Take-home messages: Integrating feedback instruction within the context of a specific care responsibility is feasible and effective.

8H4 (21648)
Learners’ verbal and non-verbal behaviour varies in feedback conditions

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Background: Is it possible for feedback providers to observe how a feedback message is received by a learner? We assume that verbal and non-verbal behaviour of learners gives information about the message reception. If this is the case, than learners’ non-verbal and verbal behaviour varies in different feedback conditions. This hypothesis will be tested in this study.

Summary of Work: Three different feedback conditions were compared: a) Negative feedback followed by Positive feedback (NP), b) Positive feedback followed by Negative feedback (PN), and c) a reaction from the learner followed by PN (Reaction). 88 video recordings of feedback dialogues between supervisors and medical students were transcribed and non-verbal behaviour was observed with a validated checklist and coded in ‘Transana’. Differences in interaction, verbal and non-verbal behaviour between conditions were determined by using Mann-Whitney U and Kruskal-Wallis test (p<0.05).

Summary of Results: The duration of the dialogue in seconds was longer in the reaction condition (M=124) compared to PN (M=100) and NP (M=85) (p<0.01).

Discussion and Conclusions: Utterances of verbal and non-verbal behaviour varies in different feedback conditions, and are mostly observed in the reaction condition.

Take-home messages: When a feedback provider wants to receive verbal and non-verbal cues about a learner’s feedback message reception, a dialogue in which the student can react on the message should be used.
Role of structured behavioral feedback in communication skills training for medical students, a randomized controlled trial (RCT)

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Background: Communication skills training (CST) is proven effective by practicing with standardized patients and providing feedback. This study investigates, whether the didactic element of structured behavioral feedback is one of the main reasons for improvement.

Summary of Work: 66 medical students were randomized in an intervention group with structured behavioral feedback and training group with treatment as usual. The control group focused on experience, whereas the intervention group integrated behavioral feedback from peers using an observational survey, feedback by standardized patients and written summary by the trainer with concise recommendations according to a checklist. For objective evidence, all students had a pre and post video assessment with standardized patients and filled out questionnaires about self-competence. Videos were analyzed by blinded raters using the COM-ON-Checklist (Stubenrauch et al., 2012).

Summary of Results: By the time of conference we will present data of intervention and control group referring to changes of communication skills and changes in self-competence. This RCT was integrated in a usual educational setting, so external validity should be high.

Discussion and Conclusions: This study provides information about efficient structured feedback in CST.

Take-home messages: Structured feedback in CST should improve communication skills and self-competence of medical students.
"Walking into a den of lions"?: A teacher's journey into medical education

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Background: The sage advice of medical educator, Hilliard Jason, that PhD educators considering a career in medical education must see themselves as anthropologists, often sustains me. As a PhD educator in a faculty of medicine, I have spent my time not only exploring the existing educational structures but also discovering ways of translating educational discourse into the climate and characteristics of the medical setting.

Summary of Work: Working through an educator's lens, I have had the opportunity to take an active role in: curriculum renewal, peer dialoguing, supporting and cultivating scholarship of teaching with faculty, and cultivating an interest in teaching and research scholarship with our students -- our future medical educators.

Summary of Results: Stepping into work each day is not akin to walking into a den of lions as educational pioneer, Charles W. Dohner has described; I work amongst a community of scholars who share a concern and passion for the scholarship of teaching within medical education.

Discussion and Conclusions: The barriers and limitations can be mitigated if the educator's role is well-defined and supported by the governing bodies and if the institution is actively engaged in the notion of interdisciplinary collaboration.

Take-home messages: An anthropological search of pioneering medical educators from as early as the 1800's indicates that while strides have been made, we are still very much in the pioneering stage. This continues to be a journey of border-crossing—sometimes speaking a different language but ultimately, embracing the reciprocity of two cultures for the enhancement of medical education.

Educating the clinical trainer: Professional gain for the trainee?

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Background: To amplify the clinical, teaching and personal qualities and become a more competent role model in the master apprentice relation, CPD (continuing professional development) and FD (faculty development) courses are designed, with the expectation that a cascade effect will occur, resulting in the conveyance of information from course to clinical trainer to daily practice and/or to trainee.

Summary of Work: A controlled intervention study was performed with General Practitioner (GP) trainers and trainees from 4 trainings institutes in the Netherlands with a CPD/FD on weight management. Outcomes were knowledge and attitude of trainer and trainee, and role model behavior (the Role Model Apperception Tool; RoMAT) of the trainer. Also semi-structured interviews were conducted to gain insight into factors influencing clinical trainers to incorporate CPD/FD in the conveyance from master to apprentice.

Summary of Results: Only GP trainers showed an increase in knowledge. Analysis of the interviews resulted in factors influencing the amplification of competences of the trainer, growth of awareness of being a role model, applicability in the training practice and conveyance to the trainee.

Discussion and Conclusions: The limited positive changes, compared to earlier studies, might be a result of more objective assessment. Also, the influential factors and interactions seem to function as filters on each step of the cascade, causing a whirlpool effect and declination of the effectiveness of the CPD/FD.

Take-home messages: An intervention using the filters as starting points can induce a higher effectiveness of CPD/FD courses and can also be used for designing a gold standard of CPD/FD evaluation.
813 (22105)
Implementing progression of professional development: A long-term case study

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Background: Learning and assessing professional development (PD) is central in medical education. However, educators face many challenges in its implementation.

Summary of Work: In 2009, five core areas of PD at the Gothenburg undergraduate curriculum were identified and mapped: Communication, Leadership and teamwork, Ethics, Human rights and gender issues and Scientific critical thinking. A "Mosaic model" of PD integration and progression was adopted. Five advisory and coordinating process leaders were employed on a part-time basis and received supervision from a researcher in education. In evaluation of the implementation process 2009-2013, process leaders' documentation including supervision accounts were collated and analysed.

Summary of Results: Process leaders developed learning objectives, activities and tested new formative assessments. Positive experiences were including scientific critical thinking in the concept of professional development and work with clinical teachers to set up new activities. A critical issue was to introduce clinical assessments of PD. The integrated "Mosaic model" was modified and explicit programme stations of training and assessing students' professional development were added. Results suggest that implementation of a progression is demanding, due to courses discipline-specific tradition. In order to assess PD, teachers need more student continuity and education in learning objectives and assessment methods.

Discussion and Conclusions: Implementation of learning and assessing progression of PD call for further coordination and education of teachers. Central steering on programme objectives need to balance traditional discipline-specific course objectives.

Take-home messages: Programme cohesion and steering is needed in implementing a progression of professional development.

814 (22538)
Defining competence for faculty developers

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Background: Faculty Development (FD) is a key enabler to support the changing needs of faculty; however evidence exploring competence in faculty developers is lacking. Using an ethnographic approach, this multi-site study explored competence within the FD community.

Summary of Work: 31 faculty developers participated in this ethnography. Data included over 70 hours of field observations and 21 interviews. Observations were selected to explore the role context and learner population play in the activities of faculty developers. Interviews allowed for deeper exploration of the processes observed. Data were analyzed inductively; the research team met frequently to refine, challenge and elaborate the developing coding structure. Through an iterative process of relating and grouping of codes, a thematic structure was identified and applied to the dataset.

Summary of Results: Participants engaged in three inter-connected processes during FD facilitation: (1) attuning their knowledge and skills to the learners; (2) constructing an ideal environment for performance of their knowledge and skills, and (3) negotiating program factors beyond their control.

Discussion and Conclusions: There is a situated and distributed nature of competence in FD. This shifts from one setting to another as faculty developers integrate their knowledge and skills with their context. The dynamic, flexible enactment of knowledge and skills appears to be a core competency of FD facilitation.

Take-home messages: Faculty developer training must move beyond the acquisition of best practices in adult education towards the inclusion of training for the flexible use of knowledge and skills in context.
Helping clinical teachers struggling with complex educational problems

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Background: In recent years, the Department of Family Medicine of Université de Montréal implemented a multidimensional approach to improve clinical teachers’ competencies in educational diagnostic and remediation processes. Even though they attended workshops on the topic, clinical teachers still experience difficulties in managing their resident’s complex educational problems.

Summary of Work: Based on accepted educational principles and using a process similar to clinical supervision, we planned and implemented an educational supervision process, provided by a support team formed by experienced teachers experts in clinical supervision and medical education, aimed at helping teams of teachers to diagnose and plan a remediation for their residents in difficulty.

Summary of Results: We observed that teams of clinical teachers were able to collect data, but had difficulties with several educational reasoning steps. The educational supervision process helped them structure their approach to residents in difficulty, refine educational diagnosis and better plan remediation. By sharing and explicitly describing their educational reasoning process, members of the support team acted as role models.

Discussion and Conclusions: Helping teams of clinical teachers to solve their pedagogical problems instead of asking an expert do it for them strengthens the peer-learning process and enhances the autonomy of the teaching team. This educational supervision empowers clinical teachers and helps them feel more competent and secure about the diagnostic and remediation processes.

Take-home messages: Instead of solving the problems for them, helping teams of teachers learn how to work out complex residents difficulties seems a promising way to enhance their educational competencies.
8J SHORT COMMUNICATIONS:
Research
Location: Amber 3, Level +2, MiCo

8J1 (21156)
Effectiveness of a graduate entry programme in encouraging students to become physician-scientists

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Background: Education of physician-scientists performing translational research is important to improve healthcare. The selective admission graduate entry programme of the VU University Medical Center is designed to educate students as physician-scientists. Students have a dedicated time of six months in the curriculum for a research project. They are encouraged to continue this research during their clerkships and simultaneously start a PhD project. The current study aims to evaluate the effectiveness of this programme.

Summary of Work: All students of the first cohort (n=21) were asked to fill in a questionnaire after 4 months of research training. Outcomes were evaluated in terms of future publications and intention to perform their research activities during their clinical training and accept an offer for a PhD track. Supervisors filled in questionnaires (Likert scale of 1-5) regarding their perceptions of these students.

Summary of Results: The students' response rate was 95%. After 4 months of research training 55% of the students were eager to continue their research activities during their clerkships and 35% had already discussed with their supervisors opportunities for a PhD track. 60% of the students were engaged in writing a manuscript to submit for publication (in the regular six year programme: a maximum of 30%). Supervisors perceived these students as performing on a higher level compared to students from the regular programme (4,2) and as highly motivated (5,0) and hard working (4,9).

Discussion and Conclusions: Our programme seems to motivate students to do research. We will follow up all students longitudinally to monitor the progress in their clinical and research careers.

8J2 (22049)
Tango with teams: Assessment of the learning environment during medical students' research project course

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Background: Students' independent research projects may be considered ultimate self-regulated learning task. A significant part of student's learning and development during degree project course takes place through workplace experience. Supervision of students in highly competitive research environments is not, however, always the first priority. Previous research has shown that learning environment has an impact on quality of learning.

Summary of Work: The purpose of this study was to investigate medical students' perceptions of their learning environment during degree project course (20 weeks; 30 ECTS credits; term 7) when students carry out individual research projects. From 2011 through 2013 a questionnaire was delivered as a websurvey at the end of the course.

Summary of Results: A total of 454 students returned the questionnaire (response rate 68%). The students considered the learning environment to be good (34%) or rather good (24%). About 62% were satisfied or rather satisfied with their supervisors. However, students did not rate highly for supervisors' effort in clarifying the learning outcomes, or for supervisors and team's collaboration for supporting learning. There was a strong correlation between students' perception of a good learning environment and having enough meaningful (r= .77) and varying (r=. 74) learning activities, positive atmosphere in the working environment (r=. 0.68), the staff's interest in supervision (r=. 69), and student's possibilities to participate in scientific discussions with the team/staff (r=.70).

Discussion and Conclusions: In good learning environments the students have multiple varying learning activities and interaction with the whole team/staff.

Take-home messages: Involve the whole team/staff in students' research projects.
8J3 (20547)
Individual characteristics and students’ engagement in scientific research

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Background: Little is known about the factors that drive medical students to engage in undergraduate scientific research activities (SRA). The aim of the present study was to identify student’s individual characteristics which might favor participation in undergraduate SRA.

Summary of Work: Questionnaire study with 466 participants (response rate=88%) undergraduate students and alumni of the School of Health Sciences in Minho, Portugal. Statements were verified for actual participation. Independent variables were socio-demographic, personality and university admission variables. An initial regression model was used to compare engaged with not engaged students. A second classification and regression tree model was used to compare, within the student engaged group, those who took SRA as elective curricular and extra-curricular activity.

Summary of Results: Higher scores in admission GPA and the personality dimensions of “openness to experience” and “conscientiousness” were positively associated with engagement. The opposite happened for “extraversion”. Within the engaged group, male students were two times more likely to engage in curricular elective SRA and were also more likely to engage in extra-curricular SRA than females.

Discussion and Conclusions: Personality, gender, and GPA have a unique and statistically significant contribution to students’ engagement in SRA. This study demonstrated the contribution of students’ individual characteristics to engagement in research.

Take-home messages: Taking student characteristics into consideration might result in more targeted efforts of recruitment and hold greater promise in contributing to the sustainability of the physician-scientist career pipeline.

8J4 (22944)
An increased shift of interest towards research in Undergraduate (UG) medical students of Pakistan; Can this change help improve students’ critical thinking skills?

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Background: The development of critical thinking skills has been fostered and cultivated in medical colleges all over the world by inculcating problem based learning and other forms of integrated learning techniques in their curriculum. In developing countries like Pakistan, where the educational system is predominantly lecture based, such tools to augment critical thinking skills seldom exist. However, significantly developed cognitive skills are seen in the students participating in various research activities. Over the years, there has been an increase in Pakistani medical students’ participation in extracurricular researches, with an inclusion of a compulsory research project in their curriculum. This student-led study investigates whether participation in a research project aids in the development of critical thinking skills in UG medical students.

Summary of Work: This research is based on a mixed model design. The participants include a group of 100 4th-year medical students of Shaikh Khalifa Bin Zayed Al-Nahyan medical college who are working on their community medicine research projects. The study duration is from January to July of 2014. A pre-test was conducted using the Watson Glaser critical thinking appraisal (WGCTA) before the commencement of their research projects. The post-test will be conducted towards the end of their research project using the WGCTA. The results will be analysed and compared. At the end of the study a focus group will be conducted.

Summary of Results: In progress and will be completed by July, 2014.

Discussion and Conclusions: In progress.

Take-home messages: The development of critical thinking and metacognitive skills in undergraduate medical students can be promoted by facilitating research culture in medical education thus producing inquisitive professionals.
One-year methodological research school to increase clinical and health services research in family medicine and primary care: A critical evaluation

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Background: As general practitioners are far away from research institutions and may lack peer support, education and supervision, conducting primary care research (PCR) can be challenging.

Summary of Work: In 2007, we started a research school focusing on clinical epidemiology for primary care physicians and other health care professionals. The course comprises 12 modules starting from forming research questions to sampling, measurements and different research designs and it is based on activating learning methods. By the end of 2013, we had conducted four research courses with 46 participants finishing the course. In this study, we assessed the quantity of published research by the students and reported about the feedback provided by them including their opinions on what supports or hinders PCR.

Summary of Results: More than half of the participants succeeded in becoming researchers publishing in peer-reviewed journals. By the end of 2013, 61% had at least one paper in PubMed. Altogether participants had published 75 peer-reviewed articles, three had already defended their PhD theses and eight were in the process of writing their theses. In the survey, participants reported valuing the support they had received from having attended the course, the networking, the contacts, and the gained knowledge on research methods. They had hoped to learn more about biostatistics. Largest barriers for research were difficulties in combining research and clinical work and lack of funding. Support from supervisors, interesting topics and clear designs were the strongest facilitators for research.

Discussion and Conclusions: It is beneficial to teach clinical epidemiology to those starting PCR. The students appreciate building on their own research ideas, teaching of the basics of health research and support from the supervisors and peers.

Take-home messages: A post-graduate research school with a clinical epidemiology orientation appears to be a fruitful approach to supporting PCR.
8K SHORT COMMUNICATIONS: Ethics
Location: Amber 4, Level +2, MiCo

8K1 (20216)
Integrating Medical Ethics and Professionalism in the Medical School Curriculum

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Background: Most of the medical schools in the US incorporate courses that address ethics and professionalism in medicine. However, many of these courses are short in duration or administered in the fourth year of medical education. Neither of those options allows the faculty to get to know how the students think, nor is there sufficient time allotted for self-reflection and self-correction.

Summary of Work: CNUCOM uses an innovative curriculum where basic and clinical sciences are fully integrated. We designed our curriculum to incorporate Bioethics and Professionalism early and to teach these topics throughout the first two years in the Masters Colloquium Course. Involvement of the clerkship directors as College Masters ensures continuity into clinical years.

Summary of Results: Masters Colloquium course runs continuously in the first two years of medical school and is integrated vertically and horizontally. Students are divided in colleges of 10-20 headed by College Masters. Masters Colloquium sessions are delivered in small groups using discussions, role-play, case scenarios, debate and other similar methods for active learning. Peer review and self-reflection are incorporated throughout the course. This course also includes topics in social medicine, global and public health.

Discussion and Conclusions: We suggest that the design of this course potentially addresses students’ needs and any shortfalls early enough to allow self-reflection and guided self-correction to occur in a timely manner. It also prepares students well for the clinical years of their medical studies where they will encounter most of the ethical issues and controversies.

8K2 (20157)
Ethical Reasoning Learning Process in Clinical Years of the Students in the Faculty of Medicine University of Indonesia

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Background: Ethical reasoning is one competency component stated in the “Indonesian Medical Doctor Competencies Standard”. The practice of ethical reasoning should be learnt in clinical years since it is related to patient’s managements. This research was done to know how the ethical reasoning was learnt in the clinical stage medical education in Faculty of Medicine University of Indonesia.

Summary of Work: This was a descriptive qualitative research which identifies the Ethical Reasoning competency component inside the curriculum documents; in-depth interview to the module developer, module organizer and teachers; and focus group discussion with clinical year medical students.

Summary of Results: The Ethical Reasoning Competency was not written as the aim of any module, as seen in the Instructional Design of all documents. The module developer did not recognize this competency despite their daily practice of ethical reasoning. The students learnt ethical reasoning in clinical stage by observing the medical staff during their interaction with patient with ethical dilemma. They discussed ethical reasoning with medical staffs or residents only if they met the case during their rotation. The student were able to identify the cases based on their prior knowledge from “Empathy, Bioethics, Personal and Professional Development in the context of Humanism” module in the General Education stage.

Discussion and Conclusions: Ethical reasoning learning process in clinical stage is still part of hidden curriculum. Take-home messages: Capacity building for faculty members in medical ethics theory and module development is needed to make the ethical reasoning process a part of the curriculum.
Ethical Erosion: To what extent does it occur during UK foundation training?

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Background: Ethical erosion is the loss of empathetic and sympathetic responses in physicians consequent to clinical exposure. It is a widely documented educational phenomenon exhibited during clinical years by medical students in the US and the UK. UK hospitals have been criticised for a lack of empathy in staff. It is not known whether ethical erosion occurs during UK postgraduate training.

Summary of Work: 546 first-year doctors (FY1s) in the North West of England were invited to self-assess initial empathy levels using the Jefferson Scale of Physician Empathy. Additionally, nine FY1s at Royal Bolton Hospital participated in semi-structured interviews after 6 months training. Rapport was established and respondent validation used during the interviews, lasting 31-52 minutes. Thematic analysis was performed on the data.

Summary of Results: Initial empathy levels in FY1s are assessed objectively using an internationally validated empathy score. Individual trainees’ definitions of empathy and sympathy differed, although overall concepts remained static throughout the interviews. Seven out of nine interviewees described reductions in objectively defined empathetic or sympathetic responses since starting their first FY1 job. Recurring themes included time pressures and high workload, stress, attitudes of senior colleagues, adjusting to difficult emotional situations and not comprehending decisions made by senior colleagues. Trainees discussed difficulty coping with new and challenging environments, while two trainees described increased levels of cynicism consequent to work environment.

Discussion and Conclusions: This novel study demonstrates individual trainees subjectively experiencing ethical erosion during foundation training and highlights exacerbating and relieving workplace-based factors.

Take-home messages: Ethical erosion is a complex phenomenon affecting FY1 doctors.

Clinical Clerks’ Ethical Dilemmas and Decision-Making

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Background: Ethics education should heighten the students’ decision making to prevent “ethical erosion” during medical school (Eckles et al, 2005). The authors designed a project to explore students’ ethical dilemmas and decision-making during the clinical clerkships.

Summary of Work: During the 2009 Bioethics course, 109 clinical students wrote a narrative in which they (1) identified an ethical dilemma and (2) analyzed their decision-making process. Researchers subjected the narratives to qualitative analysis using as coding categories the natures of ethical dilemmas identified by Kelly & Nisker (2009) and Jameton’s determinants of moral action.

Summary of Results: Among the 109 students (54 women/55 men), the most common nature of the ethical dilemmas was “clinical-learning environment”, followed by inadequate care, abuse of patient and resource misallocation. All narratives (n=109) displayed Jameton’s determinant of moral sensitivity (i.e., identify the ethical dilemma); 90% moral judgment; 33% moral motivation to undertake an ethical action; finally, 14% (n=15) moral courage (student’s action in face of risk or repercussion). The most common nature of the students’ ethical dilemmas, “clinical-learning environment”, was related to issues such as hierarchy, dishonesty, punishment, working hours/overload, fatigue, stress, burnout, diminished empathy, depersonalization and lack of supervision.

Discussion and Conclusions: Students deal with different ethical dilemmas during their clinical clerkships, narrative approach to them allows identification of the contents that should be reinforced during the Bioethics Courses.

Take-home messages: Although students are able to identify and reason through the dilemmas, there is yet need to explore the factors that interfere in connecting their judgment with the possibility to undertake moral action.
**8K5 (20669)**

**Teaching the Ethics of the Ordinary**

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John Spicer, London School of General Practice, Dept of Education and Professional Studies, London, United Kingdom  

**Presenter:** Andrew Papanikitas*, Kings College London, United Kingdom

**Background:** We suggest there is a field of enquiry within medical ethics which is referable to, and growing out of, primary care, which draws attention to the 'ordinary' ethical dilemmas faced by family doctors in their daily practices. In the UK, as 95% of doctor patient interactions occur in the primary care setting, this has important implications for the medical curriculum and its delivery. The authors are all primary care doctors and educators. In this presentation they will use specific examples of their teaching practice to show how consideration of this “Ethics of the Ordinary” can enthuse and engage learners.

**Summary of Work:** The key descriptors of primary medical care concern expert medical generalism, care of the patient as located in his/her family and milieu, the toleration of uncertainty, attention to the registered population and undifferentiated illness care.

**Summary of Results:** Our examples will show how attention to the particular context of the patient and professional experience highlight a need for a more flexible approach to the interpretation of principlist concepts of autonomy, beneficence and so on.

**Discussion and Conclusions:** Primary care can deliver the learner a more nuanced version of medical ethics, taking in differing conceptual approaches – we offer ways of teaching these issues.

**Take-home messages:** Medical ethics is not just about an application of defined ethical principles. An approach which is more sensitive to context can enthuse and engage the pre and post qualification learner.

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**8K6 (20616)**

**Change of moral level perspective when medical students switch role to patients**

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**Background:** As medical ethics have been established as a standard component of medical training and become part of the curriculum of modern medical schools, there are needs to know about moral level in medical students.

**Summary of Work:** We did the study during ethics session in three groups of students (10-11 students in a group) at Chiangrai Prachanukroh Hospital, Chiangrai Medical Education Center. The study was designed as before-after intervention. The students evaluated level of moral development in their group using multiple voting techniques on Lawrence Kohlberg Moral Development Table before learning seven ethical topics, then re-evaluated level of moral need in doctors if they were patients by the same techniques. Finally they did brain storm to find ways to improve moral level.

**Summary of Results:** The medians, modes and means of moral level in students are 4, 4, and 3.89, but in doctors when they were patients are 6, 6 and 5.25 respectively.

**Discussion and Conclusions:** The moral level in medical students was lower than the level needed when they were patients.

**Take-home messages:** There was a gap of moral improvement needed for students to fill. It is teachers’ responsibility to help improving students' ethic level. Medical curriculum should be systematically created to help students develop higher moral level.
8L SHORT COMMUNICATIONS:
Preparedness for Clinical Clerkship
Location: Amber 5, Level +2, MiCo

8L1 (21560)
The psychological impact of a transition into an undergraduate final-year Medicine clerkship

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Background: Medical trainees experience multiple transitions during training. Anxiety is associated with major transitions (e.g. into undergraduate clinical training) and may lead to dips in performance. Less is known about ‘micro-transitions’ (e.g. between clerkships.)

Summary of Work: Final-year medical students were recruited (n=69; 98%). Questionnaires containing Likert-scale questions (evaluating confidence as a marker of anxiety) and open-format questions were administered during the first and final weeks of the Medicine clerkship (64% completed both). Questionnaires were very reliable (Cronbach alpha >0.8). Six semi-structured group interviews (n=37) were conducted in the final week. Quantitative and qualitative analyses were done using Stata V13 and thematic analysis respectively.

Summary of Results: Qualitative results revealed unique sources of anxiety and sources in common with major transitions. Themes identified included: team dynamics, the time factor and learning perceptions. Anxiety sources unique to this ‘micro-transition’ were: the volume of work specific to medicine, clerkship timing in relation to final exams and differences in teaching between teams. Anxiety sources in common with the major transition into clinical training related to: fitting into teams, feeling unprepared, lack of guidance and being intimidated by seniors. Quantitatively, there was no significant change in anxiety in those who completed both questionnaires (p=0.23).

Discussion and Conclusions: Transitions are complex. This ‘micro-transition’ into Medicine significantly affects students and generates potentially reversible sources of anxiety; addressing them may optimize learning earlier in the clerkship. The effects of this ‘micro-transition’ appear to be as significant as the major transition into undergraduate clinical training.

Take-home messages: ‘Micro-transitions’ between clinical clerkships are psychologically significant and smoothing them may optimize learning.

8L2 (22070)
Designing and implementing of clinical shadowing program in undergraduate medical curriculum

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Background: One of the most challenging issues in medical education is students’ transition from pre-clinical to clinical phase. Involving students in clinical setting at early years of curriculum is an effective way to facilitate this transition. Tehran University of Medical Sciences (TUMS) has addressed this issue through implementation of the shadowing program.

Summary of Work: Shadowing program was offered to 22 TUMS preclinical medical students. Each preclinical student followed a clinical student and observed his/her performance actively in the clinical setting and then reflected on events which happened in the clinical workplace. Students spent 4 hours with clinical students in various wards to become better familiar with the roles and responsibilities assigned to them in the future as a doctor. All participants completed a questionnaire at the end of the program. Data was collected using the five-point Likert scale.

Summary of Results: The students reported the experience helped them to understand the realities of a doctor’s role. Also, 94% students believed that the program was good in motivating them to better learning in preclinical phase. Ninety-seven percent of the students suggested that this program is suitable for other students in basic sciences phase.

Discussion and Conclusions: A shadowing program has the strong potential to play a key role in preparing students to enter clinical training. The results of the study can apply as a guide to implement such programs in medical curricula.
Clinical clerkships: A factor of stress for medical students

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Background: The first clerkships in hospital departments take place during the second part of undergraduate medical studies. The trainees face the reality of clinical work and may experience difficulties coping with their academic learning. The aims of this study were to assess the stress disorders caused by this situation.

Summary of Work: Students of each university were invited by the national students’ association to complete an online questionnaire. Data were categorized by year of medical studies; students in years 4-6 were eligible for inclusion.

Summary of Results: 6900 questionnaires were included. Universities’ finals are a stress factor for 69% of them, although this decreased in later years of study from 74% to 61% (p<0.001). 87% of trainees report sleeping disorders and the prevalence of use of pharmacological sleeping aids increased with seniority from 25% to 33% (p<0.001). 21% of all students reported ever having had suicidal ideation, increasing in frequency among older students compared with younger ones from 18% to 23% (p<0.001). Those who reported feeling under pressure in their department were more likely to request a psychologist input – 64% vs 43% (p<0.001) – however only 24% of students who considered consultation actually followed this through (n=3342).

Discussion and Conclusions: The combination of clerkships and academic studies can induce a severe stress disorder among students. Causes and symptoms should be addressed in order to avoid increasing numbers of student considering quitting medical studies.

Take-home messages: Medical students require better stress assessment and access to psychologists should be facilitated.

How do medical students cope with the transition to the clinical years? A qualitative study in a Chilean medical school

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Background: Transition to the clinical years represents a major academic and personal challenge for medical students. This period is usually associated to heightened stress and anxiety. Little is known on how students cope with the new demands of this period.

Summary of Work: Qualitative, descriptive study aimed to describe how students declare to cope with the new demands of the clinical teaching-learning scenarios. We conducted eight focus group discussions with students enrolled in years three to seven (n=54). The transcripts were analysed according to Grounded Theory.

Summary of Results: The analysis revealed the presence of two emerging phenomena: 1) the need to develop new time and activities management skills and the regulation of personal needs, and 2) the existence of different approaches to meet the demands of clinical learning: a passive/withdrawing one or an active/inquiring approach.

Discussion and Conclusions: In the initial clinical years the new and increasing academic demands occupy a large proportion of students’ lives. To cope with these challenges students develop time management skills and strategies to regulate their personal needs and activities. There are differences in the how student respond to this new demands of learning, a passive and an active way.

Take-home messages: The transition to a clinical cycle impacts strongly the life of medical students, and forces them to adopt different strategies to meet the challenges of this new stage. Initiatives to promote the development of effective strategies and the use of an active/inquiring attitude may help to ease the transition and improve learning process during this period.
8M1 (22644)
Flipped classroom – does it work? A case study among Finnish pharmacy students in a pharmacokinetics course

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Background: Finnish pharmacy students tend to have problems in their learning and to adopt a surface level approach towards their studies. Our objective was to decrease the students’ surface-oriented learning strategies by increasing student engagement during learning.

Summary of Work: We redesigned a second year pharmacokinetic course by transforming mass lectures into flipped classroom teaching, where students learn the material before attending the lectures. Student-activating elements such as exercises, student responsibility, self- and peer assessment were incorporated into the course. The students filled the ETLQ-questionnaire (Entwistle & McCune 2004; Parpala & Lindblom-Ylänne 2012) which measures students’ approaches to their learning in the beginning and end of the course, and gave additional feedback in a questionnaire containing open-ended questions. The results were subjected to statistical and qualitative analysis.

Summary of Results: Statistical analysis of the questionnaire results showed a significant decrease in the students’ surface-oriented approaches. A corresponding increase, while not significant, was seen in deep level approaches and organized studying. Analysis of open-ended questions showed that 55% of the students thought that this new structure fostered whereas 23% of the students felt that it inhibited their learning during the course. Students succeeded in the final exam better compared to previous years.

Discussion and Conclusions: The course design encouraged the students to engage in their own learning and to study continuously throughout the course, which resulted in decreased surface learning approaches. Flipped classroom teaching effectively decreases surface-oriented learning strategies among Finnish pharmacy students.


8M2 (22345)
Using team-based consolidation exercises within a problem-based medical curriculum

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Background: The evidence for Team-Based Learning (TBL) has been growing over recent years, yet little has emerged from medical schools using Problem-Based Learning (PBL) curricula. We were interested in whether TBL could be used to complement PBL, to consolidate students’ learning rather than deliver new content.

Summary of Work: Two 30 minute classes were delivered for first year medical students, to consolidate their previous two weeks’ of PBL. In one session, the TBL methodology was used, whilst in the other, students answered multiple choice questions individually with tutor feedback on each question. Students completed a short evaluation enquiring how well they were able to consolidate their learning.

Summary of Results: Eighty percent of students (100% response, n=102) agreed that attending the TBL-style consolidation session enabled them to test their knowledge effectively, compared to 64% for the other class. 70% of students agreed that the tutors provided an appropriate amount of explanation in the TBL session, compared to 85% for the other class.

Discussion and Conclusions: TBL was seen as an effective technique for consolidation of learning within a PBL setting, despite the perception that it led to less tutor explanation of topics. For knowledge to be retained, it is essential that it is actively recalled, so introducing facilitated sessions with more collaborative student working may lead to more effective consolidation of learning.

Take-home messages: TBL is an effective technique for knowledge consolidation exercises within a PBL undergraduate medical curriculum. This study will be of interest to educators considering using TBL or those looking for new approaches to consolidation of learning.
Designing a system for course evaluation feedback from students in a Team-based Learning and technology-enhanced environment

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**Background:** Developing an effective system for generating course evaluation feedback from students and establishing mechanisms for acting on feedback in order to enhance the student experience of teaching and learning was an important task in our new medical school.

**Summary of Work:** We designed a feedback plan which included different channels for feedback, points at which certain students would be asked for feedback, and a variety of online surveys for use in different teaching contexts. Mechanisms for regularly informing the faculty about the student feedback were designed. The critical step of how we would report back to students any action taken in response to their feedback was detailed.

**Summary of Results:** Technology-enhanced learning was leveraged upon to deliver online surveys using on-demand links accessible via an iPad. This enabled us to maximise response rates. The use of technology also allowed flexibility to vary online survey questions according to teaching role and teaching context. A key strategy was the use of Team-Based Learning teams in rotation to minimise survey fatigue and support the ongoing provision of detailed qualitative feedback. Action taken on student feedback was reported back regularly to students via a Web portal and dialogue sessions.

**Discussion and Conclusions:** The use of technology for on-demand access to surveys, variation in survey questions according to context and teaching role and rigorous approaches to reporting back action taken on feedback supported the generation of rich evaluation feedback which has been used to enhance the student learning experience.

**Take-home messages:** The use of student teams in rotation and reporting back to students regularly are important elements for ongoing student engagement with the provision of evaluation feedback.

Flipped classroom (FC) learning experiences among healthcare students: A pilot study of FC instrument

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**Background:** The advancement of technology-mediated learning tools encouraged faculty members combine these tools in learning-teaching environment. Flipping classroom with the aid of learning tools increase student-teacher interaction and student-peer collaborative learning during class time is what characterizes its success. The classroom time is used to solve problems and apply to higher order thinking skills. FC encourages student-centered learning and recent researches has considered a flipped classroom as a great way to reach students and approach the mastery of content.

**Summary of Work:** This study examined learning experiences of FC among semester 4 healthcare students in IMU with a newly adopted and modified FC instrument. This instrument will be used for a faculty development programme. The survey instrument consists of 40-likert scale, 3 open-ended and 1 overall rating question(s). Forty-three students participated in this survey.

**Summary of Results:** The mean ranges from 3.00 to 4.53 for the 40-likert scale questions and the overall rating showed a mean = 8.71 (1 = very ineffective to 10 = very effective). Majority of the students experience positive learning with FC, and expressed concern regarding student’s engagement with prior learning materials online and recommended to make the materials more fun and interesting. As for the reliability testing, all item were reliable as none of the values of Cronbach’s alpha after item deletion is more than the overall Cronbach’s alpha = 0.892.

**Discussion and Conclusions:** FC motivated students with active engagement, enhanced thinking, and mastery learning thus provided positive learning experiences.

**Take-home messages:** Appropriate application of learning tools will enhance 21st century teaching skills.
**8M5 (20996)**

*An exploration of the University of Bradford UK MPharm students’ perceptions of Team-Based Learning*

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**Presenter:** Beverley Lucas*, University of Bradford, School of Pharmacy, West Yorkshire, United Kingdom

**Background:** Whilst Team-based learning (TBL) research has been conducted in medical education, there is a lack of evidence in relation to Pharmacy education. The aim of this study was to explore students’ perceptions of TBL within a new MPharm programme.

**Summary of Work:** A survey explored key areas of TBL across all Stage 1 (n=202) and Stage 2 students (n=190) with response rates of Stage 1 (74%) and Stage 2 (73%). Quantitative data was analysed using SPSS and qualitative data fully transcribed and subject to thematic analysis.

**Summary of Results:** Overall, student perceptions of TBL were positive including team working, communication and opportunities for learning from others. Considerations suggested further exploration of pre-reading packs (volume of information and reading time). The impact on the group, when students failed to attend sessions and the absence of lectures to support TBL were also reported.

**Discussion and Conclusions:** In line with medical education, the use of TBL has generated interest across other health care professional programmes and our findings report positive pharmacy students’ perceptions in relation to this innovation. Limitations of the study relate to a single school of pharmacy and early experience of its adoption. As this is a new development for pharmacy education, further longitudinal research is required in relation to its longer term effectiveness and from different perspectives.

**Take-home messages:** This study adds to the understanding of Pharmacy students’ perceptions of the use of TBL within the United Kingdom and considerations for educators in its implementation.

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**8M6 (20530)**

*Flipped classroom facilitates learning of practical skills*

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**Background:** Timing of theoretical education is often a problem when planning courses for training of practical skills. The feasibility of flipped classroom was piloted when constructing a voluntary course about respiratory failure (1.0 credits).

**Summary of Work:** Twenty-four 5th and 6th (final) year students took part in a course with two lectures and virtual patients in the internet. The students were asked to listen the lectures before participating the part-task training session. There were three different ventilators in the room and the students were asked to make basic settings for a patient whose blood-gas analysis was given to them. The virtual patients were designed to facilitate problem-solving skills before the simulation sessions.

**Summary of Results:** The students had no difficulties with the basic settings of the ventilators in skill stations and during the full-scale simulation sessions. They were also familiar with the skills needed to examine the patient. In five-point Likert scale (1 = totally disagree, 5 = totally agree) they agreed that flipped classroom had supported their learning (4.14 ± 0.73; mean ± SD), part-task training was useful (4.14 ± 1.83) and they were aligned with part-task training (4.43 ± 0.68).

**Discussion and Conclusions:** Transfer of theory to practice has been a problem in these voluntary courses. In this course, the students had adequate knowledge and repetition was not needed.

**Take-home messages:** The flipped classroom offered the participants a chance to refresh their theoretical knowledge just prior to the educational sessions, which would have been difficult to arrange with traditional teaching methods.
**8N1 (21325)**

A case control educational intervention showing how peer-assisted learning (PAL) can improve medical students' exam results and provide an environment conducive for learning

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**Background:** Peer assisted learning (PAL) is an effective teaching method in medical education. However, there are few quantitative studies demonstrating effect on student examination results.

**Summary of Work:** We developed a course run over 3 years, by 4th year medical students for 3rd year counterparts, integrating clinical skills with theory lasting 2 weeks (three-hours per session) in a setting designed to replicate the Objective Structured Clinical Examination (OSCE) environment. Teachers were recruited via interview whilst students signed up online on a first-come first-served basis. 1,089 students took part, 585 of which were in the intervention group. Summative examinations results (written and OSCE) were assessed. Using a Likert scale, students were asked about their confidence in performing the examinations taught pre- and post-course and how the PAL environment compared to registrar/consultant teaching.

**Summary of Results:** For each year, the interventional groups achieved significantly better results.

**OSCE:**
- 2010 n=367, t(365)=-2.53, p=0.012
- 2011 n=354, t(317)=-2.33, p=0.020*
- 2012 n=347, t(190)=-3.24, p=0.001*

**Written:**
- 2010 n=367, t(352)=-3.18, p=0.002*
- 2011 n=354, t(325)=-3.684, p=0.000  
- 2012 n=347, t(345)=-2.42, p=0.016

*Levene’s test.

Confidence in all examinations improved significantly post-course (P<0.0009). The majority (84.9%) reported peer, rather than senior, teaching was beneficial and the environment was more conducive to learning (94.8-99.4%). Only 21.2% believed senior teaching could have improved the course. 100% stated they would recommend the course.

**Discussion and Conclusions:** PAL sessions were related to a significant improvement in examination results. Feedback revealed support for the PAL environment.

**Take-home messages:** PAL is well received by learners and can positively impact on learners’ performances in summative assessments.

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**8N2 (20259)**

An investigation into student perceptions of peer learning as a learning method during a medical undergraduate course

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Peter Johnston, University of Aberdeen, Aberdeen, United Kingdom  
Simon Parson, University of Aberdeen, Aberdeen, United Kingdom

**Background:** Peer learning occurs at several UK universities, but not previously at the University of Aberdeen. This project piloted a peer-assisted learning scheme (PALS) for medical students and aimed to determine student perceptions to peer learning.

**Summary of Work:** The project was conducted over one academic year. Fifth year medical students applied to become PALS tutors and attended a staff-led Training the Trainer workshop. Tutorials were available upon application to Year 3 students. A survey of student’s opinion to peer learning & teaching was completed using a Likert scale (1 to 5; 5 = strongly agree) pre and post-tutorial. Responses were statistically analysed.

**Summary of Results:** 52 students attended the tutorials, 80% of whom had not previously been involved in institutional peer-led tutorials in the undergraduate course. There was a positive shift in attitude to peer teaching from pre to post-tutorial surveys, with all students agreeing that peer-led teaching is a useful learning tool. The data suggests that students found peer-led more engaging than staff-led teaching and that there are better opportunities to ask questions. Post-tutorial, most agreed that peer-based learning was a better experience than lectures, and importantly, most agreed that peer-based learning should be incorporated into the undergraduate curriculum; pre: 4 median (3-4 interquartile range) and post- tutorial: 4 (4-5). After the session all students agreed it was beneficial and more PALS events should be organised.

**Discussion and Conclusions:** This pilot scheme suggests that more peer-led teaching should be introduced into the medical curriculum.

**Take-home messages:** Medical schools should consider developing PALS as a positive contribution to institutional teaching methods.
8N3 (21260)
Training Peer Tutors to Facilitate Online Team-Based Learning in Academic Study Skills

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Jessie Paterson, University of Edinburgh, Edinburgh, United Kingdom

Background: This session reflects on the development of peer-tutor (PT) training to support team-based learning in an online postgraduate environment. The course focus is academic skills, and for postgraduate students, tutoring is a key academic skill.

Summary of Work: This is a review of PT training run in 2013-14. The training had three main components: key skills (e.g. group facilitation techniques, confidentiality, support); guidance for tutoring online; practice session for each PT pair. Following training, PTs facilitated discussion sharing experiences and skills associated with good academic practice. Two PTs per group (max. 10 students). Live sessions at a time chosen by PTs within specified week allowing maximum coverage across timezones. All PTs were required to have successfully completed training before undertaking the role. PTs were required to attend refresher and debriefing sessions before next Study Skills course, ensuring they felt supported and any issues were resolved quickly.

Summary of Results: Six PTs underwent training in 2013-14. Positive response from PTs (developing confidence) and students attending sessions (connection with peer knowledge).

Discussion and Conclusions: Peer feedback is a key support in both face-to-face and online classrooms. Key academic skills are developed and enhanced. Students respond actively and positively to peer support and guidance. Students found PTs approachable, with effective and practical discussions focussed on developing key transferable skills. Students and PTs shared experience across different programmes, allowing for development of interdisciplinary research networks.

Take-home messages: PT process has a key role in development of academic skills for both peer tutor and student. Process is transferable to other topics.

8N4 (22709)
Peer teaching may promote personal development

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Background: Peer teaching is becoming an important strategy for teaching worldwide. Recent publications and newer evidence seem to demonstrate that it is a useful resource. At our institution we have conducted a student as teacher program for 12 years to foster our students teaching skills and to promote a better understanding of the disciplines they are teaching. Students from 2nd to 6th year attend a semester long practical program on teaching essentials and a deep immersion in a chosen basic discipline. The goal of this presentation is to understand how students perceive the importance of this program in terms of teaching and professional development, its advantages and disadvantages.

Summary of Work: We designed, validated and distributed a semi-structured electronic questionnaire to all participants in the last 5 cohorts (n=126) with a response rate of 30%, and the responses were categorized and coded by two researchers.

Summary of Results: The main reasons to participate in this program were to develop personal skills (60%), to collaborate with other students (50%), and the interest for the chosen discipline (50%). The perceived benefits were personal growth (85%), increase knowledge (70%), increased interpersonal skills (56%), team working and to improve their undergraduate vitae. Although this program is a positive influence to enter residency programs as it gives an additional admission point, this is valued but it is not recognized as the decisive factor in deciding to participate.

Discussion and Conclusions: Participating students perceive this program to promote personal growth and increased discipline learning, and to give them tools for future professional development.

Take-home messages: These results confirm that participating in the peer as teachers program is mainly a vocational decision that improves personal and professional development.
A program on Peer Tutoring during junior years in medical and nursing school

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Background: Student dropout is a relevant problem in medical and nursing schools in our country, with attrition rates as high as 50% in some schools. We launched a tutoring program to support students during their initial university years, and included and trained advanced students as tutors of their junior peers. We present the results of our first year students’ perception of the utility of this program.

Summary of Work: We designed and validated a survey for first year medical and nursing students to get information on the level of demand and workload they had, on the main supporting factors and on the effective tutor influence.

Summary of Results: 121 students (86% response rate) answered the survey and over 80% stated that the workload was high mainly in terms of lack of time, insufficient learning skills, high anxiety and stress. The most important supporting structures were family, studying peers and friends. Tutoring support was recognized as useful in 54% of students. A third of them did not recognize any usefulness. The main tutoring components were advice on time management, personal support, study methods and sharing the tutor previous experience. Those students with a stronger vocation (as identified during the admission process) showed less adaptation difficulties, while those with a weaker vocational decision declared more difficulties, and higher intention to abandon their studies.

Discussion and Conclusions: Peer tutoring may be a supporting method for junior students to adapt to medical or nursing school. Students with stronger vocational decision are less prone to have problems during their initial years.

Take-home messages: Peer tutoring may be a supporting method for junior students to adapt to medical or nursing school.
801 (19948)  
Students’ performance data in the HIP (“How I Perform”) feedback tool enable students’ self-validation and study prediction

**Johann Arias***, RWTH Aachen, Medical Faculty, Deanery, Aachen, Germany  
Stephan Erdtmann, RWTH Aachen, Medical Faculty, Deanery, Aachen, Germany  
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Melanie Simon, RWTH Aachen, Medical Faculty, Deanery, Aachen, Germany

**Background:** To support our mentors in assisting the students in their performance, the HIP-Tool has been developed since 2011 giving access to students’ summative course results and formative progress test data. By using this tool in advisory talks students expressed the need for a constant access. In addition the faculty staff expected more self-validation among students and thus a more effective advisory talk.

**Summary of Work:** An access was created to support students in their self-assessment. In order to measure the usefulness and usability of the tool for students a survey based on personal interviews has been conducted. In addition this study targets the question how the expectations and requirements of the students on the system differ from those of the mentors.

**Summary of Results:** As result of the study, the students are satisfied in general with the tool and the information, it provides. The consistent and visualisation-centric way of presenting the individual performance data has been rated positively. Beyond this basic functionality of presenting data, a demand for additional recommendations with regard to learning strategies, career choice, comparability between peer groups and scholarship consulting has been expressed.

**Discussion and Conclusions:** The proposals made by the students have potential and are a source of ideas for new implementations and amelioration in students’ feedback. The request for learning strategies results in a research project in collaboration with the institute for medical psychology and medical sociology.

**Take-home messages:** User involvement produces acceptance in IT-solutions. A feedback tool for students is useful for self-validation and study prediction.

802 (20256)  
Diagnosing learning needs, conflict between participants and near-peers in a learning session for final year medical undergraduates

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Rhys Thomas, Cardiff University School of Medicine/Aneurin Bevan University Health Board, General Surgery/Medical Education, Cardiff, United Kingdom
Charlotte Thomas, Cardiff University School of Medicine, Institute of Medical Education, Cardiff, United Kingdom
Michael Stechman, Cardiff University School of Medicine, Institute of Medical Education, Cardiff, United Kingdom
Tamsin Boyce*, Cardiff University School of Medicine/Aneurin Bevan University Health Board, Institute of Medical Education, Cardiff, United Kingdom

**Background:** Involving learners in diagnosing their learning needs is a recommended component of successful adult education, but is it always possible to make these diagnoses accurately? We have identified conflict between self-diagnosed learning needs in final-year medical students and those needs as diagnosed by near-peer foundation year doctors.

**Summary of Work:** A learning encounter was provided to final year medical students concerning completion of investigation requests, followed by a clinical placement allowing supervised skill practice. Feedback about the value of the learning encounter was sought from the students and was compared with feedback from newly-qualified doctors (near-peers) who had not been offered the learning session before entering clinical practice.

**Summary of Results:** Feedback from 14 Foundation Year 1 doctors found that all 14 reported the session would have been very useful (rated =/>8/10 on a VAS scale) prior to starting their Foundation posts. Although 94% of a sample of undergraduate students found the sessions useful to some degree, only 34% rated it as very useful. These students were yet to perform the skills covered in the session in independent clinical practice.

**Discussion and Conclusions:** Knowles’ principles of andragogy emphasize the learner’s own perception of his/her learning needs. We found that although newly qualified doctors unanimously rated our learning intervention as very useful, it was not perceived as equally valuable by final year students who were yet to utilise or appreciate the practiced skill fully. This conflict raises challenges in maintaining learner’s motivation, but may perhaps be overcome by increased involvement of near-peer tutors.

**Take-home messages:** Self-diagnosis of learning needs may not be accurate.
What do we (not) know? Assessing the ability of chief residents to predict their examination performance

Janelle Rekman, University of Ottawa, Ottawa, Canada
Yvonne Ying*, University of Ottawa, Ottawa, Canada

Background: Reflective self-assessment is a key component of resident preparation for final examinations, and chief residents should be receiving peak amounts of feedback during this process. This study investigated plastic surgery chief residents’ ability to self-assess knowledge levels prior to their board examinations, and compared this to the distribution of exam preparation across Canada.

Summary of Work: The Canadian Plastic Surgery Chief Resident Review Course is offered 2 months before the board examinations. A retrospective analysis of course data between 2009-2012 was performed. Descriptive statistics and Pearson correlations were used to compare self-predicted and actual performance, as well as amount of examination preparation offered by various training programs.

Summary of Results: 93 of 94 graduating residents participated in the review course. 75% of programs offered practice written exams, and programs offered between 0-12 practice orals per year. No correlation was found between residents predicted scores, actual scores, or training site (Pearson correlations from 0.07-0.19).

Discussion and Conclusions: Canadian plastic surgery residents are approaching the end of their residency training with inadequate awareness of how prepared they are for final examinations, even among those receiving practice exams. This could potentially be due to inadequate external, focused feedback to allow for proper self-assessment. Training programs may need to provide more objective feedback across the years of training so residents are more confident of their knowledge and skill level prior to sitting their final exams and entering practice.

Take-home messages: Residents are unable to self-assess performance before high stakes examinations despite having practice examinations. Giving feedback for the purpose of self-assessment in our surgical residents is inadequate and challenging, and may need to be more directed.
8P SHORT COMMUNICATIONS: Simulation 2
Location: Theatre Room 13, Level 0, MiCo

8P1 (21328)
Learning through teaching: Lessons learned from simulation

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Background: Although it is often said that "to teach is to learn twice," remarkably little literature exists looking at the impact of teaching on the learning of the teacher. Simulation as a form of teaching in postgraduate medical education is taking on an increasingly prominent role. While we know that simulation can impact favourably on resident learning, very little is known about the impact of simulation on the teachers.

Summary of Work: McGill University's Internal Medicine Residency Program has developed a CanMEDS-based simulation curriculum involving a range of modalities ranging from standardized patients to high-fidelity simulations. During these sessions faculty act as facilitators after receiving orientation materials outlining their roles. After each session, faculty were asked to complete an evaluation form which includes questions on perceived self-learning. This data was gathered between 2006-2013 and analyzed in aggregate format.

Summary of Results: Faculty reported self-perceived learning as favourable in 72.5% across the entire simulation curriculum. Areas in which self-perceived learning was particularly favourable included crisis resource management-based leadership skills (91.5% favourable), physical exam skills (81.6% favourable), and communication skills (80% favourable).

Discussion and Conclusions: Teachers reported important self-perceived learning by participating in simulation teaching sessions. The perceived value of teaching in simulation did vary, and the reasons for this may include a faculty’s baseline level of knowledge/skills in a given domain, a faculty’s degree of exposure to scenarios in the clinical environment, the role of the preparatory materials, and the actual experience of each simulation session including the debriefing component.

Take-home messages: Teachers perceive significant self-learning when they participate in simulation-based teaching sessions.

8P2 (23057)
Thinking outside the box: Using online learning for simulation preparation in health professions education

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Bill Kapralos, University of Ontario Institute of Technology, Oshawa, Canada
Adam Dubrowski, Memorial University of Newfoundland, Newfoundland, Canada

Background: Despite the inherent benefits of the implementation of Internet-based learning (IBL) within health professions education (HPE), the literature is still largely inconclusive regarding its effectiveness. This stems from a lack of best practices for its implementation and misbelieves of replacing the current health professions learning methodologies with IBL.

Summary of Work: We have developed an Internet-based pre-simulation preparatory tool (IPPT). First year medical students (n=16) were randomly divided in two groups. Two weeks before a simulation session, participants were provided with take-home simulators to practice knot-tying skills. Only the intervention group was provided with access to the IPPT and asked to upload videos of their practice performances for online peer-2-peer discussions/feedback. After preparation period, participants attended a simulation session for knot tying. Pre and post-tests were recorded during the session and a retention-test was taken one week after.

Summary of Results: The use of the IPPT led to increased retention-test scores when compared to the control group. The intervention group also showed improved performance of the knot-tying skill during pre-test. This suggests that the use of the IPPT provides learners with a more concrete action representation of the skill at hand.

Discussion and Conclusions: Instead of proving IBL as more effective than HPE current learning methodologies, using IBL for preparation, in conjunction with take-home simulators, could be taken as a new approach for best practices of IBL in HPE.

Take-home messages: The use of IBL technologies for simulation preparation in HPE can improve learning and retention when implemented appropriately.
8P3 (22298)
Competence Assessment of Transfer of Simulation Training to the Patient

Triona Flavin*, Trinity College Dublin, Clinical Skills, Dublin, Ireland
Aileen Patterson, Trinity College Dublin, Clinical Medicine, Dublin, Ireland
Hennessy Martina, Trinity College Dublin, Clinical Medicine, Ireland

Background: This study was undertaken to assess transfer of simulation venepuncture procedures to patients. Its aim was to assess how many times it took a student to be deemed competent in performing the clinical skill of venepuncture on patients and to assess student’s confidence on their performance.

Summary of Work: The study was carried out on n=54 third-year undergraduate medical students attending an Irish University performing 218 venepuncture procedures. Students who had never previously taken bloods from patients were assessed on the performance of venepuncture procedures by a phlebotomist on a ward. Each student completed a confidence and competence self-assessment scale for each procedure performed. Comparisons were made between these levels as were comparisons between the assessed competence of the students and the phlebotomist.

Summary of Results: A significant non-parametric correlation (Spearman’s rho coefficient) of 0.83 was found after the fourth procedure. The phlebotomist competence ratings matched the students’ self-rated competence with a median of 3.5 after four procedures. 50% of students also felt confident to perform without supervision and zero students reporting they felt “not confident” after performing four procedures.

Discussion and Conclusions: The expert phlebotomist concurred with students’ self-reported assessment that they were competent without supervision after performing 4 venepunctures. These findings provide useful information for students and supervisors in developing the key skill of venepuncture.

Take-home messages: After as little as 4 procedures students can be competent. This has not been quantified previously.

8P4 (21898)
National Health Education and Training in Simulation (NHET-Sim): A national community of educators

Debra Nestel*, Monash University, HealthPEER, Melbourne, Australia
Tracy Morrison, Victoria University, HealthPEER, Melbourne, Australia
Clare Byrne, Monash University, HealthPEER, Melbourne, Australia
Margaret Bearman, Monash University, HealthPEER, Melbourne, Australia

Background: Health Workforce Australia (HWA) is a government body responsible for coordinating a national approach to health workforce development. In 2012, HWA funded the NHET-Sim program, which provides Australian health professional educators with the fundamentals of teaching using simulation methodologies. Participants complete online modules, and the majority also attend workshops. One of the goals of NHET-Sim is building a community of simulation-based education practitioners.

Summary of Work: As of February 2014, over 2000 educators have completed the NHET-Sim program. This study reports on a purposive sample of twenty four participants regarding how NHET-Sim has facilitated the development of a community of practice.

Summary of Results: Educators were sampled according to state, profession and learning modality. Preliminary thematic analysis indicates four major themes: 1) isolation 2) being on the edge 3) workplace influence and 4) entering the community. Participants experienced different kinds of engagement. Some of those who only participated online reported isolation. Some participants described remaining ‘on the edge’ of the simulation community. Others focussed their engagement with their local workplace, sometimes through NHET-Sim facilitated connections. Others reported a strong sense of belonging to a community, which operated across institutions and professions.

Discussion and Conclusions: NHET-Sim promotes a community of practice for some; but this is dependent upon the role, professional identity and the context of the participants.

Take-home messages: A sense of community can be facilitated through a national training program.
8P5 (23138)
How to implement Simulation Based Medical Education in a new medical School

Vanda Abi Raad*, Lebanese American University, Anesthesiology, Byblos, Lebanon

Background: Simulation technology has become an integral part of medical education from undergraduate to postgraduate levels.

Summary of work: Teaching and assessing using simulation technology has a number of advantages over the traditional medical curriculum. Simulations used in teaching are generally learner-centered. Students are exposed to procedures or patient interactions they might not normally encounter, situations tend to be lifelike with immediate feedback features, and learners can practice in a setting where it is acceptable to make mistakes and learn from them. Medical simulations, particularly as they pertain to procedural skill learning, offer a significant opportunity for deliberate practice. This lecture will highlight the different types and uses of simulations in clinical teaching. Examples of the integration of simulation based education in the undergraduate curriculum at the Lebanese American University School of Medicine will be discussed.

Conclusions: To optimize both the learning and assessment experience of simulation, educators should remember the principles of effective simulation, the advantages/disadvantages of simulation as well as the goals-tools match.
**8Q Conference Workshop:**

**Training the Trainers to Support Doctors in Difficulty (23167)**  
**Location:** Workshop Room 1, Level 0, MiCo  
**Liz Spencer***, NACT, Milton Keynes, United Kingdom  
**Alistair Thomson***, NACT, Milton Keynes, United Kingdom  

**Background:** Educational supervisors have a key role in identifying and managing doctors in difficulty. With improving assessment and educational supervision a wider, more complex range of issues are being discovered. Supervisors require additional training in knowledge, skills and attitude to enable them to support and remediate these doctors in a structured and timely fashion. NACT UK represents Directors of Medical Education (DMEs) who coordinate Postgraduate Medical Education in UK hospitals. In 2013 NACT UK revised their framework for managing these complex situations; this has been widely adopted across the UK ([www.nact.org.uk](http://www.nact.org.uk)). This workshop will demonstrate how the NACT UK document can be embedded within a Faculty Development programme to educate those responsible for supervising these doctors.

**Intended Outcomes:**
1. To enhance the understanding of what causes doctors to run into difficulties and the importance of adopting a structured systematic approach that is connected to the processes of both the educational programme and the employing hospital.  
2. To encourage educational leaders to provide additional education and support for clinical trainers – a DVD of training materials will be provided.

**Structure:** The key elements of the NACT UK document will be described. A copy will be provided for all participants. Experience of delivering Training the Trainer workshops will be shared. There will be some small group work & sharing of experiences will be encouraged. Further topics which will be addressed:
   - What factors might affect the performance of a doctor  
   - What “is” and “is not” the role of the educational supervisor  
   - When should the issue be escalated? And to whom?  
   - How to give difficult feedback  
   - What and how to document

**Who should attend:** This is relevant for all educational leaders, medical trainers and those involved in faculty development. The context will be postgraduate but the principles would be relevant to those involved in undergraduate education.  
**Level:** All

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**8R Conference Workshop:**

**Using mobile devices and technology to help develop competent, reflective professionals (22522)**  
**Location:** Workshop Room 2, Level 0, MiCo  
**Luke Dawson***, The University of Liverpool, School of Dentistry, Liverpool, United Kingdom  
**Ben Mason***, The University of Liverpool, School of Dentistry, Liverpool, United Kingdom  
**Keith Kennedy***, The University of Liverpool, School of Dentistry, Liverpool, United Kingdom  
**Colin Lumsden***, The University of Manchester, Manchester Medical School, Greater Manchester, United Kingdom  

**Background:** Professional competence is often demonstrated through measuring knowledge gained, and the numbers of procedures or assessments completed. However, ‘competence is not just about acquisition of knowledge and skills, but about the ability to create new knowledge in response to changing work processes’ (Govaerts et al, 2013). This requires not only objective assessment in the Clinical domain, but also in Professionalism, Management & Leadership, Communication, and Applied Knowledge & Understanding. To ensure defensible and appropriate decisions over learner progression, there is a need to integrate systems of curriculum and assessment management. This workshop will explore the use of mobile devices in workplace-based assessments, and will demonstrate that learner interfaces can encourage self-reflection. We will discuss how learning analytics can improve the defensibility of student progress decisions.

**Intended Outcomes:** At the end of this session participants will understand how:
   - Technology can support assessment;  
   - Learning analytics can be used to make progress decisions;  
   - Integrated technology supported learning designs can be used to manage and quality assure clinical programmes.

**Structure:** The workshop will provide an overview of the pedagogical considerations, followed by a hands on session using technology in work-based assessment, and a discussion forum.  

**Who should attend:** Anyone who has an interest in:
   - Making defensible progress decisions in medical disciplines;  
   - Integrated assessment strategies;  
   - Learning analytics;  
   - Technology supported assessment and curriculum management;  
   - Quality assurance and calibration of staffing;  
   - Instilling a culture of self-reflection in students.  
**Level:** Intermediate
8S  CONFERENCE WORKSHOP:
Curriculum mapping – Where to begin?  
(18443)
Location: Workshop Room 3, Level 0, MiCo

Carole Steketee*, The University of Notre Dame Australia, Medicine, Fremantle, Australia

Background: The School of Medicine (SoM) has developed a curriculum management system called Prudentia©. This web-based application allows users to explore curriculum across all four years of the MBBS to determine what and when students are expected to learn, and associated anomalies. A five-level hierarchical, outcomes-based curriculum framework underpins Prudentia© ranging from the macro Australian Medical Council (AMC) Student Outcomes Statements to the micro daily learning outcomes. Data in all five levels can be mapped and constructive alignment between the outcomes, instructional and assessment methods can also be investigated. Whilst Prudentia© is a user-friendly application, it is only as good as the curriculum framework which underpins it.

Intended Outcomes: Participants will:
• Appreciate the importance of a robust curriculum framework to the design of a curriculum mapping system
• Identify the various components that comprise their curriculum framework
• Diagrammatically represent their own curriculum framework

Structure: The presenter will define the principles underpinning the SoM curriculum framework and how it paved the way for the development of Prudentia©. Then working in pairs, participants will address the following focus questions: What do you want to map? Why? Where does your program sit within the bigger picture of the course? What principles underpin your program’s curriculum structure? How do various elements within this structure relate? Diagrams will be shared and final questions answered.

Who should attend: Curriculum developers, program coordinators.
Level: Introductory

8T  CONFERENCE WORKSHOP:
Evidence-based facilitated feedback:
Using the R2C2 model to enhance feedback acceptance and use (20575)
Location: Suite 9, Level Mezzanine, MiCo

Karen Mann*, Dalhousie University, Division of Medical Education, Faculty of Medicine, Halifax, Canada
Jocelyn Lockyer*, University of Calgary, Continuing Medical Education and Professional Development, Faculty of Medicine, Calgary, Canada
Erik Driessen*, Maastricht University, Department of Educational Research and Development, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands
Eric Holmboe*, Accreditation Council for the Graduate Medical Education, Milestone Development and Evaluation, Chicago, United States
Ivan Silver*, University of Toronto, Department of Psychiatry, Faculty of Medicine, Toronto, Canada
Joan Sargeant*, Dalhousie University, Continuing Professional Development, Faculty of Medicine, Halifax, Canada

Background: Recent studies demonstrate that learners and physicians do not always readily accept or use performance feedback for improvement. Possible explanations for this include inconsistency of the feedback with self-assessment, concerns about data credibility, and perceived barriers to feedback use and change. In response, we have developed a 4-stage model for facilitating acceptance and use of formal feedback (the R2C2 model), drawing on three bodies of theory and research: informed self-assessment which helps physicians to assimilate and use external data; person-centred approaches which actively engage recipients in taking ownership of their feedback; and behaviour change approaches to enable recipients to identify goals and plans for change.

Intended Outcomes: Participants will be able to:
• Describe the 4-stage model of: building relationships, exploring reactions, exploring content, and coaching for change;
• Discuss the theory and evidence informing the model;
• Experience and critique the model through role play using feedback scenarios.
• Assess the model’s potential applicability in their own settings, including influencing factors.

Structure: This interactive workshop will use multiple learning activities. Following an interactive presentation of theories and evidence underlying the model, participants will experience the R2C2 model through role playing using sample feedback reports. In small and large groups, participants will explore the model’s potential application across the education continuum. To conclude, participants will identify next steps for themselves in enhancing learners’ effective feedback use in their own settings.

Who should attend: Educators, clinicians, students, residents, researchers.
Level: Intermediate
8U CONFERENCE WORKSHOP: Determining the OSCE examination length; Application of G theory (21395)
Location: Suite 8, Level Mezzanine, MiCo

Kamran Khan*, Mafraq Hospital, Anaesthesia, Abu Dhabi, United Arab Emirates
Sankaranarayan Ramachandran*, Northwest Deanery, Anaesthesia, London, United Kingdom
Alison Quinn*, Mafraq Hospital, Anaesthesia, Manchester, United Kingdom

Background: This workshop will elaborate on the principles described in The Objective Structured Clinical Examination (OSCE): AMEE Guide No. 81. Part II: Organisation & Administration. Several factors determine the reliability of the OSCE. In an examination using a set of quality assured OSCE questions and well trained examiners the examination length is crucial in achieving an acceptable Generalisability coefficient of 0.8. Commonly educators are unable to determine G coefficients due to the lack of availability of user friendly softwares capable of doing so. In this workshop we will describe a two step easy to apply model for the calculation of G coefficient and subsequently examination length.

Intended Outcomes:
1. Basic understanding of the reliability coefficients and their applications.
2. Ability to determine G coefficient using OSCE scores from any cohort of examinees.
3. Ability to determine OSCE length to achieve a G coefficient of 0.8.

Structure: Data from real OSCE examinations would be used to show how G coefficient can be easily determined in a two step approach using first SPSS and then Excel. A discussion will follow, on the application of G theory to the assessments of performance.

Who should attend: All educators involved with the conduct and organisation of OSCE examinations.
Level: Advanced

8V CONFERENCE WORKSHOP: Dealing with the challenge of meeting assessment needs of competent and underperforming students. Introducing a practical guide to sequential testing (19705)
Location: Suite 7, Level Mezzanine, MiCo

Richard Fuller*, Leeds Institute of Medical Education, University of Leeds, Leeds, United Kingdom
Godfrey Pell*, Leeds Institute of Medical Education, University of Leeds, Leeds, United Kingdom
Matthew Homer*, Leeds Institute of Medical Education, University of Leeds, Leeds, United Kingdom

Background: Institutions have conflicting pressures of quality, feasibility and cost in the assessment of students. Students desire fair assessment processes ideally completed by all in a single academic year. This usually takes the format of assessment of the whole student cohort, followed by a period of remediation and retesting for those who underperform. However, underperforming candidates are not a homogenous group and considerable difficulty persists in accurately identifying and profiling these 'at risk' students. Emergent work also reveals that traditional models of test-remediate-rest may not lead to sustained long term improvement in performance for these students, raising major implications in assessment policy for educational institutions (Pell et al 2009; Hauer et al 2009).

Intended Outcomes: Participants will explore theoretical and practical applications of sequential testing methodology, and gain confidence in practical approaches to managing cost-benefit analyses and quality issues in assessment policy.

Structure: This interactive workshop uses a mixture of round table discussion and small group exercises. It overviews existing literature in this area, and impact on assessment strategies and methodologies for underperforming students vzw. competent students. The development of sequential test methodologies, based on regression towards the mean phenomena (Bland & Altman, 1994) will explore a way of meeting this challenge.

Who should attend: This workshop has particular significance for those responsible for the design and delivery performance based assessment.
Level: Intermediate
**8W  CONFERENCE WORKSHOP: Generalism in medical education research: Diffusion of effort or a matter of scale? (21199)**

*Location: Suite 6, Level Mezzanine, MiCo*

**Rachel Ellaway**, Northern Ontario School of Medicine, Family Medicine, Sudbury, Canada  
**Lisa Graves**, St Michael's Hospital, University of Toronto, Department of Family and Community Medicine, Toronto, Canada  
**Cynthia Whitehead**, University of Toronto, Family Medicine, Toronto, Canada

**Background:** Generalism has long been a contested concept in medicine and medical education, effectively creating a divide within the medical profession between primary and tertiary approaches to practice. Generalism is also a controversial concept in medical education research where training often occurs in or around a single discipline and questions are frequently raised as to the potential for an individual researcher to cross disciplines in a rigorous manner. We start from an understanding that research expertise is essential, that rigour in research matters, and that the field of medical education research will not benefit from a random approach to inquiry. Nevertheless, we argue that there is an urgent need for generalism in medical education research. We will explore situations where needs, solutions, and translation are bound together and holism is required, and we will explore generalist medical education research as a unifying rather than a diffusing principle for working with medical education programs and systems.

**Intended Outcomes:** Participants will be able to:
1. Describe key issues in generalism in medical education research.
2. Explore strengths, weaknesses, opportunities and threats to generalism in medical education research.
3. Formulate strategies for employing principles of generalism in their own medical education research.

**Structure:** A short scene-setting presentation will be followed by a series of small group case-based activities designed to explore key issues and to progressively develop a workshop consensus statement on generalism in medical education research.

**Who should attend:** Those interested in generalism in medical education research, including opponents and proponents.

**Level:** Intermediate

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**8X  CONFERENCE WORKSHOP: An introduction to graphic editing (21902)**

*Location: Suite 4, Level +2, MiCo*

**Ken Masters**, Sultan Qaboos University, Muscat, Oman

**Background:** Medical education (and the practice of medicine) requires educators to use a wide range of images files. Frequently, these images need to be edited (e.g. graphics need to be annotated, patient identification needs to be removed, files need to be converted into different formats). The reliance on external centres to perform these operations is inconvenient, but professional editing tools are expensive. This workshop introduces participants to some simple editing processes, using free software.

**Intended Outcomes:** Participants will be able to use free software to perform graphic editing, including cropping, adding annotations, file size reduction, obscuring identities, background removal, using layers to create composite images, and create simple graphic effects.

**Structure:** This will be an instructor-led hands-on computer-based workshop. To participate, participants will need to bring a Windows-enabled laptop. They will download and install free, open-source software on their machines.

**Who should attend:** Teachers and medical professionals who use graphics in their work.

**Level:** Introductory
8Y CONFERENCE WORKSHOP:
Creating a Supportive Teaching Culture in Medical Schools (19576)
Location: Suite 3, Level +2, MiCo

Debbie Jaarsma, AMC / Academic Medical Center, Amsterdam, Netherlands
Gerda Croiset*, VUMC / Free University, Amsterdam, Netherlands
Joost van den Berg*, AMC / Academic Medical Center, Amsterdam, Netherlands
Thea van Lankveld*, VUMC / Free University, Amsterdam, Netherlands
David Irby*, UC San Francisco, San Francisco, United States

Background: In recent years, the focus of research in professional development has broadened to include, among other things, workplace learning (O'Sullivan & Irby, 2011). In an optimized teachers' workplace, faculty feel appreciated and supported by their organization, i.e. a positive teaching culture exists (DaRosa et al., 2011). This workshop aims to provide insight into how such a teaching culture can be supported based on research associated with teacher identity (Akkerman & Meijer, 2011) and work engagement (Bakker, 2011)

Intended Outcomes: Participants will evaluate the teaching culture of their own institutions and apply the concepts of teacher identity and work engagement in order to create an improvement plan for their institutions.

Structure: We will first shortly present our studies on work engagement and identity formation of medical teachers in the Netherlands, and describe how to create a positive teaching culture. We will relate these studies to a broader framework of workplace communities and faculty development communities (O'Sullivan & Irby, 2011). Through small group interactive discussion, participants will analyze their local situations, share best practices and determine opportunities for improvement in creating a teaching culture. Participants will work to develop an action plan to take back home and put into practice.

Who should attend: Educators, teachers, administrators and faculty developers who wish to influence teaching and learning in undergraduate and graduate medical education. Students are also welcome.

Level: Intermediate

8Z CONFERENCE WORKSHOP:
Entrustable Professional Activities in undergraduate medical education (22195)
Location: Suite 2, Level +2, MiCo

Harm Peters*, Charité – Universitätsmedizin Berlin, Dieter Schefrner Centre for Medical Education, Berlin, Germany
Jan Breckwoldt*, University of Zürich, Deanery of Medicine, Zürich, Switzerland
H. Carrie Chen*, University of California, Department of Pediatrics, San Francisco, United States
Asja Maaz, Charité – Universitätsmedizin Berlin, Dieter Schefrner Centre for Medical Education, Berlin, Germany
Ylva Holzhauen, Charité – Universitätsmedizin Berlin, Dieter Schefrner Centre for Medical Education, Berlin, Germany
Olle ten Cate*, University Medical Centre Utrecht, Medical Education, Utrecht, Netherlands

Background: Entrustable Professional Activities (EPAs) provide a powerful concept to structure the learning progress within postgraduate medical training. EPAs are increasingly employed worldwide to drive teaching and learning, and to assess the progress of medical trainee’s levels of competency. The goal of this workshop is to explore the potential of transfer of the EPA concept to undergraduate clinical education. Structuring undergraduate curricula by means of professional activities will allow a meaningful synthesis of students’ teaching and learning with the assessment of knowledge, skills and attitude acquisition.

Intended Outcomes: Participants will have the opportunity to work with others on developing potential UME EPAs, exploring challenges to implementation, and determining the first steps for application of EPAs for UME at their home institutions.

Structure: This interactive workshop will start with a brief introduction to the EPA concept, followed by small and large group discussion about the potential to integrate EPAs in undergraduate medical education (UME). Examples of UME EPAs developed by international groups will be discussed. Small groups will formulate potential specific EPAs, which will be presented and discussed by the whole group. Discussion will focus on the appropriateness of the presented professional activities for different stages of training and on how the EPA concept can contribute to the continuum of clinical education from undergraduate to postgraduate training.

Who should attend: Everyone who is interested in the concept of EPAs; program or curriculum directors (especially in undergraduate education), educational researchers.

Level: Intermediate
Background: More than a century ago, William Halsted, at John Hopkins University defined an apprentice-style training method, based on the concept “see one, do one, teach one”. In this system residents were able to perform surgery under the tutelage of a senior faculty surgeon, but this method involved significant expenditure of resources and time and did not provide a standardized means of assessing surgical skills. We are now witness to a profound alteration in the teaching paradigm evolving from an apprentice to a competence-based and moving towards a proficiency-based method that is the future of medical education in all specialties. In future curriculum medical educators will need to incorporate meaningful validated and assessment tools into residency programs using rigorous, reliable and regular means of assessment for all relevant surgical and medical skills. Virtual reality simulation is one means of achieving this goal.

In this Workshop we will focus on how new virtual reality tools using simulation are changing our approach to the training paradigm of doctors and surgeons. In the near future these new virtual reality technologies will significantly enhance the training of neurosurgery and the other surgical and clinical specialties and will also be exploited in many different cultural and social disciplines. The future is now and we need to be prepared for it.

Intended Outcomes: The goal of this workshop is to outline how virtual reality simulation can be utilized to improve global medical and surgical education, medical and surgical expertise, patient care and patient outcomes working in cooperation with national and international research groups.

Structure: Learning approach using simulation technologies from the clinic to the operating room in order to enhance technical skills and knowledge.

Who should attend: Doctors- Students- Residents

Level: Introductory
8CC POSTERS: Assessment 5: Clinical
Location: South Hall, Level 0, MiCo

8CC1 (20344)
Adding those dreadful assessments into mentoring: The usefulness of two tools

Fong-Ling Loy*, Tan Tock Seng Hospital, Physiotherapy, Singapore
Soak-Yee Lee, Tan Tock Seng Hospital, Physiotherapy, Singapore
Rachel TS Soh, Tan Tock Seng Hospital, Physiotherapy, Singapore

Background: Physiotherapists undergoing musculoskeletal rotations were commonly mentored. However, mentoring had been variable, with no tools to gauge technical and reasoning abilities. Without defined set of criteria, feedback had been difficult or less effective.

Summary of Work: Two types of formative assessments were developed in December 2011. Senior physiotherapists with postgraduate degrees created a skill-based assessment tool (SBAT), with graded levels of difficulties, to assess technical skills and a criterion-based form (PMA) to assess reasoning. SBAT and PMA were used for all physiotherapists rotating into the musculoskeletal unit. Feedbacks on the usefulness of the assessments were solicited and rated on a likert scale of 5.

Summary of Results: 35 SBATs and 154 PMA were conducted over 2 years. Overall usefulness of the assessments was rated 4±0.5. SBAT were rated to be helpful in gauging abilities (4±0.5) and assessing weaker areas (4.2±0.7). Usefulness in structuring mentoring for the mentee was 3.7±1.5. PMA was more helpful during feedback on observed performance (4±0.5).

Discussion and Conclusions: The SBAT can be a tool to help identify less-abled physiotherapists and weaker areas. The variability in using SBAT to structure mentoring, suggested a need to share practices amongst mentors. This might improve effectiveness and reduce mentor fatigue. The criteria in the PMA could be too broad, making it less useful than the SBAT, but helpful in feedback. Future work can examine mentoring effectiveness and revising the PMA.

Take-home messages: Physiotherapists engaged in mentoring, found assessment tools helpful in identifying weaker areas and during feedback.

8CC2 (19208)
Competence assessments successfully evaluate diverse Internationally Educated Nurses (IENs) for Canadian licensure examination eligibility

Debra Sibbald, Centre for Evaluation of Health Professionals Educated Abroad (CEHPEA), Toronto, Canada
Arthur Rothman, Centre for Evaluation of Health Professionals Educated Abroad (CEHPEA), Toronto, Canada
Tammie McParland, Centre for Evaluation of Health Professionals Educated Abroad (CEHPEA), Toronto, Canada
Heather Scott, Centre for Evaluation of Health Professionals Educated Abroad (CEHPEA), Toronto, Canada
Sten Ardal*, Centre for Evaluation of Health Professionals Educated Abroad (CEHPEA), Toronto, Canada
Murray Urowitz, Centre for Evaluation of Health Professionals Educated Abroad (CEHPEA), Toronto, Canada

Background: Candidates with diverse overseas qualifications need to be screened for eligibility to write the Canadian Registered Nursing Examination (CRNE). We describe a process for generating psychometrically valid and reliable judgments.

Summary of Work: Five assessments effectively evaluated IENs (N = 82, 138, 136, 130,126) in a written and performance appraisal combining MCQ testing and a 12 station OSCE. Seventy percent of candidates were 10 years or less post-graduation, from diverse institutions primarily in the Philippines (62%) and India (22%).

Summary of Results: Valid multiple choice items and performance cases were developed by content experts conforming to an Entry-to-Practice competency blueprint. Trained nurse examiners pre-rated the items, with criterion anchored tools validating content and competency scoring schemes. Validation: OSCE station and total test score psychometrics were acceptable. The total OSCE test score α-reliability sustained a value of 0.8 over five assessments Test results discriminated performance between and within candidates. There were no significant track and/or session effects.

Discussion and Conclusions: The tests consistently performed well in terms of the psychometric quality of results, and ability to differentiate between and within large numbers of candidates. There were no significant track and/or session effects.

Take-home messages: This clinical examination is offered to IEN candidates in lieu of traditional credential screening. The test design incorporated an understanding of parameters for the licensing exam and the appropriate measures to validate competency-based performance assessment. The results provide evidence of the sustainability of this test for screening IENs for eligibility for the CRNE. This valid, reliable, and acceptable assessment process improves recognition of diverse overseas qualifications.
8CC3 (19891)
Short note of patient admission improves pediatrics examination scores

Natthachai Muangyod*, Lampang Hospital Medical Center, Pediatrics, Lampang, Thailand

Background: Experience of attending a patient improves medical knowledge. However, by observation, some medical students who had good discussion on clinical bedside teaching scored lower on the pediatrics examination than they should have done. Written skill of medical records may improve examination score.

Summary of Work: From October 2012 to December 2013, the 4th and 5th medical students in pediatrics ward were assigned to make a short note of patient admission other than their usual medical record. Content of record was patient number, age, chief complaint, clinical presentations, signs and symptoms, initial laboratories result, plan of treatment that resembled short essay examination. Pediatrics examination scores of 4th and 5th medical students in year 2012 and 2013 were compared.

Summary of Results: Pediatrics MEQ scores of 4th and 5th medical students in year 2013 were 12% and 3% more than the scores in year 2012 respectively. The pediatrics MEQ scores of 5th year medical students in year 2013 increased 2% compared with the same student groups in year 2012.

Discussion and Conclusions: Although there were multiple factors that improved medical examination scores, repeated written skill of medical records could be a part of those factors.

Take-home messages: Experience of patient attending and making a medical record improves medical skill.

8CC4 (22042)
Is it necessary for occupational therapy students to use COPM for OSCE?

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Chicaco Inoue, Aichi Medical University, Graduate School of Medicine, Nagakute, Japan
Kanto Ikebuchi, International University of Health and Welfare, School of Nursing and Rehabilitation Sciences at Odawara, Odawara, Japan
Daisuke Hirano, International University of Health and Welfare, School of Nursing and Rehabilitation Sciences at Odawara, Odawara, Japan
Sayaka Iwakami, International University of Health and Welfare, School of Nursing and Rehabilitation Sciences at Odawara, Odawara, Japan
Natsuho Mimori, International University of Health and Welfare, School of Nursing and Rehabilitation Sciences at Odawara, Odawara, Japan

Background: There is no report about Canadian Occupational Performance Measure (COPM) in OSCE for occupational therapy students in Japan except our former report in AMEE 2012.

Summary of Work: Methods: This study was the same design as our report in AMEE 2012, which was designed to check OSCE scores and difficulty levels of tasks between task with COPM and without COPM, but the time of one session changed from 10 to 20 minutes. Participants were 37 third grade’s OT students before clinical practices, and they were randomly assigned to the same size of two groups. OSCE scores were graded according to their performance and difficulty levels of tasks were measured by visual analogue scale. For statistical analysis, we had Wilcoxon test and Mann-Whitney test.

Summary of Results: No significant difference about OSCE scores and difficulty levels of tasks were obtained among two tasks. According to task with or without COPM, however, the difference of every task appeared in OSCE score and difficulty levels of tasks respectively.

Discussion and Conclusions: Although we thought that participants felt decreasing difficulty levels of tasks with increasing OSCE score when extending the OSCE session judging from our former study, it turned out that participants’ achievement and their feeling of difficulty are changing for every task.

Take-home messages: OSCE, Canadian Occupational Performance Measure (COPM), Occupational therapy education in Japan.
**8CC5 (21462)**

**Multi-dimension modality assessment of humanized empathic response in breaking bad news counseling during objective structured clinical examination (OSCE)**

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Surasak Aumkaew, Buriram Medication Education Center, Muang Buriram, Thailand
Narin Chindavech, Buriram Medication Education Center, Muang Buriram, Thailand
Vithoon Ruangsukrivorng, Buriram Medication Education Center, Muang Buriram, Thailand
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**Background:** Breaking bad news in counseling is an art and science in medical teaching. Modules of learning about counseling required students' knowledge and empathic responses. This counseling skills could be evaluated by objective structured clinical examination (OSCE). In counseling OSCE stations, the checklists in clinical skills can assess medical knowledge but limitation is in depth evaluations of patients' empathy which is in the part of medical students' professionalism.

**Summary of Work:** To evaluate student counseling aspect, assessment by standardized patient (ASP) and self assessment scores by medical students (SAS) can be used for competency other than OSCE scores. Sixth year medical students underwent breaking bad news with standardized patients in one of twenty OSCE stations. OSCE students' overall performance was assessed by checklists. The total checklists scores were 100 points. ASP and SAS by sense of professionalism and humanism from standard counseling were 100 points. ASP and SAS by sense of professionalism and humanism from standard counseling were 100 points. ASP and SAS by sense of professionalism and humanism from standard counseling were 100 points. ASP and SAS by sense of professionalism and humanism from standard counseling were 100 points.

**Summary of Results:** Twenty-three of 6th year medical students were enrolled. Mean age was 23.2±0.6, male 53%. Grade point average were 3.1±0.4. Overall mean of OSCE scores result were significantly lower than ASP. (62.6±15.6 vs 77.7±29.1, p=0.03) but not different from SAS (62.6±15.6 vs 69.6±24.8, p=0.24).

**Discussion and Conclusions:** SAS scores were not different from OSCE scores due to most of the medical students using only context assessment. On the contrary, ASP scores were assessed better than OSCE and SAS. This might be due to standardized patients used the objective humanized empathic assessment and direct interactions between them. ASP might be integrated in assessment of counseling competency.

**Take-home messages:** Medical students' assessment by standardized patient aspects may reflect other components in terms of counseling. Using multi-modalities assessment may show a greater holistic view of medical students.

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**8CC6 (20695)**

**In-vivo Clinical Skills Assessments, The Merits of Live vs. Video Benchmarking Materials for Assessor Alignment**

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Andrew Kelly, Peninsula College of Medicine and Dentistry, Plymouth, United Kingdom
Anthony Davies, Peninsula College of Medicine and Dentistry, Plymouth, United Kingdom

**Background:** Within the realm of clinical skills assessments, the benchmarking process has a vital role in optimising assessment reliability. A popular benchmarking method involves use of video footage (viewed alone or in group) to depict various levels of student ability and aid assessors in interpreting these in terms of pre-defined performance criteria. Despite the cost- and time-effectiveness of this method, video-benchmarking can often seem contrived and lacking in interactive factors, undermining its efficacy.

**Summary of Work:** Over four training sessions, live-benchmarking was piloted as an alternative to video-benchmarking. In these sessions, fourth-year medical students were asked to examine a real patient in front of a group of assessor clinicians and interpret clinical findings appropriately. This was unscripted to maintain authenticity. Subsequently, examiners were invited to provide feedback to the student and discuss performance and marking criteria amongst themselves. Written feedback was collected following the sessions to harness student and examiner perceptions.

**Summary of Results:** Most of the assessor clinicians and students preferred the live sessions, generally describing these as either 'extremely useful' or 'useful' in the feedback questionnaire. The remaining assessors preferred video-benchmarking, were undecided or had no preference.

**Discussion and Conclusions:** Overall, it was perceived that live-benchmarking provided a fresh, authentic and engaging platform for discussion, benefiting both examiner and student.

**Take-home messages:** Although some difficulties may be encountered in catering for the full range of performance standards given the student demographic typically involved in such projects, live-benchmarking may provide a useful tool with which to complement current benchmarking techniques and provides an immersive way of standardising in-vivo clinical skills assessments.
8CC7 (19591)
The Global Evaluation Form as a broad assessment tool of trainee performance

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Background: Multiple assessment tools are used to evaluate the performance of medical trainees. It has been suggested that these tools do not necessarily capture the general impression of a trainee’s competence or professionalism.

Summary of Work: The Global Evaluation Form (GAF) was used to evaluate trainees in a cardiology subspecialty senior residency program in the setting of an in-hospital referral for consultation. It poses the statement to the referring attending physician: “The Cardiology Senior Resident provided me with an expert, meaningful and helpful consultation”; and requires the evaluator to provide a score on a 9-point Likert scale. A descriptive analysis of the scores, and a comparison with a standard multi-domain evaluation form was also performed.

Summary of Results: Fourteen GAF forms for six trainees were obtained in 6 months. The scores range from 4 to 8. The mean score for each trainee ranged from 6-8. 10 out of 14 evaluators provided written commentary feedback.

Discussion and Conclusions: The GAF may be a useful tool in providing trainees with feedback on the overall perception of their performance. Further results from ongoing data collection will be shown at the meeting.

Take-home messages: A global 'eye-ball test' type of evaluation form may provide useful feedback to a trainee on their performance.

8CC8 (22110)
Development and validation of instruments for evaluation of the person centered clinical care

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Bruna Carvalho Costa*, Universidade José do Rosário Vellano( UNIFENAS), Propedêutica, Belo Horizonte, Brazil
Taciana de Figueiredo Soares, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Background: The clinical performance of medical students is intrinsically related to the attitudes and skills (competences) during the clinical appointment; therefore educational tools have been developed to evaluate the acquisition of such clinical skills.

Summary of Work: The purpose of this paper was to develop an instrument to evaluate the clinical care provided to the person. It came to be a checklist built from the new model of clinical care recording and it was validated by the Angoff method. This method consists in determining the educational cut score through the arithmetic average of the percentages assigned by the judges. After the validation, it was obtained the cut scores that are related to the percentage of students who practice each of the attitudes according to the judges’ opinion.

Summary of Results: Based on this checklist two instruments were developed to evaluate the person centered clinical care: one version to the student’s self-assessment and another one to the patient’s evaluation of the clinical attention. On the instrument for patients was included a question addressing to the satisfaction with the attention received.

Discussion and Conclusions: The instruments will allow: the assessment, by professor, of the performance of the student during the clinical care and simulated scenarios; self-assessment of the student on his own performance during the clinical care; evaluation of the person’s perception on the received clinical care.

Take-home messages: The instruments will provide the improvement of the health assistance to the individuals and a more humanized medical practice.

Grants: CAPES Pró-Ensino Saúde 1606/2011
**8CC9 (20366)**  
**Evaluation of a novel device for learning and assessing fundoscopy**

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**Background:** The direct ophthalmoscope remains the most readily available tool for fundoscopy, but medical students lack confidence in its use. The inability to observe the student’s view of the fundus makes direct ophthalmoscopy difficult to teach and provide students with feedback. Accurate evaluation of student competence is also challenging.

**Summary of Work:** A ‘teaching ophthalmoscope’ has been developed, allowing the user to perform direct ophthalmoscopy in the conventional manner, while a video image of the user’s view is simultaneously transmitted to a screen and observed by a third person. The potential benefits of this device were explored in three settings. Following the observation of a tutor demonstrating fundoscopy using the device, students were given a chance to practice their own technique with the teaching ophthalmoscope, receiving feedback from the tutor. Finally the students were subject to an OSCE assessment using the device. Qualitative feedback was collected through questionnaires completed by both students and tutors.

**Summary of Results:** Sixteen medical students and two tutors participated. Students reported that being able to observe the demonstrator’s view of the fundus was ‘eye-opening’ and commented on the usefulness of feedback received by the tutors. The tutors felt empowered to provide more individualised feedback to students – ‘I no longer feel like a cheerleader’. Both students and tutors felt that this might be a more reliable and robust method of assessing competence within an OSCE setting.

**Discussion and Conclusions:** This innovative ‘teaching ophthalmoscope’ allows third-person observation of the user’s view and may be a valuable tool in improving the learning and assessment of fundoscopy.

**8CC10 (19972)**  
**Sociolinguistic factors affecting performance in a simulated consulting skills assessment in UK Primary Care**

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Sarah Atkins, Nottingham University, Institute of Medical Education, Nottingham, United Kingdom  
Celia Roberts, Kings College London, London, United Kingdom

**Background:** International Medical Graduates make up one-third of candidates taking the UK licensing MRCGP exams, but their pass rate in the Clinical Skills component is significantly lower than for UK graduates.

**Summary of Work:** A sociolinguist/academic clinician partnership used quantitative methods to map how candidates talk, as well as a systematic microlinguistic analysis of talk at localised levels, from 40 videos of prospectively chosen consented candidates sitting the exam in February - May 2011. This purposive sample focused on those candidates who demonstrated communicative problems rather than obvious gaps in clinical knowledge.

**Summary of Results:** There was little difference between successful and unsuccessful candidates in structure or pace of simulated consultations or in the use of typical phrases in the CSA exam, at the macro analysis level. The micro analysis showed poorer candidates had more difficulties giving extended explanations, more misunderstandings with the ‘patient’ in the consultation, and difficulty repairing those misunderstandings. They showed more moments of ‘misalignment’ that could impact on the unfolding consultation, and sound formulaic to examiners.

**Discussion and Conclusions:** Reasons for failure were not identifiable in any one event within the consultation, but an accumulation of numerous small, micro-level difficulties in communication which are difficult to analyse and change. While only one of the causes for poor performance, targeted training should be developed to help both candidates and examiners gain insights into the discourse in these simulated consultations.

**Take-home messages:** Sociolinguistic factors can help identify communicative factors affecting performance at the ‘micro’ level in simulated clinical assessments.
Validity of Clinical Part in Thai Internal Medicine Board Certifying Examination

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Nitipatana Chierakul*, Faculty of Medicine Siriraj Hospital, Mahidol University, Medicine, Bangkok, Thailand

Background: To be certified for Board of Internal Medicine, each candidate must pass clinical examination held by the Royal College of Physicians of Thailand (RCPT), performed in two occasions at 30 and 36 months of training. The former session accounted for 1/3 and the latter for 2/3 of the total scores. The present study aims to assess the validity of this manner of examination.

Summary of Work: Data from 270 internal medicine residents entered clinical part (short case and long case) in RCPT board certifying examination during the academic year 2012 were collected. Validity was examined using the normalized gain calculation (latter score, former score / 100, former score), on the assumption that, candidates should develop more experience after the first attempt.

Summary of Results: In the year 2011, high gain (>0.7) was observed in 0.7% of candidates for both short case and long case, intermediate gain (>0.3-0.7) in 19.3 and 16.7%, low gain (0-0.3) in 32.6 and 31.9%, and negative gain (<0) in 47.4 and 50.7%, respectively. In the year 2012, high gain was found in 1.8 and 0%, intermediate gain 21.9 and 20.9%, low gain 25.6 and 31.3%, and negative gain in 50.7 and 47.8%, for short case and long case respectively.

Discussion and Conclusions: Construct validity for current RCPT clinical examination as one part of Board Certifying examination was not established, as half of the candidates achieved negative normalized gain in the second encounter. Rating behavior of the examiners may play a major role in this pattern of assessment.

Take-home messages: Large scale setting for national clinical examination may be not valid.

Long case examination performance of the 6th year Khon Kaen University (KKU) medical students: Opportunity to improve students’ outcome

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Kanchana Chansung, Khon Kaen University, Department of Medicine, Khon Kaen, Thailand

Background: To evaluate the final-year medical students’ long case examination performance.

Summary of Work: We retrospectively studied students’ long case examination performance. We used Thai Center for Medical Competency Assessment and Accreditation’s checklist for the examination which evaluated students’ performance in 7 domains (history taking, physical examination, data organization and presentation, reasoning and analysis, decision making and problem solving, communication, and professionalism). Each domain was rated as “excellent”, “moderate” and “improvement required”. We used one faculty as examiner to one examinee. The patients were selected with simple diagnosis categorized as “must know” according to the Thai Medical Competency Assessment Criteria for National License.

Summary of Results: There were 227 students engaged in the examinations with mean score of 75.4 + 10.6. The proportion of students who had excellent score (>80%), good score (70-79%), (60-69%) and failed (<60%) were 43.6%, 26.0%, 25.5% and 4.8% respectively. Among failed students, domains which need improvement were physical examination (8/11; 72.7%), data organization and presentation (6/11; 54.5%), reasoning and analysis (8/11; 72.7%), and decision making and problem solving (6/11; 54.5%). However, the disability with these 4 domains was still present in approximately 25% of students who had moderate score.

Discussion and Conclusions: Our students’ long case examination performance was good. However, clinical skills especially physical examination, data organization and presentation, reasoning and analysis, and decision making and problem solving need to be addressed in order to improve students’ performance.

Take-home messages: To improve students’ clinical skill performance, we should carefully design, deliver and monitor students’ learning experience during clinical years.
8DD POSTERS: Curriculum General

Location: South Hall, Level 0, MiCo

8DD1 (19980)
Developing a national core curriculum for diversity teaching and guidance on its delivery

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Margot Turner, St George's Medical School, London, United Kingdom
Moira Kelly, Queen Mary University of London, London, United Kingdom
Angela Rowlands, Queen Mary University of London, London, United Kingdom

Background: A Higher Education Academy funded workshop in 2010 identified that in nearly a decade there had been little progress in the UK with respect to the development of diversity teaching in the medical undergraduate curriculum. Many of the issues identified in 2003 were ongoing. These included the lack of clarity about what diversity teaching actually is, problems with engaging students in learning related to diversity, assessment of diversity, the lack of faculty buy-in for diversity education and those with the responsibility for teaching diversity feeling isolated.

Summary of Work: A national working group (Diversity in Medicine and Health) was established. After two initial meetings the following remit was agreed:

• Developing a workable definition of diversity
• Designing a core curriculum for diversity (including clear outcomes, how to deliver the outcomes and how to assess learning in diversity)
• Identifying how to garner Institutional Support
• Methods to support staff and faculty development
• Develop opportunities for inter-professional learning.

Summary of Results: Definitions and a core curriculum have been developed with a table that guides delivery and assessment. Teachers have found the group supportive and productive and are using it to gain institutional support. A website is also under development.

Discussion and Conclusions: In sensitive or complex areas a national network may be even more necessary to ensure good practice and implementation of policy. Specific guidance by governance bodies may also be helpful.

Take-home messages: Consensus on a core curriculum can be reached relatively easily, however implementation presents significant challenges.

8DD2 (20858)
Students’ perception on several cultural factors within their interaction in tutorial: Are they connected?

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Background: In order to achieve deep learning in the tutorial process, collaboration among members of the tutorial group becomes an important factor. The quality of collaboration is determined by the students’ interaction which is influenced by students’ perception sourced from culture. This study aimed to reveal the relationship between students’ cultural perception with their interaction in tutorial.

Summary of Work: This study used a quantitative approach distributing a questionnaire to students in the lecture session during June – July 2012. The Pleijers et al questionnaire was used in this study, while questions for cultural perception were extracted from theoretical background: teacher dependencies, group influence, learning orientation, ethnic influence, and response to feedback. Pearson or Spearman correlation test was chosen for further analysis.

Summary of Results: There is correlation between students’ interaction with their perspectives since each type of interaction had significant r value with specific students’ perspectives. Explorative and cumulative reasoning type of interaction could be endangered by students who have negative learning orientation, easily influenced by inactive group, and negative response to feedback while handling conflict type of interaction is influenced by students’ perception on their ethnicity and response to feedback.

Discussion and Conclusions: Expected interaction during tutorial is a complex situation which is influenced by students’ perspectives. This also involved teacher as tutor who also has perspectives derived from culture. Further research on tutor derived culture perspectives should be further explored.

Take-home messages: Culture could influence or be influenced by human perspectives. Those perspectives could influence expected interaction during tutorial. Those should be further explored and managed through faculty.
Applicability of western discourses of cross-cultural competences to the Asian medical education context: A study on a General Education course in a Taiwanese medical curriculum

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Background: Globalization and migration have shaped the objectives and content of medical education worldwide. The past decades have seen medical educators in western contexts in particular strive to seek ways to ensure that future doctors are culturally competent in caring for patients.

Summary of Work: This study has investigated the applicability of western discourses of cross-cultural competences to the Asian context. The issues of cross-cultural competence are raised within a General Education course in a Taiwanese medical curriculum. The study, conducted in 2013, recruited a sample of 60 first-year Taiwanese medical students who took the English course that contained several PBL sections related to the course topics and readings. The PBLs integrated with cross-cultural elements adopted from western guidelines as part of their learning issues and served as both a linguistic and cultural diagnostic of students’ competences. Qualitative data based on PBL observation, student reflection and interviews were collected and analyzed using Grounded Theory.

Summary of Results: The findings show that students were relatively lacking in cultural awareness at the beginning of the course, but after several PBL sections, demonstrated improvement in 1. exploring disparities, 2. reflecting upon the impact of culture on personal values.

Discussion and Conclusions: The results demonstrated that Western discourses of cross-cultural competences can be translated into cultural competence training in Taiwanese medical education, and this can start as early as the General Education years.

Take-home messages: The findings of this study imply that Western discourses of cross-cultural competences in medical education are applicable to Asian contexts if sensitively reframed and addressed from the early stages of medical education.

Adapting Curriculum Governance to Accommodate Transformational Change Across Regional Campuses

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Geoffrey Payne, University of Northern British Columbia, Northern Medical Program, Prince George, Canada
Rebecca Raworth, University of Victoria, Island Medical Program, Victoria, Canada

Background: The University of British Columbia Medical School has medical students distributed between four distant, regional campuses. At the outset of a medical undergraduate curriculum renewal process, it was recognized that the implementation of a new curriculum would be constrained without systematic reform, including a renewed governance model.

Summary of Work: We reviewed our existing curricular governance model in terms of its effectiveness in guiding and directing how people and committees interacted and made decisions in our complex, distributed environment. Next, we conducted a comprehensive search and review of medical, education and business literatures on governance in general, and curriculum governance in particular, followed by an environmental review of the governance structures of 128 North American medical schools. Lastly, we surveyed and conducted focus groups of faculty, students and staff.

Summary of Results: We adopted the United Nations eight characteristics of good governance to guide the development of new policies and to ensure that our governance structure align with these characteristics. Six recommendations regarding curriculum governance were made and subsequently approved by the Faculty of Medicine.

Discussion and Conclusions: There is no one model that medical schools adopt to govern decisions within their curriculum, though most have a shared governance framework. We found that it is more important to adhere to principles of good governance, rather than structure to facilitate decision making. Curriculum renewal requires an adaptable governance framework in order to achieve transformational change.

Take-home messages: Curricular governance structures at schools with complex, distributed sites must be understood and adapted in order to ensure transformational change during and beyond curriculum renewal.
**8DD5 (22180)**
The different contribution of intra-curricular and extracurricular activities to the curriculum outcomes: Evidence from students’ portfolios

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**Background**: Outcome-based education is the educational strategy widely accepted in the current decade. One of the crucial steps, when planning an outcome-based curriculum, is aligning course outcomes with exit outcomes. The focus of this process is, certainly, all courses in the curriculum. Extracurricular activities have never been involved in this mapping process. Therefore, we aim to study if extracurricular activities (ECA) have distinct roles from intra-curricular activities (ICA) in the promotion of curriculum outcomes achievement.

**Summary of Work**: At Chulalongkorn medical school, pre-clinical portfolios contained both ICA and ECA materials. Students were asked to submit their ICA and ECA work; and reflect upon seven of the twelve curriculum outcomes twice a year. The difference between the outcomes reflected from ICA and ECA was examined at the end of Year 3.

**Summary of Results**: ICA was recognised for its greater contribution to the ‘holistic care’, ‘critical thinking’ and ‘medical ethics & professional laws’ outcomes than ECA (1.6:1, 4.5:1, and 23:1, respectively). ECA contributed considerably more than ICA in the ‘leadership and teamwork’ (2.6:1) and ‘roles of doctor and social responsibility’ (1.8:1) outcomes; and similarly in the ‘professional and personal development’ (1.2:1) and ‘professional communication’ (1.1:1) outcomes. There was statistically significantly difference between ICA and ECA in terms of their relationship to the seven curriculum outcomes (p < .001).

**Discussion and Conclusions**: Extracurricular activities seemed to be better choices than intra-curricular activities in promoting pre-clinical student achievement of the ‘leadership and teamwork’ outcome.

**Take-home messages**: Extracurricular activities might be used and mapped as an essential attribute of the undergraduate medical curriculum.

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**8DD6 (20313)**
From extracurricular activity to curricular activity in 21st century education: “50 Fo SCI” project

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Narong Maneeton, Faculty of Medicine, Chiangmai University, Psychiatry, Chiangmai, Thailand
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Udom Chaithong, Faculty of Medicine, Chiang Mai University, Parasitogy, Chiangmai, Thailand

**Background**: In 2009, the first action to develop morals and ethics in the first year medical student was performed with extracurricular activities, working for people in social, community or inferiority. After proving successful, this action was transferred to general education, “50 for SCI” subject in the medical curriculum since 2010.

**Summary of Work**: Ten groups of students learned the objective and rule of “50 for SCI” before creating their own activities. This year, Thai intellectual life skill was added in each project. After completing 45 hours of work, evaluation was done by presentation, discussion and reflection. Outcome learning in 21st century was assessed.

**Summary of Results**: All students learned how to organize their activity, worked as a group, computed and planned a budget together with time management. Plan – Do – Check – Act and problem solving were used during the project. “50 For SCI” is a group project that allows generation Z students to show their high potential working. They used creative thinking, teamwork, collaboration between themselves and target group to design and run each activity and used Thai intellect in appropriated events. Jobs were divided between individual students by their skill. They learned how to use information technology to present their work and reflection.

**Discussion and Conclusions**: “50 for SCI” project is one of the project based learning tools that encourage knowledge in 21st century education and the activities are important factors to promote preferred characteristics of the medical graduates.

**Take-home messages**: Cognitive, affective and psychomotor domains in 21st century learning were encouraged by “50 for SCI”.
8DD7 (20327)
The hidden curriculum in clinical teacher development programs: A pilot study in Kaohsiung Medical University Hospital

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Cheng Yuan Wang, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Division of General Internal Medicine, Kaohsiung, Taiwan
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Background: Despite satisfactory results of post-course evaluations in many clinical teacher development activities, we observed that trainees may develop negative attitudes against clinical teaching work after returning to their workplace. Therefore, we conducted a pilot qualitative study to identify the possible hidden curriculum or concomitant learning that would lead to their negative attitude.

Summary of Work: A standardized 6 days in-hospital clinical teacher training program for physicians was held four times a year by Kaohsiung Medical University Hospital since 2008. Twenty trainees of this program in 2010 and 2011 were recruited after their training had finished for at least half year. We arranged two focus group studies, each has 10 participants and two focus group discussion, to identify the possible hidden curriculum and concomitant learning. Themes emerged from content analysis of focus group transcripts.

Summary of Results: Participants developed confidence in their knowledge and skills of clinical teaching after attending teacher development programs. However, trainees also perceived negative attitude from being aware of the differences between their workplace and the standardized training center in the educational resources, administrative support, organizational culture and overwhelming clinical workload. Many trainees also concluded that comparisons may lead to disappointment.

Discussion and Conclusions: The hidden curriculum and concomitant learning may occur during and after the clinical teaching training program for physicians and will have strong impacts in their attitude towards clinical teaching work.

Take-home messages: The Hidden curriculum and concomitant learning in a teacher development activity are important to clinical teachers’ attitude towards future teaching work.

8DD8 (22576)
Characterizing a Portuguese Medical School’s 4th academic year’s Hidden Curriculum

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Leonor Leão, Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal
Isabel Neto, Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal

Presenter: Miguel Castelo-Branco*, Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal

Background: Patient-centered care is a proposed new clinical method in which the patient is seen as a person with individual needs and a unique life story, presenting advantages over the traditional biomedical model. These advantages make it important to incorporate the patient-centered care in medical schools’ academic path because it’s known that medical students suffer an “ethical erosion” process along the way, perhaps influenced by the educational context, particularly the “hidden curriculum”. The C3 Instrument’s a questionnaire that characterizes a medical school’s hidden curriculum with respect to patient-centered care.

Summary of Work: The goal of this study is to characterize the hidden curriculum of Faculty of Health Sciences-University of Beira Interior in terms of patient-centered care in different clinical modules from the 4th academic year over 2013/2014. The C3 instrument will be applied throughout the year to all 139 students and it includes 3 content areas: role modelling, students’ patient-care experiences and perceived support for students’ own patient-centered behaviors.

Summary of Results: Students’ data analysis/statistics are scheduled for August 2014.

Discussion and Conclusions: There may be differences between the various clinical modules and between chief residents, senior residents or interns in terms of hidden curriculum perceived by medical students. Consequently, it’s important to look at this data and find what should be modified for a better influence of the hidden curriculum.

Take-home messages: Characterizing the hidden curriculum of a medical school is essential to the development of its students since it shapes their attitudes and behaviours and therefore modifications can be made to decrease it’s negative impact.
Hidden curriculum in action: Medical students’ attitudes toward the use of containment measures prior to and after attending a five-week clinical course in psychiatry

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**Background:** In medical schools, the hidden curriculum is an integral part of the socialization process of the learner into the norms and rituals of the organization and the medical culture. In Finnish psychiatry, deep-rooted treatment traditions and attitudes determine the use of coercive measures.

**Summary of Work:** The aims of the present study were to investigate Finnish medical students’ (N=92) attitudes towards containment measures prior to and after their course in psychiatry, and to compare their attitudes to those of practicing psychiatrists and residents (N=32) in psychiatry. The attitudes towards containment measures were studied using the Attitude to Containment Measures Questionnaire.

**Summary of Results:** Prior to course, the students viewed containment methods negatively with no significant gender differences. The negativity diminished as they progressed in with their studies, which included training in psychiatric wards with psychiatric mentors. The attitudes of the students started to resemble those of practicing psychiatrists.

**Discussion and Conclusions:** The attitudinal change among students might be a change towards a more realistic view of psychiatry, but it might also reflect the attitudes and values that are transferred from clinical staff to students as hidden curriculum, as the formal curriculum did not have any teaching in coercive measures. Formal teaching concerning the use of containment measures with an involvement of a service user might be a way of keeping the students’ attitudes more empathetic towards patients.

**Take-home messages:** The hidden curriculum is a powerful vehicle for transmitting attitudes to medical students in a brief psychiatry attachment.
8DD11 (22672)
Medical Students from 2 Universities, Clinical Studying Together at the Same Institution; a Comparison Study of the Outcome

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Background: Sunpasitthiprasong Hospital, Ubon Ratchathani, Thailand is the medical teaching institute in collaboration with Khon Kaen University and Ubon Ratchathani University. Since 2008, medical students from both universities have been exclusively clinical studying and training together under similar curriculum. Nevertheless, there were 2 different backgrounds, admission method of Khon Kaen University was general examination and pre-clinic curriculum was discipline based, while those of Ubon Ratchathani University were high school GAT PAT scores and system-based pre-clinic curriculum, respectively. Throughout 3 clinical years, all students were required to take step 2 and step 3 national license examinations, administered by Medical Council of Thailand. Furthermore, post graduate visits and evaluation by interview at work place were then conducted.

Summary of Work: Retrospective cohort study from 2008 to 2013, the outcomes studied were first step 2 national license examination results, first step 3 national license examination results and post graduates evaluation results on knowledge, clinical skills and attitude.

Summary of Results: From 2011 to 2013 there were 57 Khon Kaen University graduates and 29 Ubon Ratchathani students. 56 of Khon Kaen students and 27 of Ubon Ratchathani students passed the first step 2 national license examination (98.27% v.s.93.1%, p-value >0.001). 50 of Khon Kaen group and 25 of Ubon Ratchathani group passed the first step 3 national license examination (87.72% v.s.86.2%, p-value >0.001). Results of post graduate evaluation were almost all satisfied. There was no statistically significant differences between the 2 group outcomes. Discussion and Conclusions: Medical graduate outcomes of 2 universities at Sunpasitthiprasong hospital are comparable and not effected by pre-clinic curriculum and medical school admission method. Take-home messages: Clinical teaching for 2 medical schools at the same institution under similar curriculum is acceptable.

8DD12 (22482)
Sustaining Service User Participation in Radiotherapy Education

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Background: Radiotherapy programmes at the University of Liverpool have been incorporating service users and carers in a variety of ways since 2006. This is now custom and practice and firmly embedded in our curricula. It will also be a requirement of our statutory body from September 2014 (HCPC, 2014).

Summary of Work: We will share our experiences of how service users have been incorporated into the radiotherapy programmes and how this has been sustained and developed over the years. The focus will explore the development of a range of approaches to involving service users in teaching and learning as well as how collaborative discussions with user groups have helped develop a successful strategy for user involvement.

Summary of Results: There are a variety of forms of involvement from curriculum / programme planning, group work, assessment and selection days now fully integrated across all years. Staff are also involved in the education / awareness of users in the field of radiotherapy and have organised discovery days for all involved to highlight current practices and future developments.

Discussion and Conclusions: There has been a significant, positive change to service users in radiotherapy education however, this is not without challenges as we need to ensure service users are supported and rewarded. Users have much to offer in terms of educating the future workforce. This has enhanced the student experience in pre-registration radiotherapy programmes however, it continues to be an ongoing process which is sustained through evaluation, communication and clear aims for all involved. Take-home messages: Enhancement the student experience in pre-registration radiotherapy programmes.
8DD13 (19160)
Reflective practice on the selection and organization of contents in Health Sciences

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Background: Knowledge evolves constantly, which means that teachers should select contents that are meaningful and facilitate the comprehension of paradigmatic phenomena for the discipline. For this purpose, the teacher must be able to transform the academic knowledge into taught knowledge, which will allow him to integrate learning contents that are relevant to understand also the phenomena and daily problems of the students.

Summary of Work: Qualitative study, case study approach. Multiple cases design was used. Through a theoretical sampling, 8 university academics conducting classes in the first and last years of Medicine, Nursing, Speech Therapy and Physical Therapy at University of Concepcion, Chile, were selected, prior informed consent. Semi-structured interviews, classroom observation and field notes were used as techniques. Content analysis of primary documents was performed.

Summary of Results: Two educational guidelines that could influence the way in which academics select and organize their contents were observed. One group was characterized by having technical orientation of teaching, therefore they choose contents based on courses programs, competencies and graduate profiles. In contrast, academics with reflexive orientation tend to select contents from different disciplinary paradigms and consider the support of other professionals as a resource.

Discussion and Conclusions: The identified orientations are sustained in a behaviorist and technical education perspective and in a constructivist based on the reflection perspective. This is mainly sustained in teaching models that academics had as students, that made them follow the same educational patterns or rethink other teaching models.

Take-home messages: Academic reflective practice on contents is essential to develop reflections opportunities in health students.

8DD14 (19362)
The rearrangement of timetable by topic difficulty in teaching Pediatrics

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Background: In 2010, the final scores of fourth-year medical students at Suratthani university-affiliated hospital in Pediatric-block was low. To improve learning-outcomes, the timetable was rearranged by topic difficulty.

Summary of Work: At the end of academic year 2010, thirty-students and ten teachers scored the difficulty of topics. The topics were rearranged by structuring from easy to difficult according to the scores, using students’ scores in academic 2011 and teachers’ scores in academic year 2012. Knowledge was assessed by MCQ and MEQ scores at final examination. Comparison of these scores in three academic-years was applied using one-way ANOVA, with significant level of 0.05.

Summary of Results: Results showed that MEQ scores was significant difference in three academic-years (p-value = 0.012). The MEQ scores in academic year 2011 and 2012 that the time-table rearrangement by topic difficulty, were higher than the year 2010 (p-value = 0.026 for rearrangement by students’ scores in 2011, p-value = 0.031 for rearrangement by teachers’ scores in 2012). The MEQ scores between rearrangement by students’ and teachers’ scores was not different (p-value = 1.00). There were no statistically significant difference in MCQ scores.

Discussion and Conclusions: The MEQ scores were significantly improved after rearrangement of timetable by topic difficulty. This finding reflected that the clinical problem-solving skills might be enhanced. Rearrangement by students and teachers provided the similar learning-outcome.

Take-home messages: The rearrangement of timetable by topic difficulty was an effective strategy to improve some part of learning skills. Other efforts should be modified alongside for academic achievement.
8DD15 (22370)
From simulation to reality, identifying the barriers

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Background: Medical schools utilize teaching in both the classroom and clinical settings as a means of educating students. By understanding the factors that students perceive to facilitate or hinder their development, coordinators and administrators can develop a curriculum that maximizes student learning and development.

Summary of Work: A quantitative survey was administered to third, fourth and fifth year medical students at a medical school in an Irish University. The items related to categories identified in the literature as perceived by medical students to be influential in student learning in the clinical area: patient census, environment, supervision, clinical teachers and organization of the clinical learning and organization of the medical and surgical environment.

Summary of Results: Students reported favourably about their experience with patients, clinical teaching and the clinical environment, (means 4.0, 3.5 and 3.4 respectively). The level of supervision and the organisation of the learning environment were reported less favourably, means 2.4 and 2.5 respectively. This finding is in keeping with other studies that have found that students experience a transition in learning needs from the pre-clinical to more clinical years. Students also reported a low level of feedback where the item "I get regular feedback on my strengths and weaknesses" scored a mean of less than in 3 for both medicine and surgery rotations.

Discussion and Conclusions: Overall, the main issues perceived to inhibit the development of students' clinical skills in the clinical skills setting were lack of supervision when on rotation, poor organization of the learning environment and insufficient feedback from clinical mentors.

Take-home messages: By understanding the factors that students perceive as barriers to the development of their clinical skills in the clinical area we may be able to address some of those barriers and maximise the valuable learning opportunities of the clinical placement.
8EE1 (22981)  
Clinical case studies in the classroom: How to improve and adjust 3rd year students to the hospital  

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Background: As in other medical schools the transition from preclinical to clinical curriculum has been challenging for our students. In an attempt to remedy this problem, we redesign the structure of Introduction to Pathology, the introductory discipline to clinical medicine.  

Summary of Work: We developed a 3 months program, each week having a theme (hematology, neurology, gastroenterology…). In the beginning of every week the students would have 2 to 3 master-classes conducted by a specialist doctor, where key concepts were introduced. By Thursday, students would participate in a small group clinical case discussion. We preferred junior doctors as tutors in these sessions because they were closer to 3rd year students in level of knowledge, being more able to understand their difficulties and to help them navigate through clinical reasoning when dissecting the cases. In the end of each session, the students were asked to complete a satisfaction questionnaire.  

Summary of Results: 90 of 138 students did reply to the questionnaire. 97% did consider this initiative important or very important for their medical education; 92% considered also important to have simultaneously more seminars, with podcast support. More results are scheduled to April 2014.  

Discussion and Conclusions: Students felt that the inclusion of an hybrid methodology, with seminars and clinical cases was important to their instruction and future relationship with the patients. We will maintain and improve this initiative.  

Take-home messages: The transition from preclinical to clinical years might be difficult. Small group learning, seminars, young and expert tutors and clinical cases discussions might ease this crucial phase in undergraduate medical education.

8EE2 (21445)  
Acting on information given – the use of SBAR during a phonecall on a simulated ward round  

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Background: Patient handovers and calling for help are key skills and competencies not traditionally taught to medical undergraduates but essential for patient safety. Our group has undertaken previous work using an interactive small group workshop format as an educational intervention to teach such skills.  

Summary of Work: Students attending the University of Edinburgh Medical School undertake student assistantships. This is a key part in preparation for practice as a Foundation doctor with exposure to key skills and competencies that are not covered well in other parts of the curriculum e.g. time management or patient handovers. During this period all (n=290) will take part in a simulated ward round and accompanying workshops. We aim to investigate whether students who had attended a workshop which focuses on handover and referrals perform better at this task than those whose workshop is scheduled after the ward round.  

Summary of Results: During the simulated ward round a patient requires urgent referral to another team by phone. These calls will be scored using a checklist (SBAR proforma). Introduction of this tool has been shown to reduce the incidence of harm to patients by 50% in one healthcare setting.  

Discussion and Conclusions: We hope to demonstrate that this training is essential to them as future junior doctors.  

Take-home messages: Efficient and effective communication within clinical teams and between teams caring for the patient in different settings or at different times is essential.
**Abstract**

**8EE3 (22078)**

**Preparation for job applications: How prepared are fourth year MBChB students?**

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**Background:** FPAS is the application process used in the UK, through which final year medical students apply for their junior doctor positions. Candidates are scored on their educational performance and on their situational judgment test performance. We were interested to find out what students in their fourth year knew about their upcoming fate.

**Summary of Work:** Fourth year medical students responded to a 29-item questionnaire. Participants were asked questions concerning the application during a presentation regarding the FPAS.

**Summary of Results:** Out of the 51 completed datasets, there was a female: male ratio of 2:1. Only 27.5% (14) of students had looked into the FPAS process with 43.1% of students thinking that they were guaranteed a job once qualified. Regarding the application process itself, only 13.7% (7) were aware of the factors, which make up the educational performance score. Interestingly 92.1% knew there were academic foundation programmes available alongside the standard foundation process.

**Discussion and Conclusions:** In this student cohort, a large percentage of students were unaware of the application process and what will be required of them in a year’s time. This could be viewed as being too late and supports an argument as to whether earlier teaching in the medical degree is warranted.

**Take-home messages:** The evidence supports the argument that medical schools should give teaching on the junior doctor application processes earlier in the curriculum to facilitate better learning and understanding of what is required to remain competitive in the postgraduate job market.

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**8EE4 (21410)**

**Preparing for practice: A pilot study for new doctors**

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**Background:** ‘Don’t get sick in August’: a familiar statement with which the media chides British doctors. Sadly, it is based on some truth; patients admitted at the beginning of August have a higher mortality compared to the previous week. Why? The first Wednesday in August is the start date for all new Foundation Year 1 (FY1) doctors in England and Wales. Whilst general hospital induction exists, there is little consensus on preparing new doctors for practice.

**Summary of Work:** Three focus group sessions with FY1 doctors in a large teaching hospital were conducted in June 2012, elucidating their apprehensions prior to commencing work. Responses were used to develop learning objectives for a pilot one-day course aimed at new FY1s, to enhance clinical knowledge, skills and attitudes relevant to a new doctor. The course was designed and supervised by a group of clinical teaching fellows, and delivered in August 2012 by the outgoing FY1s.

**Summary of Results:** Thirty-seven incoming FY1s attended the course. Thirty completed the post-course satisfaction questionnaire. All (100%) delegates scored ‘answering your bleep’ and ‘requesting investigations and interpretation’ sessions as very good/excellent. 83% of delegates reported simulated scenarios as relevant to their job and 73% reported the content of simulated scenarios as very good/excellent. 100% of incoming FY1s stated feeling better prepared for their new job. All would recommend it to their colleagues.

**Discussion and Conclusions:** This pilot course was well-received, and may result in fewer adverse events, and consequently improve patient safety.

**Take-home messages:** Targeted, job-relevant structured induction training can address new doctors’ concerns regarding their preparedness for practice.
8EE5 (21889)

‘What I wish I’d known’, An online video induction tool for junior doctors by junior doctors

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Background: With junior doctors now rotating between posts as often as every six weeks, an effective induction process is vital to ensure smooth and safe changeover. However, induction is commonly mechanical, didactic and overdue.

Summary of Work: A Trust-wide baseline survey of junior doctors identified a total absence of induction information detailing ward schedule, ward duties, out of hours and cross cover commitments, prior to day one of a new post. We developed an innovative online video bank to enable local, bespoke and up-to-date clinical and non-clinical information to be accessed pre-post.

Summary of Results: Video clips of consenting junior doctors sharing their ward-specific advice to peers were uploaded onto the Trust Intranet. Videos were filmed for each junior doctor post across three hospital sites.

Discussion and Conclusions: Learning new protocols, referral guidelines and contact numbers are significant barriers to junior doctors working efficiently in new posts. Our online video bank avoids key local knowledge being lost between rotating doctors, minimising stress, time-wasting and service disruption. This quality improvement project will be extended to provide online video inductions for medical staff of all training grades.

Take-home messages: An innovative online video bank for junior doctors by junior doctors is a powerful and personalised tool to improve post induction.

8EE6 (23061)

CMT SIM: A pilot study using simulation training to prepare core medical trainees (CMT) to take on the role of “the Medical Registrar”; trainee’s perspectives

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Background: The transition from a CMT into the medical registrar can be daunting. The Royal College of Physicians Medical Registrar survey recommended ‘hospitals should allow core medical trainees to gain experience in the skills needed as a medical registrar…particularly managing acutely unwell medical patients under senior supervision’ (Chaudhuri, 2013). Simulation allows exposure to emergency scenarios in a controlled, safe environment in order to prepare for the decision-making and leadership this new role brings.

Summary of Work: Six CMT’s in our trust each undertook a simulated medical emergency scenario in which they acted as a medical registrar. Scenarios were designed to be clinically and ethically challenging and based on their curriculum. Data from feedback questionnaires and a focus group was analysed to assess the candidate’s opinions and concerns about being the medical registrar and the value of addressing this using simulation.

Summary of Results: Questionnaire: 100% of candidates strongly agreed or agreed that the scenario was realistic and increased their confidence in managing a similar scenario in a clinical setting. 100% of candidates strongly agreed that the debrief was key in consolidating learning.

Focus group: Transcription analysis revealed limited decision-making (25%) and leadership opportunities (30%) in clinical practice were frequently coded themes. 130/146 (89%) coded comments were positive about simulation.

Discussion and Conclusions: This pilot study suggests simulation training is a useful tool to prepare CMT’s for becoming a medical registrar.

Take-home messages: There is limited opportunity for CMT’s to practice taking on the role of the medical registrar. The use of simulation as a bridge to practice is a valued learning opportunity.
8EE7 (21211)
CanMEDS in context: Engaging residents in a transition to residency program

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Background: Early postgraduate medical education must address its learners’ transitions from medical students to residents while promoting meaningful and relevant teaching of all CanMEDS roles. Distributed models of medical education bring the added challenge of engaging residents at dispersed sites.

Summary of Work: Resident volunteers from a cross-section of programs, along with faculty mentors, volunteered to develop a Transition to Residency curriculum that contextualized all CanMEDS roles, embedding them within common clinical scenarios that residents would face in the early phase of their training. Technology-enabled initiatives encouraged interactive participation at distributed and on-site locations.

Summary of Results: Narrative feedback from residents acknowledged relevant, practical content within case-based presentations that improved confidence levels. Residents, including those at distant sites, appreciated the interactivity achieved not only through technology, but also energetic resident/faculty co-facilitation. Attendance at distributed sites, via live streaming, increased over the series.

Discussion and Conclusions: Senior residents are a valuable resource for planning and executing a relevant Transition to Residency program. Along with thoughtful leveraging of technology to engage learners at distant sites, case-based presentations allow greater relevancy for intrinsic CanMEDS roles. Follow-up with both participants and facilitators will provide more comprehensive data that can be used to inform future iterations.

Take-home messages: Allowing residents to drive Transition to Residency curriculum development increases content relevancy and engagement.

8EE8 (21545)
I-SPY book for new Foundation Year 1 Doctor’s Induction

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Background: The transition between medical student and junior doctor is challenging. A shadowing period that adequately prepares new juniors to provide safe, high quality patient care in their local environment is therefore imperative.

Summary of Work: I-SPY books were spotter guides by Dunlop for children directed at certain activities e.g. at the seaside. They contained photographs that when spotted, gained I-SPY points to collect. We constructed an I-SPY workbook for our hospital to make the shadowing period more efficient by directing the new doctors towards the components essential to their new roles. Every item for “spying” was deemed essential local knowledge e.g. CT department and reinforced by a scenario workbook e.g. “My patient needs a portable chest Xray… How do I do this?”

Summary of Results: Outcomes were measured retrospectively with an online survey. 54% completed the online survey.
- 85% found the book “useful” or “very useful”
- 85% recommended the I-SPY as a good tool to prepare future juniors
- 69% said the I-SPY book was the most useful reading material received at induction.
- 69% found the book to be “enjoyable” or “very enjoyable”
- 69% believed they were more efficient
- 62% believed the I-SPY had increased their confidence
- 54% believed it had made them safer.

Comments include: “it was excellent for orientation” and “only feel out of my depth 95% of the time rather than 100!”

Discussion and Conclusions: Our I-SPY book was an effective tool to orientate new doctors to their environment and improve their confidence.

Take-home messages: Less formal and “fun” methods can be considered useful compared to conventional handbooks during the difficult transition into junior doctor.
**8EE9 (19512)**

**Medical Emergencies – What do we expect from our junior doctors?**

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**Background:** Research demonstrates a clear link between increased patient mortality during the first few months of newly qualified doctor’s clinical posts. The transition from student to qualified doctor can be stressful and newly qualified doctors may feel the ‘pressure to perform’ is expected of them. These expectations may differ greatly from their seniors, and may be to their patient’s detriment.

**Summary of Work:** Questionnaires were sent to newly qualified doctors exploring their experiences of managing deteriorating patients. They were asked to identify what they were expected to do for patients before asking for help from senior colleagues. Their confidence with sick patient management and their communication with senior colleagues was also explored. Semi-structured interviews explored these initial findings. Questionnaires were sent to consultants exploring their expectations of junior colleagues and if they believed these juniors were capable of managing emergencies safely.

**Summary of Results:** Newly qualified doctors often use a structured ‘learned’ approach to patient management, completing a number of tasks before seeking more experienced help. Some seniors are content with this approach whilst others are frustrated at not being contacted earlier.

**Discussion and Conclusions:** Junior and senior doctors’ opinions differ in relation to managing deteriorating patients. Senior clinicians must better clarify what they expect from their juniors. Juniors need support to gain insight into their limitations and need greater opportunities managing medical emergencies under supervision as undergraduate students.

**Take-home messages:** Postgraduate and undergraduate education should develop partnership training within the simulated environment to develop team working and communication skills to better prepare newly qualified doctors for their role.

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**8EE10 (22555)**

**High quality educational experiences for clerkship rotations and medical student preparedness for residency**

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**Background:** Graduating medical students should be prepared with foundational clinical skills to start residency.

**Summary of Work:** This survey study was conducted with medical students graduating from the University of Alberta between 2008-2012. Responses to the Canadian Graduation Questionnaire (CGQ) were utilized. The data was analyzed for both correlations and a prediction model between markers of educational quality and a composite of self-confidence in clinical skills required for residency preparedness.

**Summary of Results:** Satisfaction with medical education, self-confidence in clinical skills, supervision and sufficient variety of patients were all significant contributors to the model predicting residency preparedness.

**Discussion and Conclusions:** Specific educational quality measures can predict graduating medical student preparedness for residency.

**Take-home messages:** The level of supervision and the variety of patients may be aspects of rotations that clerkship directors could focus on continuing to improve, as these were significant variables, which may impact graduating medical students self-reported residency preparedness.
8EE11 (22839)
Comprehensive local prescribing induction can identify unsafe newly qualified doctors to allow appropriate allocation of teaching resources

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Background: Prescribing mistakes involving drug transcription frequently affect patients and juniors are often implicated. Thirty-five percent of new doctors (FY1s) in the United Kingdom work in different regions to their medical school and may be unfamiliar with local prescribing policy, which exacerbates this problem.

Summary of Work: In 2012, we created a learning module comprising case-based online material and seminars, predominantly to familiarise our FY1s with local practice. Immediate feedback was very positive from participants and senior faculty. After two years, its effect on scores in the local compulsory prescribing assessment, undertaken by about sixty candidates each year, is now available.

Summary of Results: Notwithstanding the difficulty in demonstrating statistical significance with relatively few subjects, the pass rate has improved, with a mean of 86% since 2012, compared to 65% in the previous three years. Most interestingly, the proportion of outright fails has remained similar (11% vs. 9%); instead, there has been a noticeable shift from borderline passes to passes.

Discussion and Conclusions: This suggests that familiarisation with local drug charts, for example, helped the cohort of candidates who might have narrowly passed the assessment to pass comfortably. This implies that they are good prescribers who simply need this subtle extra grounding. However, there will also be genuine poor prescribers who need remedial teaching before being deemed safe to prescribe independently.

Take-home messages: Effective local induction can sift out true substandard prescribers so time can be efficiently allocated to ensure their improvement, rather than wasting resources on safe prescribers whose unfamiliarity with local practice may have previously been misconstrued as being unsafe.

8EE12 (21588)
A junior doctors handbook: A useful learning tool....?

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Background: The transition from medical student to Foundation Year One doctor (FY1) is daunting, with a far greater emphasis on decision-making and formulating management plans. The introduction of the FY1 shadowing programme has helped make this adjustment easier. We observed FY1 doctors employing medical textbooks and surmised that adding further clinical information to the existing hospital guideline handbook would provide them with a useful learning resource.

Summary of Work: We surveyed the outgoing FY1 doctors (Cohort 1) to establish whether a revised handbook would prove useful in their daily clinical activity. We subsequently provided our updated handbook to the next intake of FY1 doctors (Cohort 2) and surveyed them at six months to assess our intervention.

Summary of Results: 92% of Cohort 1 carried reference books and 76% used one every day. 100% of respondents agreed that our proposed revision of the guidelines would prove useful. There were 21 respondents in Cohort 2 and they gave the handbook a mean score of 7.8/10 for its utility as a learning resource. FY1 doctors in general surgery (8.5), intensive care (8) and psychiatry (9) found the handbook of most use, followed by general medicine (7.4) and radiology (6.5). 11 respondents mentioned a smartphone application when asked for their suggestions for the future development of the handbook.

Discussion and Conclusions: The incorporation of clinical reference material into existing trust guidelines helped a new cohort of FY1 doctors adapt to their new environment.

Take-home messages: Starting work as a junior doctor is stressful and providing learning opportunities that fit in with daily working life may ease the transition.
8EE13 (2014)
Teaching and Learning in Supervised Internship: Internship in Integrated Health

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Background: The training focused on social needs, in Brazil, has been configured in profound changes in higher education, and in a particular way in the education of health professionals. Therefore, institutions have sought to make changes in their political projects, teaching in order to redesign their curricula. Accordingly, since 2009 the University Center Cesmac, Maceió, AL, Brazil, in accordance with the principles of the Health System and the National Curriculum Guidelines for health courses, instituted Stage Integrated Health, integrating Students Clinical Course healthcare (Physiotherapy, Nutrition, Nursing, Pharmacy, Dentistry and Biomedicine).

Summary of Work: This research aimed to evaluate the process of teaching and learning in supervised when performed integrating students from different courses in healthcare. The research was to approach the ethnographic case study through participant observation, semi-structured questionnaire and focus group.

Summary of Results: Through triangulation of data we could realize the importance of interdisciplinary, teamwork, contribution to the training and the role of the teacher as facilitator of learning process, encouraging critical thinking and decision making.

Discussion and Conclusions: The proposed Integrated Internship allows a new look at the teaching and learning process, combined with diversification of practical scenario, especially when it comes to health education, allowing students an experience very close to what he will find in his professional life.

Take-home messages: Stage Integrated can be understood as a pedagogical strategy to try to overcome the fragmentation of knowledge and can be used as reference to other education institutions in health.
The Millennial Medical Students: A new generation, an old vocation

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Background: Following closely the personal and professional development, mentors can be a prime source of information about the new generation of medical students. Described as disinterested, uncommitted and avid for immediate results, they challenge educators. This study aimed to identify why millennials choose medicine as a career and to understand their relationship with the medical course.

Summary of Work: Using a qualitative approach, mentors from the Faculty of Medicine, University of Sao Paulo (FMUSP) were asked about the main characteristics of this new generation of medical students. Furthermore, mentors' reports, concerning the meetings with the students, from 2003 to 2013, were analyzed.

Summary of Results: According to mentors, the new medical students share many characteristics with their generation. However, they are still motivated by reasons like altruism, interest for biology, familiar influences and job opportunities. Concerned about their quality of life, millennials often disregard the course difficulties. Seeking new experiences, many students have classes abroad and are not concerned about graduating on time. Eager for fast results, this new generation seeks an early specialization. On the other side, many students started Medicine school later, after having started other university courses.

Discussion and Conclusions: Current medical students share the features of their generation. However, their career choice is still motivated by “classic” reasons, such as human contact and willingness to help. Take-home messages: Knowledge of students’ motivations can reduce the generation gap, allowing new insights about their medical training. Teaching strategies articulating the old medical vocation and the new millennial behaviors are necessary to maintain their interest and commitment to the course.

How Recognition of Prior Learning copes with academic success of medical students

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Background: The academic recognition of credits is widespread in Higher Education. The aim of this study was to assess the effect of recognition in the academic success of medical students in the first year of the medical course.

Summary of Work: A total of 74 students requested academic recognition of credits at Faculty of Medicine of University of Porto (FMUP): 34 students in academic year 2011/2012 and 40 students in academic year 2012/2013. The number of credits earned by prior learning, the number of credits obtained in the first year of the course and the areas of their previous academic background were collected from the academic record of each student. The academic success was measured by the number of credits obtained in the first year of the medical course.

Summary of Results: The mean number of credits recognized was 53 (SD=46). The number of credits obtained by recognition of prior learning did not associate with the success in the first year (r=-0.02, p=0.853). From the 74 students admitted to FMUP, 59 (79.7%) derived from health related courses and 15 (20.3%) from non-related health courses. Students from health courses compared with non-related health courses showed significant higher success (43 vs. 31, p=0.034).

Discussion and Conclusions: The recognition of prior learning did not affect the academic success. However, students from health courses have better academic achievement in the first year of the medical course, compared with students from non-related health courses.

Take-home messages: More important than the number of recognized credits are the areas from which those credits came for academic success.
**8FF3 (21088)**  
The formation of self-identity of medical students: The use of qualitative method

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**Background:** Professional identity is formed by individual experience, self-image, and collective influences of social context. How medical students adapt and transform their value is the major concerns of medical educators. This study utilizes longitudinal study to interview medical students during their clerkship and internship, and, therefore, confirm how they form their identity.

**Summary of Work:** This study interviewed a group of medical students at five different intervals: before students’ clerkship, during clerkship, before internship, during internship, and completion of internship. Focus group was used to moderate the open discussion. Transcripts were analyzed by content analysis.

**Summary of Results:** Three sub-themes emerged from the study. First of all, the ‘crisis’: crisis through malpractice. Secondly, ‘part of the profession’: wearing white coats. Thirdly, ‘motivation does work’: incentive system design.

**Discussion and Conclusions:** The process of self-identity formation requests well-connected between schools and hospitals. Crisis, such as malpractice, is the biggest threats to medical students. Internal identity could be built up through the collective support from superiors and peers. A respondent reported his identity not built-up yet after completing internship. Respondents also revealed they need to master in medical knowledge and clinical skills to become a mature practitioner, without listing the importance of communication and teamwork. Working environment and pay system were the third sub-theme emerged from the study.

**Take-home messages:** We would like to look up a role model to guide us. Anyway, identity formation succeeds not only from within, i.e. personal experience, but also outside, i.e. the support from peers and society.

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**8FF4 (21066)**  
Medical students’ metaphoric talk about their professional identities: Superman, robots and baggage

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**Background:** To date, the literature on professionalism has focused on students’ understanding of professionalism and their experiences of learning and teaching including the hidden curriculum. Few studies have focused on the students’ talk in relation to their professional identities.

**Summary of Work:** First and second year medical students at Durham University in the United Kingdom and the Mayo Clinic, United States of America participated in semi-structured interviews to explore their experiences and perceptions of professional identity formation during the early stages of medical education. Data were transcribed and analysed using secondary level systematic metaphor analysis.

**Summary of Results:** Data analysis revealed five overarching metaphors within the target domain of professional identity: PROFESSIONAL IDENTITY AS MACHINE, PERFORMANCE, WAR, JOURNEY and ECONOMIC TRANSACTION. Examples of metaphors relating to identity as a machine included students describing their professional conduct as robotic and themselves as automatons. Economic transactions were related to societal contracts and gifts. War-like metaphors included discussion around surveillance conflict, guard and violence.

**Discussion and Conclusions:** The metaphors suggest that medical students struggle to talk about the development of their professional identities; this development process is complex and often problematic. If medical students hold the concept of professional identity as a machine, it undermines the concept of professionalism whereby students develop as self-aware, reflective practitioners.

**Take-home messages:** Work needs to be done to aid students in their development of a professional identity. Students’ identities are continually formed and reformed as they progress through medical school, often in response to competing demands. Students need support to engender positive professional identities.
8FF5 (21141)
Constructing and affirming professional identities: Exploring ‘controversial’ online posting by doctors and other health professionals

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Background: Social networking sites are highly popular among healthcare professionals although some online activities have raised concerns over compromising patient trust and privacy. Very few studies exist however that analyse the content of such online posts. Such studies are needed to better understand and suggest effective strategies to deal with these realities.

Summary of Work: A discourse analysis (1,2) of online ‘posts’ by three popular healthcare related FacebookTM pages was conducted using linguistic inquiry and word count (LIWC) software. Statistical measures were used to compare posts from different healthcare professions and between those and generic online blogs.

Summary of Results: Analysis of the online posts identified some differences, but three major inter-related themes were identified relevant to all health professionals: work and working conditions; different clinical situations and affective (emotional) processes.

Discussion and Conclusions: Increasing service pressures and restructuring of healthcare environments has reduced opportunities for ‘real time’ informal debriefings, sharing and validating experiences which have relocated to other spaces such as online social media websites. However these new ‘spaces’ are much more public, thus potentially posing risks to patients and health professionals. Online posting by healthcare professionals can be interpreted as a visible expression of “therapeutic venting”(3), providing excellent opportunities for gaining insight into their views, perceptions and problems.

Take-home messages: -Online ‘posts’ by healthcare professionals can provide a ‘window’ into the problems they face in practice.
-Understanding the content of online posting can help identify effective strategies to address this reality, protecting both patients and healthcare professionals themselves.


8FF6 (20029)
An evaluation of mentoring program for female medical students

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Background: Korean Medical Women’s Association (KMWA) carried out mentoring program for female medical students in order to support their delivery, infant care, and career development as to cultivate their talent as future physicians.

Summary of Work: The mentoring program was designed and developed according to needs analysis based on the survey of 240 female medical students in Korea. It was implemented as a one-year-period in 2013 with 10 mentors (female doctors) and 15 mentees (female medical students) and went over formative evaluations twice.

Summary of Results: The needs analysis showed demand for mentors who could give advice in the balance between work and child rearing, demonstration of leadership in organization, choice besides becoming a doctor, etc. The mentoring program was developed and implemented based on these results and went over 2 formative evaluations to both mentor and mentee in order to identify rapport forming, mentoring topic, continuance, etc. The response to rapport forming showed high relation between mentor and mentee and the most frequently discussed topic was career development, life as female physician, marriage and infant care, etc.

Discussion and Conclusions: The mentoring program for female medical students needs revising and supplementing on the basis of formative evaluation which would lead to a systematic implementation and management.

Take-home messages: The development of this newly implemented mentoring program for female medical students provides stable social participation and contribution of female doctors based on symbiotic relationship between male and female doctors in Korea.
What makes informal mentoring effective in the medical field?

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**Background:** Informal mentoring is based on natural personal matching and mutual interests between a junior and senior person. Its ultimate outcome is professional development and satisfaction for both. It is the only form of mentoring available in many traditional medical schools and, in many fields, high degrees of success and efficiency are reported. This study investigates what makes informal mentoring effective.

**Summary of Work:** A systematic review of the literature was conducted, using “informal mentoring” and either “medical field” or “postgraduate education” as keywords. For inclusion, original research articles and reviews were retrieved. Both formal mentoring and E-mentoring were excluded. Initially, 120 papers were identified; however, only 7 articles that met the inclusion criteria were finally included.

**Summary of Results:** For both mentors and protégés, criteria and roles were identified in the literature for a successful informal mentoring relationship, including personal characteristics (e.g., mentor: accessible, reliable; protégé: active, decisive), interpersonal skills (e.g., mentor: communicator, role model; protégé: being able to accept feedback), and professional status (e.g., mentor: competent, respected in the field; protégé: goal-oriented). Sharing of expectations is also a key success factor.

**Discussion and Conclusions:** This study highlights that for both mentors and protégés, excellent communication skills, commitment, and a congruous match are key conditions for a successful informal mentorship. Good mentorships pose requirements to both mentors and protégés and rest on shared expectations that are made explicit.

**Take-home messages:** Successful informal mentorship requires a careful match between mentor and protégé and explication of joint expectations.

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The Munich-Evaluation-of-Mentoring-Quality (MEMeQ)-questionnaire – A novel instrument for the differentiated evaluation of quality in mentoring relationships in medical education

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**Background:** Despite the relevance mentoring has acquired in medical education in recent years, there persists a lack of validated instruments to evaluate mentors or mentoring programs. The objective of this study was to develop and test an appropriate instrument to measure the quality of mentoring relationships in undergraduate medical education.

**Summary of Work:** Based on the “SMILE” questionnaire (Fegg, 2008), we developed an instrument to evaluate mentors and mentoring relationships, emphasizing individual expectations and needs. Mentees first define individual areas of interest, then assign relative levels of importance to them and finally rate their levels of satisfaction regarding the guidance and assistance they experienced in each area. We assessed the acceptance, feasibility and psychometric properties of our instrument as well as students’ perceptions of the questionnaire using a think-aloud protocol.

**Summary of Results:** 85 mentees completed the questionnaire. The average number of specified areas was 3.8 (SD±0.91). The mean index of importance was 76.64 (SD±23.92), the mean weighting index was 82.53 (SD±13.20) and the weighted satisfaction was 76.49 (SD±24.26). The instrument was neither perceived as distressing nor time-consuming. The weighted sum score correlated closely with the overall satisfaction regarding mentoring relationships, as well as with different outcome parameters (Pearsons r: 0.82, p<0.000).

**Discussion and Conclusions:** The MEMeQ-questionnaire is a valid, reliable and flexible instrument to measure the quality of individual mentoring relationships in structured mentoring programs. We plan to use it in a currently ongoing
randomized trial of different matching strategies in our faculty’s mentoring program.

**Take-home messages:** Promising new instrument to evaluate individual mentoring relationships in medical education.

**8FF9 (22946)**
A pilot study of the use of video-conferencing technology in medical student welfare meetings

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**Background:** The Student Welfare and Professionalism (SWAP) service run by Undergraduate Medical Education at Central Manchester Foundation Trust (CMFT) offers students academic guidance and pastoral support. Students engage with the service via regular meetings with members of the SWAP team. Students on distant placements cite factors such as travel time and cost as reasons for delayed or missed meetings.

**Summary of Work:** A trial of video-conference meetings using tablet devices was undertaken in a cohort of students engaged with the SWAP service at CMFT. The aim was to assess the utility, feasibility and acceptability of the technology in this setting. We anticipated that removing logistical barriers to communication would increase the frequency of students’ engagement with the SWAP service. A survey was used to assess the students’ perceptions of video-conferencing technology in this context.

**Summary of Results:** During the period of study, 150 students were on distant placements and of these, 28 (19%) were engaged with the SWAP service. The results of the follow-up surveys suggested students found the meetings acceptable and preferable to telephone conversations. They were felt to be beneficial with regards to saving time and money and ultimately increasing students’ engagement with the service. The main issue identified was that of video freezing related to insufficient internet bandwidth at remote hospitals.

**Discussion and Conclusions:** Our experience is that video-conference technology is highly acceptable to medical students and removed logistical barriers to communication with the SWAP service.

**Take-home messages:** We believe video-conferencing technology has the potential to increase the engagement of a potentially vulnerable group of students with welfare services, and should therefore be encouraged.

**8FF10 (22511)**
Standing out from the rest: How do wellness, engagement, and management of cognitive demands contribute to the success of our best students?

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**Background:** Faculty engaged in student academic support spend considerable time providing orientation sessions, learning strategy seminars, and individual advising to medical students to ensure their academic success. Much time is spent on what students "should" do and on what strategies poor achieving students "should" adopt. Nonetheless, new students continue to adopt ineffective methods recommended by their peers. This study aimed to determine what it is that the best students are doing in an effort to identify if what is recommended is actually characteristic of high achieving students.

**Summary of Work:** Following a first term medical school assessment, the top achieving students were surveyed regarding their approach to learning. Information was gathered related to their conceptual approach to engaging with material, their management of time and anxiety, their engagement with other students in learning activities, and their use of available resources.

**Summary of Results:** Results revealed that high achieving students share a similar profile. Their approach to material integration, engagement with others in learning, time management, and methods for coping with the demands of medical school are comparable. These attributes are also supported by the literature related to academic success in medical school.

**Discussion and Conclusions:** Academic support provided to new medical students promotes the qualities and approaches of our high achieving students. These students can be the link between what faculty and the literature indicate medical students should be doing to succeed, and what successful students are actually doing. Those responsible for coordinating student support should consider incorporating personal and academic mentoring by high achieving students into student success initiatives.

**Take-home messages:** Faculty engaged in student academic support can gather valuable information regarding the attributes of the most successful students by investigating what it is that they are doing to be successful and incorporating their experiences into academic support initiatives.
8FF11 (19121)  
HRV study in Phuket 4th year medical students  
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**Background:** HRV (Heart Rate Variability) describes autonomic functions by modulation from parasympathetic and sympathetic pathways. Normal is equilibrium in our body and mind. Disequilibrium represents in various physical and mental health problems.

**Summary of Work:** HRV study was done in our 24 fourth year medical students. The medical equipment (Medicore, SA-3000P Nano-pulse approved for FDA in US, SFDA in China and CE in EU) was applied by finger probe feature within five minutes. Fast Fourier transform (FFT) method is calculated underlying it. Time domain and frequency domain analysis was done. Statistical analysis was done by descriptive study in baseline characteristics. Shapiro-Wilk test was used to find out normal or abnormal distribution of these variables. Student t-test and Mann-Whitney U-test were used to compare variables between gender in normal and abnormal distribution groups respectively. Significance level is 0.05.

**Summary of Results:** HRV study was reported in baseline characteristic of participants, average mean (SD) and median (IQR) of variables and comparison between gender. The differences between gender were found in HRT (heart rate), SDNN (standard deviation of normal to normal interval) and RMSSD (the square root of the mean squared differences of successive NN intervals), PSI (physical stress index), TP (total power), LF (low frequency). Female group was shown higher HRT (t = -2.16, p <0.05).

**Discussion and Conclusions:** Autonomic function of male group of our study is more active in sympathetic. Autonomic function of female group of our study is less active in both sympathetic and parasympathetic and prominently features of stress.

**Take-home messages:** Holistic understanding may be applied via autonomic functions study.

8FF12 (19613)  
Which learning methods in the pathology pre-clinical years provide the most perceived benefit for students moving up to the Clinical year?  
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**Background:** This study aimed to explore which learning methods of pathology could best support medical students in applying their pre-clinical learning to their Clinical year. Currently, the following methods are used: Problem-based learning (PBL), lectures, laboratory demonstration (gross specimen and glass slide).

**Summary of Work:** An online structured questionnaire was designed. It was completed by the 4th year medical students conducting clinical rotations at Mahasarakham Hospital, Mahasarakham, Thailand. Descriptive statistics were used to analyze data.

**Summary of Results:** Sixteen out of 17 medical students completed the online questionnaires. There were 11 male and 5 female. The results showed that taking notes from pathology class had the least benefit for applying the knowledge in the Clinical year. Most students rated PBL sessions as the most beneficial for their clinical year as it helped to improve analytical and critical thinking of medical students. As laboratory demonstration (gross specimen) provided the most benefits for continuing to the Clinical year.

**Discussion and Conclusions:** The study indicated that students perceived their pre-clinical PBL sessions as a good learning method of pathology compared to other teaching methods. The laboratory demonstration (gross specimen) was also rated highly as a learning method that improved their understanding and skills in pathology.

**Take-home messages:** PBL and laboratory demonstration (gross specimen) should be taken more time in order to improve students’ attention and understanding.
Transformative Learning: Eclectic Approach and Life competencies of fourth-year medical students

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Background: In the last decade, Thai Mental Health studies show that almost 20% of medical students had mental health problems. This study aimed to assess competencies of 4th year medical students at the Medical Education Centre, Chiangrai Prachanukroh Hospital, Thailand after participate in group intervention throughout the academic year.

Summary of Work: 31 Fourth-year medical students participated in the 2 days of personal growth session at begin of year. They were later divided into 3 groups with 2 advisers in each group, had participated in 3 hour group intervention for 3 times throughout academic year. Activities were arranged to enhance interactive and experience sharing with respects to each other by Nonviolent Communication (NVC) and Bohmian Dialogue concepts. Qualitative assessment data were collected through participatory observation, focus group, in-depth interviews, written reflection and self-assessment.

Summary of Results: The medical students felt secure, trust, more confident to be themselves, to reveal their own frustrations and to respect different opinions. Consequently, they felt at ease and were able to find solutions to their own problems. In addition, they had expressed their apologies to each other and had improved their own behaviors to become a part of the group. They also accepted other people’s undesirable behaviors which had explicitly reduced gossiping in the group.

Discussion and Conclusions: Life competencies in medical students can be obtained through multiple group intervention sessions.

Take-home messages: More listening, more understanding and more of being yourself.

Predicting Academic achievement of medical students based on socio-demographic and psychological variables in different levels of medical education

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Background: Predicting academic achievement and early identifying of under-achievers, is a major part of psychological and social skills enhancement of medical students.

Summary of Work: In first phase, in a series of studies we have looked for important predictors of under-achievement using psychological measures and sociodemographic data from students in different levels of education. In second phase an intervention program was designed and applied in a sample of junior medical school students. In a pre-post quasi experimental design, 700 students attended a series of mental health workshops and answered KAP questionnaires.

Summary of Results: Multiple regression analysis indicated that poor stress management skills, living alone, lack of communication skills, and emotional disorders are major predictors of under-achievement and that the skill training program outcome was promising.

Discussion and Conclusions: Results of these series of studies indicated that students who study in medical schools need systematic psychological coping skills training to achieve their best as future doctors.

Take-home messages: Based on these findings a psychological skill training program has been developed for junior medical students.
Important non-cognitive traits of applicants in the selection process at Witten/Herdecke University: Results from the Multiple Mini Interview course

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Background: The University of Witten/Herdecke (W/HU) uses a two stage process of selection of medical students, the first step being a written application, the second an interview session. Multiple Mini Interviews (MMI) are described in the literature as reliable, economically applicable, and free of gender bias. The present study outlines the results of pilot-testing a MMI course within the selection process.

Summary of Work: In May 2013 44 applicants (26 w., 18 m.), age 20.8±1.8 years participated in a selection weekend. They finished two non-standardised interviews and six group discussions as well as a MMI course comprising six stations. Tasks in the course concerned the topics motivation, reflexion and social competence of applicants.

Summary of Results: The average scores the applicants received across 6 MMI stations ranged from 1.74 to 4.86, with a mean of 3.58±0.54. To determine the reliability of the test Cronbach's alpha was performed and satisfying with 0.651. The applicants showed best average scores at the MMI station “motivation for study” (0.78±0.11). The assessment of their performance by the interviewers proved the best average scores for communicative abilities (0.79±0.07).

Discussion and Conclusions: The abilities to communicate in a reflective manner and to behave adequately in a social situation by given motivation for study and occupation are decisive criteria for a positive vote in the selection process at W/HU.

Take-home messages: Structured interviews like the Multiple Mini Interviews focus on non-cognitive traits and therefore enhance the selection process at Witten/Herdecke University by adding methodological quality.
8GG1 (19882)
Widening Black and Minority Ethnic (BME) Participation in Healthcare Leadership and Management

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Background: Despite the diversity of its workforce, individuals from Black and Minority Ethnic (BME) backgrounds occupy only 1% of managerial positions in the NHS. The Student Medical Leadership Association (SMLA) has developed an internship programme at a management consulting firm to provide leadership opportunities for BME healthcare students and new graduates.

Summary of work: The main objective of these internships is to develop future leaders from diverse backgrounds with skills to help reduce variation in health needs. Having an enriched pool of managers or policy makers who understand and are more likely to prioritise the needs of diverse groups is important to improve tactical and strategic decisions about resource allocation and to design services tailored to needs of diverse communities.

Summary of results: The internships will be structured around the core principles of leadership and management. Internships will be awarded to students with a background in health across universities in London.

Conclusions: The NHS is the largest employer in Europe and offers a wide range of jobs encompassing clinical, health care management and professional support services. Gaining access to academic leadership positions within healthcare organisations can be difficult for marginalised groups including young graduates from BME groups.

Take-home message: Engaging young and talented students from the BME community in healthcare leadership and management opportunities from the outset is an important step to reducing inequalities at a management level in a diverse NHS.

8GG2 (22817)
The Relative Importance of Competency Skills to Physician's Assessments of Leaders

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Background: Application of multisource feedback (360° assessment) to assess leadership is widely used. In medical education, leadership of medical teams is of growing importance. The importance, both relative and absolute, of various competencies was tested in this study to inform curriculum development and educational outcome assessment.

Summary of Work: We presented profile examples of supervisory physicians to a 60-physician sample to rate. For each profile example, we provided descriptions that contained their performance characteristics within the ACGME/ABMS six core competency framework and from a leadership framework previously confirmed for structure. The data were employed in a conjoint analysis.

Summary of Results: Technical skills in medicine (e.g. Medical Knowledge, Patient Care) carry the most weight with the raters in determining overall rating; next is Leadership skill (e.g. ability to give feedback, manage a team); finally, Process skill in medicine (e.g., communications, timeliness) were judged as the least important. The relative importance of Leadership skill is approximately 70% as important as Technical medical skill.

Discussion and Conclusions: These data suggest that physicians place considerable importance on whether or not the leader is a good physician technically. The findings suggest that three areas of competency are important: technical excellence; leadership skills; and, the ability to function as a member in a healthcare setting. Clearly, curriculum development for medical leadership must continue to support technical leadership as other skills in team process are added. Assessment instruments should reflect not only content but also the contribution to performance in the clinical setting.

Take-home message: Our findings support the importance of technical excellence; leadership skills; and, the ability to function as a member in a healthcare setting. Assessment instruments should reflect not only content but also the contribution to performance in the clinical setting.
8GG3 (22388)
Trainee Perspectives On Teaching Clinical Commissioning

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**Background:** Healthcare service planning and delivery in England has changed. General Practice doctors (GPs) work within local Clinical Commissioning Groups (CCGs) overseeing the planning, implementation and evaluation of services. The Clinical Leadership in Commissioning Program (CLIC) was developed specifically for General Practice Trainees to provide multi-disciplinary perspectives in healthcare combined with project experience to provide them with the skills required to become future commissioners.

**Summary of Work:** The CLIC rotation spans four months during which GP trainees attend a series of seminars, presentations and activities designed to enhance their understanding of public health, social determinants of health, local health priorities, and current concerns around healthcare. Additionally, trainees embed themselves to CCGs developing experience in project management, organisational structure and financial planning. The rotation concludes with presentations illustrating the trainees’ experiences within their projects and as potential future commissioners.

**Summary of Results:** Trainees participating in CLIC developed a deeper understanding of CCGs, benefitting from the project work and the planned curriculum. These trainees were more likely to become involved in commissioning post qualification. Additionally there is consensus agreement between trainees, commissioners and GP trainers that CLIC is important for legacy planning as future GPs will need to take up commissioning roles.

**Discussion and Conclusions:** CLIC is a unique and valuable addition to GP training in East Kent. Equipping trainees with a holistic knowledge base and hands-on project experience has led to better understanding of commissioning and continued involvement with the process.

**Take-home messages:** CLIC is a valuable resource for trainees and can lead to greater involvement in commissioning post-qualification.

8GG4 (21825)
"Do You See What I See?": Using a Teamwork Evaluation Tool to Determine Differences in Perceptions of Team Performance in an Integrated Resuscitation Drill Exercise

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**Background:** Doctors are expected to be leaders in an emergency crisis situation, effectively leading a team of healthcare professionals dedicated to the survival of the patient. Through simulation-based medical education (SBME), new doctors can manage high-crisis, emergency clinical situations simulated in a "safe" environment. The doctor’s cognitive experience is enhanced, where he needs to solve complex clinical problems within time constraints, while delegating tasks and responsibilities to the rest of the healthcare team. The Facilitator, on the other hand, ensures that the learning experience is recapitulated by a debriefing session; where constructive feedback is given. The question arises: How does the doctor perceive himself as an effective member of the team? How is his perception different from that of his peers and his Facilitators?

**Summary of Work:** Participants comprising of medical interns, nursing and allied health professionals, undergo a half-day training in a Simulation Laboratory, using High-Fidelity simulation manikins. Four different resuscitation scenarios are simulated, whereby clinical decision-making, communication and teamwork are observed (Integrated Resuscitation Drill exercise).

**Summary of Results:** Teamwork performance will be evaluated by using a 12-item KidSIM Team Performance Scale, both by the Facilitators and Participants. A paired t-test will be used to assess the statistical difference between the two groups.

**Discussion and Conclusions:** The differences in team performance evaluation between Participants and Facilitators, after undergoing the Integrated Resuscitation Drill exercise, will become a powerful tool in teaching the lesson of command responsibility, effective communication, and decision-making in a fast-paced environment.
Follow the Leader: A qualitative study of leadership via the chief resident

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Background: Leadership in medicine has been studied in a variety of ways. In Canada, all residency programs have adopted the CanMeds roles; one of which is the Manager. Physicians are often seen as leaders in the hospital setting but some take on leadership roles and others avoid these roles. An interesting area of research would be to determine what drives each group. As a first step in this exploration, past chief residents were interviewed to explore their thoughts on leadership in medicine.

Summary of Work: Former chief residents were invited to participate. A semi-structured interview style was used. The interviews were audiotaped and then transcribed verbatim. The transcripts were reviewed and important items were identified. The items were categorized into themes using grounded theory. Through an iterative process major themes were identified.

Summary of Results: Deep, broad themes arose from the data such as: Team, Creativity, Personalities, Determination, Reflection, Confidence, Humility/Insight, Communication, Persistence, Responsibility and Maturity.

Discussion and Conclusions: The chief residents interviewed demonstrated a combination of innate personality traits and learned skills. They tend to be confident and have the respect of their coworkers. They possess maturity and insight into their own behavior and that of others. They exhibit humility and self-reflection which allows them to learn from errors made and improve as they move through the year. Lastly, they have a heightened sense of responsibility for improvement and the drive and determination to see it through.

Take-home messages: Leadership in medicine is crucial. Fostering the above traits in all residents may aid in the development of the manager role.

Fully eQuIPped: A questionnaire based study of trainee knowledge of and attitudes towards quality improvement

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Background: With the development of the medical leadership competency framework demonstrating development of leadership skills has become an important part of post-graduate medical training. We felt that quality improvement projects (QIPs) were an ideal way to introduce junior trainees to leadership. We also felt that QIPs have the potential to be as influential on the future of medicine as audits were when they were first introduced, however, we were unsure of the level of current knowledge about quality improvement held by our fellow trainees and whether there was any enthusiasm for education on the subject.

Summary of Work: We undertook a questionnaire based study of London Obstetrics & Gynaecology trainees attending the annual conference designed to investigate trainees knowledge and attitude to quality improvement.

Summary of Results: We found that just 17% of respondents had heard of QIP and that just 1 respondent had undertaken a QIP. 92% of respondents said they would be interested in undertaking a QIP in the future. 78% stated they would be interested in a course on QIP, with 73% prepared to pay up to £250.

Discussion and Conclusions: We believe these results support our feeling that QIP needs to be brought to a wider audience; current QIP knowledge is limited but there appears to be significant enthusiasm for further education and opportunities in quality improvement.

Take-home messages: Quality improvement has significant potential in helping to develop leadership skills in post-graduate medical education but current awareness and participation is low.
Taking forward leadership development for dentists

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Background: Dental services in England are commissioned by Area Teams who are advised by clinicians through Local Professional Networks. In Autumn 2012 the Postgraduate Dental Dean of Health Education Thames Valley and Wessex commissioned a leadership development programme to support dentists who were either engaging with LPNs or who wanted to do so in the future.

Summary of Work: This is an innovative, intensive six-month programme designed to equip dentists with the skills to effectively contribute to the commissioning, delivery, monitoring and improvement of dental services, oral health and patient outcomes across primary and secondary care. A three-day taught programme was delivered, followed by three facilitated action-learning sets at monthly intervals over six months. A blended learning approach was used to include tutor support, self-directed learning, simulation scenarios and case studies to address the emerging LPN agenda. Guest speakers included the Chief Dental Officer of England, the Dental Director of Public Health England and the British Dental Association President.

Summary of Results: Sixteen clinicians completed six days and feedback results showed a high degree of satisfaction, with attendees rating the speakers 9.3 out of 10 overall. Within 18 months of the programme start, two of the participants have been appointed LPN chairs and over half have moved on to other clinical leadership positions.

Discussion and Conclusions: Bespoke leadership development for dentists has demonstrated tangible outcomes in a short timescale by successfully developing a strong group of new dental leaders to support the profession.

Take-home messages: A blended approach to leadership training can successfully support and develop dental leaders of the future.
8HH1 (19553)
English version evidence-based-medicine interactive eBook learning effect in Taiwan

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Background: Students often feel bored and cannot grasp the main points of learning “evidence-based medicine (EBM)”. The Mandarin version had a good learning effect of EBM interactive eBook from our previous study. This study is initiated to help students formulate practical clinical questions in English version.

Summary of Work: English version e-book was designed via adobe flash professional CS6. It includes an introduction to the basic concepts of EBM, EBM databases, database literature search skills, critical appraisal methods, clinical application and effectiveness evaluation. At the outpatient clinic, “e-book” and the skills of EBM are presented to the students to formulate a question from a real life patient. Students then practice the five steps of EBM to search and analyze the level of evidence of the article that they find and apply it clinically. Their skill is assessed by questionnaires, a five-point Likert item, both before and after class. Searched answers for the questions were later discussed at the out-patient clinic.

Summary of Results: A total of 25 students completed the questionnaire. Average satisfaction score of the students was 93.2 points (on a scale of 100). With the interaction of e-books, students feel that learning is improved. Database literature search skills scored from 2.0 to 4.1 (out of a possible five-point Likert item), critical appraisal from 2.2 to 4.1 and level of evidence 2.3 to 4.3.

Discussion and Conclusions: The integration of e-books interactive mode into clinical cases can improve the skills of the students, raise interest in learning, and is clinically useful even with English version.

Take-home messages: The integration of e-books interactive mode into clinical cases of improving EBM learning is a good method even which is written in English for medical students.

8HH2 (20308)
A study to consider student opinion regarding the use of iBooks in undergraduate medical education

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Background: Increasing use of technology has allowed anyone to create an iBook using the free software iBook Author. In 2012 the University of Manchester distributed iPads to all medical students in their clinical years. This has allowed anyone involved in student education to create custom made iBooks for their students which, can include not only the usual text and pictures but also interactive images, quizzes, embedded videos and pop-up information boxes. There is limited research into the use of iBooks in undergraduate education. Do students use educational iBooks? what content do they value?

Summary of Work: We sampled 350 students and asked if they used iBooks for education, what they felt made a good iBook and what were the advantages or disadvantages of the iBook? 103 students responded.

Summary of Results: The majority of students used iBooks to aid learning (86%). Students rated videos (65%), quizzes (72%) and interactive images (66%) as “very useful”, and rated interactive links to websites (48%) and pop up images or text (50%) as “useful”. Commonly described advantages were portability and interactive content. The most common disadvantage was technical problems and student preference of annotating a paper page.

Discussion and Conclusions: The data showed that students value iBooks containing videos, quizzes, and interactive images. There are advantages (portability and accessibility) and disadvantages (technical glitches and paper preference) to the iBook.

Take-home messages: Students value iBooks with interactive content. We suggest further research into the use of iBooks in medical undergraduate education.
Interactive multimedia ebook is more effective than a traditional PowerPoint for learning blood cell morphology

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Background: This prospective study compared the use of interactive multimedia ebook (IME) with traditional PowerPoint (TPP) for teaching the cell morphology of blood and bone marrow. This ebook emphasizes interactive quiz creation and easy design by integrating and importing various multimedia, such as PPT, PDF or video to make a simulative and operational ebook.

Summary of Work: Fifty-one interns from three Taiwan medical schools training in the pediatric hematology department participated in this study. 25 interns were allocated for training with traditional PowerPoint atlas and 26 interns for training with interactive multimedia ebook atlas. Learning outcome was examined by pretest and posttest using CellQuiz of CellAtlas App from the medical technology company CellaVision. Attitude and perception were collected by survey questions regarding interest, motivation and effectiveness.

Summary of Results: There was no difference in the pretest score between TPP and IME groups (mean score 27.0 versus 27.9, p=0.807). However, the interns in the interactive multimedia ebook group achieved significantly better scores in the posttest than the ones in the PowerPoint group (mean score 103.2 versus 70.6; p<0.001). Our results show a statistically significant improvement in the group who used the eBook. Overall results of interest, motivation and effectiveness were strongly positive in the multimedia ebook group.

Discussion and Conclusions: Our data support interactive multimedia ebook is more effective than PowerPoint to facilitate learning of cell morphology of blood and bone marrow. Interactive multimedia ebook should be taken popularly into account as an alternative study method in medical education.

Take-home messages: Using Interactive multimedia ebook for medical teaching is effective. Future work should be done for evaluation of its impact on medical educational outcome.

Smartphone usage among Thai medical students in community-based medical education center

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Background: Smartphone can help medical students by accessing electronic medical textbook, medical application, and online medical reference. In Thailand, medical students also use Smartphone in their learning process. This study aimed to show how Thai medical students in a rural community-based setting use their Smartphone.

Summary of Work: A cross-sectional study was conducted on medical students in Maharat Nakhon Ratchasima hospital between December 2013 and January 2014 using self-administered questionnaires that aim to know how students use their smartphone in four situations; in the lecture room, emergency room, inpatient and outpatient clinic and how they choose the reference.

Summary of Results: Among 140 students, all medical students use Smartphone for medical education and practice. 69.29% search the reference from search engine such as Google, Yahoo and 14.29% use medical applications. In emergency room, inpatient and outpatient clinic, most students (42.86%, 40% and 39.29% respectively) use smartphone as a first tool to find the reference. In lecture room, most students (30.27%) still use their own lecture notes to find the answers. They choose information that is referred from standard textbook (27.14%) and well-known guidelines (21.43%).

Discussion and Conclusions: Even in Thai rural community-based setting, medical student use their Smartphone for medical education and get clinical information. Most students choose to get information from Internet and medical application.

Take-home messages: Smartphone is the useful device in medical education. Developing online content that is easy to understand and simple to use will help our students to get correct information.
8HH5 (21662) Are cardiovascular topics on Wikipedia a reliable learning resource for medical students?

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Background: There has been controversy about Wikipedia and whether it is a reliable learning resource for students. Therefore, it was decided to assess the contents of Wikipedia topics on cardiovascular diseases.

Summary of Work: Based on a revision of the cardiovascular chapters in five standardized medical textbooks, we were able to identify 47 titles for research on Wikipedia. The articles identified on Wikipedia website are to be printed out and a copy is to be given to each researcher for assessment using a standardized evaluation form. The criteria for evaluation included validity, scientific errors, quality of references, and readability. The inter-rater agreement is to be calculated using Cohen Kappa scale.

Summary of Results: Wikipedia articles were copied on 6 October 2013 and evaluated by three researchers independently using modified DISCERN instrument. Several problems were identified in the articles including poor integration of contents and linking information to clinical applications. Discussion of mechanisms was not adequately addressed and in several topics not addressed. The total number of references in all articles was 1224, the number of references varied from 1 to 132 references; 25.5 ±29.678 (mean ±SD). Several problems were identified in the list of references and citations made. The readability of articles was in the range of 10.63±1.1 to 20.63±8.32; for all articles the readability was 14.32±1.57 (mean ± SD). The concordance between the assessors on applying the criteria showed significant agreement.

Discussion and Conclusions: Despite the effort placed in Wikipedia’s cardiovascular articles, there are serious problems in these articles and most articles lack mechanisms and proper clinical applications.

Take-home messages: Course designers and students should be aware that online resources on cardiovascular diseases such as those provided on Wikipedia are not free from scientific errors and not suitable for medical students.

8HH6 (22802) Assessing the need for integration of mHealth technologies into the medical curriculum in the University of Helsinki

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Background: Developments in mobile health technology offer new dimensions for patient-centered self care and disease management. The use of mHealth applications and devices for monitoring health and disease parameters is a rising trend. We aim to study the need to integrate this view into the medical curriculum.

Summary of Work: A preliminary questionnaire was sent to 5th year medical students to determine experiences, views and expectations on mobile health apps/devices, and their potential in patient self management. Based on the results, an educational workshop will be organized to raise awareness on mHealth and its potential applications. The questionnaire will be repeated before and after the workshop to assess its usefulness and the need to integrate mHealth into the teaching of preventive medicine.

Summary of Results: 20% of responders to the preliminary questionnaire are familiar with mHealth. Half of smart phone/tablet owners have one/more health related apps and 55% of responders use a device to monitor some physical/biochemical parameter. 63% see potential in mHealth in instructing patient self management. Concerns stated relate to limited applicability in the general population. 45% expect benefit from integrating mHealth into the curriculum.

Discussion and Conclusions: Current knowledge and usage of mHealth apps and health monitoring devices amongst responders is limited. Students are reservedly interested, but see potential in educating medical students about this and in the use of this technology in patient self care, especially in the future.

Take-home messages: Awareness about mHealth should be promoted amongst medical students to enable young professionals to effectively use this technology in instructing patient self care in the future.
EXPERIENCES FROM THE USE OF iPADS IN ANATOMY TEACHING

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Background: Both Faculty of Medicine and Faculty of Veterinary Medicine at University of Helsinki started to use iPads in their anatomy teaching this year.

Summary of Work: We describe how we implemented and used iPads in the anatomy teaching. We also studied students’ experiences by questionnaires and interviews.

Summary of Results: In veterinary medicine, we took iPads with anatomy e-books to the dissection room to complement anatomical atlases. Students were encouraged also to take notes on the iPad during the dissections. Medical students used Inking interactive e-books as their textbooks in their gross anatomy course and the Essential Anatomy 3 app was recommended as additional study material for them.

Discussion and Conclusions: Dissections still form an essential foundation in most anatomy programs and are difficult to substitute without losing the hands-on experience necessary to turn textbook-facts to knowledge. Our study supports this view, but suggest that mobile devices and their applications maybe used to supplement the traditional methods.

Take-home messages: iPads not only provide an alternative to heavy textbooks and atlases, but they also present new ways of visualizing anatomy. It will be important to study how these relate to traditional methods of learning anatomy. iPads can be helpful in learning anatomy both in and outside of dissection room.

A VIRTUAL PATIENT PLATFORM FOR SUMMATIVE ASSESSMENT OF IMGs

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Background: Virtual patients have been used extensively in a variety of formative assessments, self-directed learning or small groups. Little experience has been gathered about the practicalities of their use in a summative examination environment. Script Concordance Testing (SCT) represents an interesting approach to assessing clinical reasoning, but the ability to incorporate other testing methodologies would be a valuable asset when assessing IMGs.

Summary of Work: Using an open-source virtual patient platform, OpenLabyrinth, we modified existing SCT cases into a more flexible electronic format that allowed us to control various factors about question and scenario portrayal. We modified the OpenLabyrinth application to support innovative approaches to case formatting, with randomization, conditional logic for pathways, and custom reports. These new tools are easily accessible to clinician authors without programming expertise. We used an action research approach to assess and modify our examination creation and publication processes.

Summary of Results: Using virtual patients in a medium-stakes summative examination creates many unanticipated logistic challenges. Testing of all components of the process demonstrated that many new factors have to be addressed to ensure fairness, validity and repeatability in the exam. Security and privacy concerns assume a much greater relevance, both for exam participants and authors.

Discussion and Conclusions: Adapting existing materials and tools, that had been shown to work extremely well in their original roles, still created a large range of emergent properties and new process requirements.

Take-home messages: Virtual patients can be used successfully in medium-stakes summative examinations of IMGs.
8HH9 (21774)
Utilization, acceptance and experiences of virtual patients/problems in veterinary basic sciences

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Background: Biochemistry and Physiology as specific subjects of basic sciences are mandatory for European veterinary students, but the connection to clinically relevant learning objectives is deficient. In the current study the utilization, acceptance and experiences of virtual patients/problems in veterinary basic sciences were evaluated on students and authors perceptions.

Summary of Work: Virtual patients/problems with biochemical and physiological background, thus combining theoretical with clinical knowledge, were created and analyzed using the CASUS-System. Second year veterinary students at the Universities in Budapest, Hannover and Lublin were invited to use this supplementary learning material. The acceptance and experiences of participating students and authors were measured by means of mixed methods research exerting a validated questionnaire and focus groups, hence a quantitative survey for authors.

Summary of Results: At the previous state of the research (26th February, 2014) the online accessible cases were used by 75% of invited students in Hannover and Lublin. In Hannover 177/263 (44,5%) students participated in the online questionnaire. So far the data promise a positive feedback and evaluation; participants ask for more virtual-cases in preclinical and clinical departments. Due to the high utilization rate and the positive evaluation concerning acceptance on students and authors prospects the use of virtual patients/problems will be enhanced in veterinary basic science education.

Take-home messages: Virtual patients/problems as supplementation to traditional lectures can be used for effective teaching and increasing the motivation for veterinary basic sciences.

8HH10 (19658)
Introduction of a virtual patient in a portfolio for undergraduate medical students

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Background: In 2007, a Clinical-Case Portfolio (CCP) was introduced in fourth grade undergraduate medical students, as a new assessment instrument. Since then, several changes have been implemented including peer review and introduction of a “virtual-patient” clinical case (VCC).

Summary of Work: Based on prototype clinical case with a syndromatic manifestation in a written format, a linear virtual patient model was implemented. We describe the virtual patient model incorporated into the CCP and assess the perception of undergraduate students. CCP and integrated course scores were correlated by linear regression analysis. A comparison between the 2010 and 2011 student’s perception based on a validated questionnaire was made using the non-parametric Mann-Whitney test.

Summary of Results: In both years there was a great performance in CCP. Grades were not correlated with integrated course final scores (r=0.193; p=0.04;2010 and r=0.105; p=0.26;2011). The overall perception score showed significant difference (p ≤ 0.001) in favour of the year of incorporation of the VCC, as well as in the domains: “Student Learning”, “Organization and Evaluation”, “Teaching Methodology” and “Integration”.

Discussion and Conclusions: In both years, the portfolio was positively evaluated, with improvement in some aspects related to the introduction of a VCC, particularly in the perception of the portfolio as a fair and organized method of evaluation that supplements pre-existing methods. It is important to establish the ideal number of cases and the optimal assessment interval to evaluate students’ performance.

Take-home messages: Implementing a VCC at the CCP promotes integration of knowledge applied to real and virtual clinical settings promoting abilities of clinical reasoning, decision-making and attitudes related to professionalism. FONDECYT#1120652.
**8HH11 (21638)**

Use of simulation in Canadian Internal Medicine Residency Programs

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**Background**: Interest in simulation as a medical educational tool has risen dramatically over recent years. As an instructional process that substitutes real patient encounters with artificial models, live actors or virtual reality patients, simulation has developed into a comprehensive tool to promote learning, facilitate training, and improve patient care. The perceptions of Canadian Internal Medicine Program Directors regarding simulation and what, if any, simulation training is being offered to their residents is currently unknown. The objectives of this study are to: (1) determine Program Directors’ views on the use of simulation in Internal Medicine residency; (2) assess the current utilization of simulation training; and (3) assess whether objectives are being fulfilled in part by simulation through curriculum mapping.

**Summary of Work**: A 35-item questionnaire was sent to all Canadian Internal Medicine Program Directors. Questions addressed the state of current simulation programs, objectives measured, skills assessed, method of assessment, investments required and perceptions of the role of simulation in postgraduate medical education. Descriptive statistical analysis performed using SPSS 15.0® is pending. A qualitative analysis will be completed to identify common themes.

**Summary of Results**: Pending.

**Discussion and Conclusions**: We hypothesize there are inconsistencies in the quality and quantity of simulation training provided to residents and that Program Directors will support further incorporation of simulation into medical education with the belief that it can provide valuable learning experiences and translate into better patient outcomes.

**Take-home messages**: This study will aid in the further development of post-graduate simulation training and promote dialogue between education programs to better serve learners and their patients.

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**8HH12 (21583)**

Perceived value of simulation training amongst junior doctors and medical students

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**Background**: Simulation training is being increasingly incorporated into undergraduate and postgraduate medical education. Whilst most students and trainees report positive experiences of simulation, it remains unclear what skills trainees most value through simulation training.

**Summary of Work**: 44 medical students and junior doctors filled out a questionnaire detailing their experiences of simulation and the value they placed on the use of simulation to teach specific skills. They also reported on the perceived optimal time to deliver simulation during undergraduate training. The perceived value of simulation was rated on a 10-point Likert scale.

**Summary of Results**: 88% of junior doctors and 67% of medical students reported receiving at least 5-10 hours of simulation. Both junior doctors and medical students felt that simulation was useful to teach clinical skills, simulated consultations and emergency scenarios. Medical students felt that simulation was useful to become proficient at clinical examination (86% vs 43%). However, junior doctors placed greater value on learning about teamwork and human factors in a clinical scenario (mean differences – 2.65 and 2.50 respectively, p<0.05). Interestingly, junior doctors felt that simulation should be delivered later during undergraduate training whilst medical students felt that simulation should be delivered early during the 1st clinical year (mean differences – 1.37 and 2.15 respectively, p<0.05).

**Discussion and Conclusions**: Junior doctors value simulation to promote teamwork and highlight the importance of human factors in a clinical scenario whilst medical students value simulation to increase their proficiency in clinical examination and clinical skills.

**Take-home messages**: It is important to understand what participants value during simulation-based learning as this can inform curriculum development.
**8HH13 (20753)**

**Simulation: The need for more! A qualitative study into foundation year trainees’ perspective of simulation training in the UK**

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**Background:** Simulation is an innovative and exciting learning tool for teaching and training medical students and junior doctors to manage acutely unwell patients. It enhances confidence and clinical acumen however there is a paucity of evidence for the role of simulation in foundation training in the UK.

**Summary of Work:** A qualitative study involving a survey and focus groups of current foundation trainees in the North Western Deanery using the crowdsourced technique. The study explored the self-reported impact of simulation training on managing unwell patients, specifically focusing on confidence following simulation sessions. Analysis: Content – thematic analysis.

**Summary of Results:** The majority of junior doctors had received simulation training as undergraduates but report a lack of confidence in managing acutely unwell patients. This was attributed to a lack of responsibility and experience as medical students. With an increase in clinical exposure, simulation training received as junior doctors improved confidence in using a systematic, structured ABCDE approach in a safe environment. Many report benefits of peer learning, increased understanding of human factors and constructive feedback. Junior doctors emphasized the need for more regular simulation sessions with the addition of senior demonstration to enhance learning.

**Discussion and Conclusions:** Simulation training as a junior doctor provides a structured approach in managing acutely unwell patients in a safe environment with an opportunity to obtain constructive feedback on clinical decision-making. It enhances clinical competency and encourages reflective practice to improve patient care.

**Take-home messages:** This study has identified the need for regular structured simulation training as part of the foundation programme to equip junior doctors for the clinical environment.

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**8HH14 (21250)**

**Improving simulation teaching with technology**

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**Background:** Medical simulation training is an effective way to teach clinical skills and simulating real-life situations. Simulation training starts at the University of Helsinki with the third year medical students. On the internal medicine arrhythmia education many test results are needed before diagnosing. Pre-made simulation scenarios are used with flipped classroom elements in teaching. Faculty has large-scale iPad initiative, which must be considered when new technology is supplied.

**Summary of Work:** Students work in groups around SimMan simulator. Some are hands on while the others observe. To enhance the teaching, new multi AV-system was setup. With HD-camera broadcasting live situations, students are able to see the learning process and interact without disturbing the group in action. Vocoder is used to imitate patient voices and iPad to stream live video. AV-mixer controls everything. In assessing how the studying experience can be improved, simulation sessions were observed and randomly selected students were interviewed before and after implementation.

**Summary of Results:** Students consider simulation effective way to learn and practice clinical procedures. Reality-based simulation scenarios are appreciated and students want more simulation courses. AV-system has helped to make simulation more real and effective. Following other students working with the simulator is easier and versatile. Students also interact more with each other.

**Discussion and Conclusions:** Simulation teaching can be enhanced using multi AV-system without massive resources.

**Take-home messages:** Simulation learning is highly valued and motivating and it can be improved even further with appropriate technology.
Correlation between smartphone overuse and quality of sleep on university students and medical graduate students

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**Background:** Smartphones are available worldwide. The smartphone influences quality of life and educational environment. The purpose of the study was to examine the relationship between dependency of the university students in Gwangju on use of smartphones associated with their quality of sleep. We also analyzed which general personal factors affect the quality of sleep.

**Summary of Work:** A questionnaire survey was conducted on 239 students at a university by random selection all of which who live in Gwangju, Korea. This questionnaire survey consists of basic personal questions (19 questions), the Pittsburgh sleep quality index (PSQI) (19 questions) and Self-rated smartphone addiction scale for adults (15 questions). We used the t-test, one way ANOVA and the linear regression analysis in SPSS for analyzing data.

**Summary of Results:** Result of this study shows that the deeper the addiction with smartphones the lower the quality of sleep, especially in trouble staying awake. The quality of sleep was also associated with general factors including spending money, type of housing and degree of stress.

**Discussion and Conclusions:** There is a correlation between smartphone dependency and the quality of sleep and the more severe the dependency the more likely that the quality of sleep might fall.

Blended learning with the use of mobile devices for medical students

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**Background:** In Sweden all medical students have internet access. We replaced a traditional lecture with a condensed online video lecture, followed by an interactive, in-depth discussion with the teacher in the classroom.

**Summary of Work:** A written anonymous questionnaire with 15 questions evaluating student satisfaction with blended learning compared to traditional lectures was administered to third-year medical students.

**Summary of Results:** The survey was answered by 26/32 (81%) students; 61% female, mean age 24 (21-32) years. 80% had never experienced this type of learning before. 79% considered the new form of teaching better than traditional. 17% found it worse. The new format was considered by 41% to be better vs 14% worse and by 57% to be better vs 5% worse regarding the short and long term learning, respectively. All students found the availability good. 78% used computers, 9% smartphones, 9% tablets and 4% used several types of devices to watch the video. The students appreciated the flexibility (place and time) to watch the video, the possibility of repeatedly viewing the video according to needs, and variation in learning methods.

**Discussion and Conclusions:** For Swedish students with universal access to the Internet, it is possible to transfer parts of education away from the classroom so that the student can choose where and when to learn.

**Take-home messages:** Blended learning seems to be positive from a student perspective. The use of mobile devices must be taken into consideration when planning.
Supporting teachers integrating mobile technologies in medical education

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Background: All the incoming students (N=170) at the University of Helsinki Faculty of Medicine received iPads in September 2013, funded by Jane and Aatos Erkko Foundation. Rapid schedule and changes to learning environments have been a challenge to some teachers.

Summary of Work: The goal of the project is to provide better studying tools for the students, that can also help teachers to improve teaching. Students have adopted iPads quickly and some of them have high expectations for next generation teaching methods. However, iPads are integrated into teaching gradually, along with increasing teachers’ know-how. Teachers have been motivated to explore the possibilities of iPads. Some have had concerns that iPads will distract the students during teaching. They have also feared that students search information instead of thinking. To make the iPad project successful, it is significant to support these teachers.

Summary of Results: There have been very few technical problems and support has been adequate. Instead, planning and organizing teaching have been challenging due to teachers’ limited experience. With more expertise and versatile support, it will be easier to engage teachers in the future.

Discussion and Conclusions: In addition to technical support, teachers require help and guidance with planning and organizing teaching. Best practices, peer-to-peer networks and committed support persons are essential to reduce the discomfort of teachers.

Take-home messages: Successful implementation of mobile technology in medical teaching requires technical and especially pedagogical support. Strong involvement of teachers and an active peer-to-peer network are mandatory for the continuity and curriculum integration.

Measuring the influence of mobile-learning in Shiraz University of Medical Sciences (S.U.M.S)

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Background: e-learning plays an essential role in medical education. Mobile learning is a kind of e-learning that can help and support students to be the best during their education and also their research and be up to date in medical information. The aim of this study is to evaluate the impact of mobile learning in the view point of students of (S.U.M.S).

Summary of Work: 567 students participated in this descriptive cross-sectional study. We provide a questionnaire with 20 multiple choices about all the advantages and disadvantages of mobile-learning. Data were analyzed by SPSS19. (P<0.05 was consider significant)

Summary of Results: This investigation showed that 85% of students strongly agree with mobile-learning but they have some limitations to use these devices. 5% of students think that mobile-learning has many disadvantages and traditional education method is better and mobile-learning just takes away students’ attention. 10% of students believe that traditional ways and new methods like mobile-learning are the same – none is better than the other.

Discussion and Conclusions: Both the traditional and mobile-learning were found to be a reliable approach for the teaching and learning but mobile-learning might be more impressive as it saves time and enhances medical education. This method encourages students to take a course to learn how to use this technology and persuades students to continue their education and they see an especial potential in themselves to do research.

Take-home messages: This method encourages students to take a course to learn how to use this technology and persuades students to continue their education and they see an especial potential in themselves to do research.
The effectiveness of an online simulation curriculum for improving the capabilities of health literacy assessment among health professionals in Taiwan

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Background: Low health literacy (LHL) is recognized as a serious public health problem due to its widespread prevalence and significant impact on patient outcomes. Health professionals must take an active role in identifying and assisting such patients. Furthermore, medical education needs to include health literacy training in curricula.

Summary of Work: This study adopted a quasi-experimental design with nonequivalent pretest and posttest for one medical center and several hospitals in northern Taiwan. Four competences of the online simulation curriculum include the ability to identify the LHL characteristics, to understand the tools for assessing health literacy, to show confidence in the education of individuals with LHL and to use educational strategies for patients with LHL. Online lecture, scenario-based videos, active feedback and online examination are adopted and integrated into the 16-hours curriculum. After curriculum development, we transform the curriculum package into Android, iphone and PC versions for participants using in various smart devices.

Summary of Results: At the end of the 3-month online course, a total of 168 participants remained, with 88 participants forming the experimental group and 80 forming the control group. Although the improvements of the understanding of LHL characteristics, the educational techniques, strategies, and effectiveness of low health literacy, these changes did not reach statistical significance. Only experimental group exhibited improvement in the confidence in the LHL education during the post-posttest than did the control group.

Discussion and Conclusions: This program has the contributions on the efficacy of use an online platform for on-the-job training with the expectation of lowering the limitations of typical classroom lessons.

Mobile access to skillslab learning content: Developing an app for medical students and physicians

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Background: Nowadays the vast majority of students have a mobile connection with the internet. They are using apps to communicate, to search for knowledge, to make appointments and many more. Therefore, an application was developed at Ghent University to provide mobile access to the learning paths of specific physical examination skills created by our skillslab. These apps would be the best way to bring theory and demonstration videos to the bedside and to interact with physicians, i.a. their clinical supervisors. This study wants to explore how students perceive this app based teaching interface.

Summary of Work: A free app was created to provide access to the skillslab learning paths at Ghent University for app-store and android. The app was intended for undergraduate students to support their learning, but also for physicians, paramedics and other interested people seeking information on specific physical examination skills. An online survey is sent to the users to gain insight in the user efficiency of the app and frequency statistics about access are collected. Summary of Results: The effectiveness of this app is currently being researched. Preliminary comments received from the IT interface show that students are highly interested in using the app t the bedside in contrast to the well-known website, which is less applicable during clinical practice. Data collection will be finished June 2014. The results will be ready to be presented at the congress.

Discussion and Conclusions: Our preliminary conclusion is that students found an app based teaching interface very useful to support their learning during clerkships.
The impact of iPads on the pre-clinical students’ lifestyle

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Background: Technology has played imperative roles in the 21st century learning. iPad has increasingly been incorporated into medical education. However, there are only a few studies exploring the use of iPad in preclinical education.

Summary of Work: In 2013, Faculty of Medicine, Chulalongkorn University conducted a needs assessment and found that 45% of the 3rd year medical students already owned iPads. Hence, iPads were lent to the rest. Questionnaire survey was performed twice at the time of iPad distribution and 5 months later in order to study students’ attitude and behaviour. Wilcoxon Signed ranks test and paired-T test were used for statistical analysis.

Summary of Results: Most students agreed that iPad was necessary (75%) and facilitative (92%) to their learning. They valued the use of iPad for independent learning more than its utilisation as a note-taking device. After 5 months of iPad distribution and 5 months later in order to study students’ attitude and behaviour. Wilcoxon Signed ranks test and paired-T test were used for statistical analysis.

Discussion and Conclusions: Preclinical students appreciated iPad. It plays more important roles in independent learning than didactic classes. However, it did not create much impact compared to other learning environment teachers put on students.

Take-home messages: iPad is a useful learning device for preclinical students. Medical schools wishing to integrate iPad into their curriculums should provide reasonable access to electronic resource to promote independent, and eventually, lifelong learners.

Researching mtechnology in medical education: Findings from the UK’s biggest iPad implementation

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Background: Mobile technologies are becoming commonplace in society and in education. In medical education, it is crucial to understand the impact of constant access to information on the development of the learner and on patient care.

Summary of Work: This study reports on a series of 4 surveys completed by UK-based medical students who received tablet computers from their medical school during their 4th year of study. Students (n=419) were surveyed regarding their expectation prior to receiving the tablets and regarding their usage and experiences at 2, 6 and 12 months post receipt of tablets.

Summary of Results: Findings indicate that students differed in their use of iPads but that the majority felt that tablets had impacted on their learning and the majority were using them frequently (at least once a day) during learning. 149 students (36%) had concerns about iPads at baseline. Approximately half of students used their iPads in clinical areas in the 12 month follow up and approximately half reported that they had needed help with their iPads.

Discussion and Conclusions: These results, whilst only descriptive, raise important questions about the impact of mobile technologies on learning. These results are framing our continued research in mtechnology.

Take-home messages: Students are not homogenous in their use of readily available mobile technology.
Tablet use in medical education

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Background: Tablet computers definitely found their way into medical education and are increasingly used by medical students.

Summary of Work: Dissemination, usage behavior and attitudes towards tablet computers were assessed among medical and dentistry students at the medical faculty of Muenster, Germany, using an online questionnaire. Students of all academic years were invited to take part in the study voluntarily.

Summary of Results: In total 942 students (60.4 % female, RR 39.4 %) took part in the survey. Significantly more male (40.7 %) than female (30.4 %) students owned a tablet (n=351; p = 0.04) – compared to 81.5 % (M) / 78.6 % (F) smartphones users. The three major purposes tablets are used for were 1) inquiries 2) study organization 3) communication and sharing data with peers. 95.4 % of the tablet users agreed that tablets are beneficial for learning, though 22.3 % think that they are not fully developed for this purpose and 54.4 % see the danger of being distracted from educational activities. Respective estimations of non-tablet users were much worse, however 14.9 % of them intended to buy a tablet within the next 6 month. No gender differences were found besides that female tablet users prefer handwritten to digital notes on tablets compared to male tablet users (OR 2.012, p=0.02).

Discussion and Conclusions: Mobile devices become increasingly important in medical education. Medical schools have to adapt to this development and support students to use them in a beneficial way.

Student expectations of using mobile devices in medical education

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Background: 468 students at Manchester Medical School (MMS) were given iPad-mini tablet devices at the start of their 3rd year.

Summary of Work: Ethical approval was given for a questionnaire to be distributed via the MMS e-Form application on the iPad. We sought to collect baseline data regarding: (a) prior technology usage and (b) user expectations of the technology. E-forms from 237 students (50.6 %) were returned.

Summary of Results: Reflecting the growth in tablet accessibility, 41 % of students already used tablet devices prior to being given an iPad by MMS. On a 5-point Likert scale (1= strongly disagree, 5 = strongly agree), we found students considered themselves highly ‘tech-savvy’ at baseline (3.8). Students expected that the iPad would support academic performance (4.1), efficiency of studies (4.1) and were highly motivated to use the technology (4.3). Data was collected regarding what the students planned to use their devices for. Students also felt that the investment made by the medical school represented good value for money (4.2).

Discussion and Conclusions: The data suggests today’s medical students are technology-embacers who are enthusiastic about engaging with mobile technology to support and enhance their studies. Many students already had access to a tablet device before being given one by the medical school. We plan to follow this group of students to see what impact mobile technology usage has on e.g. academic performance.

Take-home messages: Providers of medical education must keep abreast with the changing way students access technology for learning, particularly just-in-time technology. Students are enthusiastic about using tablet devices to support and enhance their studies.
8111 (20952)
Facilitating workplace-based assessments at the bedside using mobile technologies

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Background: As part of their clinical training, students are required to complete mandatory workplace-based assessments (General Medical Council, 2009). Mobile learning devices (iPads) are provided for clinical students (years 3-5) by Manchester Medical School (MMS). We wanted to replace the existing paper-based collection of workplace-based assessment data with an electronic system to make these assessments easier to manage at the bedside.

Summary of Work: We reviewed 6 commercially available electronic form systems against a specification developed for MMS. A trial of one of these found it to be unfit for purpose, while annual licensing costs prevented other potential commercial options from being explored. To address our requirements, a purpose-built electronic forms system was produced: 'University of Manchester eForms'.

Summary of Results: eForms permits students to complete their assessments and have them signed off by an assessor, who is guided through the assessment process, through their mobile device. This may be ‘at the bedside’, in a skills lab, or wherever the assessment is taking place. Following a pilot introduction and evaluation, eForms has now replaced the previously paper-based, and thereby slower, administration of these assessments.

Discussion and Conclusions: The adoption of mobile technologies presents the opportunity to utilise these devices to improve on the existing administrative systems for compulsory clinical assessments. We have introduced a flexible, usable and affordable software solution that has streamlined the workplace-based assessment process for our clinical student community.

Take-home messages: eForms can be used to efficiently facilitate workplace-based assessments within the clinical environment.

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8112 (20683)
Looking Through the Google Glasses - Step One of the Looking Glass Project

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Background: Looking through the Google Glass is an interdisciplinary project aimed at providing immediate instructor/student feedback as to assessment, reinforcement and outcomes related to medical procedures, skills and differential diagnosis. The project will involve three programs, the D.O. students, P.A. students and D.M.D. students.

Summary of Work: School of Osteopathic Medicine in Arizona—SOMA’s initial participation in the Looking Glass Project would be two-fold:
1.) Utilizing the Google glass to record patient-student doctor interactions at the 2nd, 3rd, and 4th year level and to be able to immediately discuss outcomes with the preceptors in the field.
2.) To record interesting cases and interactions to develop more effective small-group interactions and experiences and help to create an extensive data base for patients being seen at the Community Health Centers (CHC’s).

Physician’s Assistant Program—The PA program will participate in the field through simulations involving EMT recordings and descriptions recorded through the Google glass to the physicians at the receiving hospital improving acute patient care and seamless transfer of care to the Emergency Room physician.

Arizona School of Dentistry and Oral Health (ASDOH) will also participate in providing community health care and screening by using the Google glass to “pattern match” the oral cavity presentation to common diseases such as diabetes, hypertension and thyroid disease. This will aid in early diagnosis and possible prevention of common treatable diseases.

Summary of Results: Studies in the three programs are on-going and the assessment of data is currently pending. This study will also provide insight and further development of our IPE endeavors.

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8II13 (22938)
“Scientific image and audiovisual communication in Medicine”: An awarded innovative course designed to develop competences in medical photography, ICT skills and video production

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Background: Doctors constantly make decisions based on the observation of images; they are also required to obtain and to manage accurate medical-scientific iconography in different photographic or video formats, in order to be able to incorporate them in publications and scientific communications and/or to promote health among society.

Summary of Work: This course offers this training to medical students at the University Rovira i Virgili in Catalonia (Spain). Trainees learn different methods to obtain photographic and video records for research or clinical purposes. They acquire the skills necessary to obtain images with criteria of quality in any format while respecting the basic standards on ethics and professionalism.

Summary of Results: Since 1993, up to 50 medical students follow this course each winter semester. Student-centred learning activities are designed to enable students learning methods on how to obtain images using photography and video in the different formats. Course is updated every year according to technological progress, curricular changes and/or student’s opinion. Learning outcomes include presentations by students of their own photography portfolios to classmates and also a three-minute video resulting from teamwork and role-playing interaction. Technical advances on video editing can be detected each year.

Discussion and Conclusions: This course has been considered of interest for medical students. Received Awards from the Rovira i Virgili University Social Council the Award for Teaching Quality in 2012 and the Distinction Jaume Vicens Vives from the Generalitat of Catalonia in 2013.

Take-home messages: We encourage medical students to face digital and technological challenges while promoting their participation to present their work at professional meetings. I.e., Bulto et al at AMEE 2014.

8II14 (19459)
Students’ experiences of online learning

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Background: With the advancement in educational technology and internet access, online learning approaches have become increasingly used. This study investigated the students’ experiences.

Summary of Work: 64 students attending an interdisciplinary net-based course in global health reported their experiences by completing an evaluation questionnaire. Thematic analysis was employed to identify themes, based on the students’ replies to an open-ended question on their experiences. All classroom lectures were videotaped and the 64 students had access to a password-protected website where the lectures were located.

Summary of Results: Five themes emerged upon analysing the evaluations. 1. Online learning offers benefits of enhanced flexibility and convenience to classroom education. The students valued the opportunity to study at their own pace and time, and that online learning solved problems with competing demands. “The lectures could be reviewed time and again whenever I had the time.” “It was easier to combine employment, family responsibilities and studies.” “I am using hearing aid, listening to online delivered lectures is much better!” 2. Geographical boundaries were overcome.

3. The students reported that online learning made them more responsible for their learning.

4. Saving time and money, no travels to the university.

5. Feelings of isolation. “This was a new experience for me. I liked it, but I missed the social part.” “I missed the classroom and face-to-face interaction.”

Discussion and Conclusions: Online learning offers students more educational opportunities and may facilitate their individual study needs.

Take-home messages: Students do not need to be in face-to-face learning situations.
8JJ1 (20363)

How did we teach Patient safety?

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Background: WHO recommends that all health professional learning should include patient safety in the curriculum. The objective of the study was to assess the outcomes of newly implemented teaching strategy in patient safety topics.

Summary of Work: Patient safety was taught to the final year medical students in orthopedic rotation for the first time as a pilot project. Team-based and experiential learning were used as teaching strategies. The students discussed the cases given regarding the following topics; wrong site operation, falling, safe blood transfusion, clean wound infection, medication error followed by a didactic lecture. Then the students were asked to observe what really happen with patient at wards, emergency room, and operating room and to present what they have observed to the class one week later. The system or protocols used in the patient ward to ensure patient safety was discussed in the class. At the end the students reflected upon their learning experiences. The student’s practice related to patient safety protocols were observed afterwards and by a questionnaire.

Summary of Results: The average pre- and post-test scores increased from 48.67 % to 69.67%. The students had more positive attitudes towards patient safety issues after the class. However, their practices were not changed either by direct observation or questionnaire.

Discussion and Conclusions: Knowledge of and attitude toward patient safety of medical students are improved using team-based and experiential learning but not their practice.

Take-home messages: Knowledge and positive attitude do not always in line with changing practice.

8JJ2 (22760)

Implementation of the Francis Report recommendation 158 – asking University of Bristol Medical Undergraduates in psychiatry about quality of care and patient safety

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Background: The 2013 Francis report into unacceptably poor standards of care in a UK hospital highlighted a number of recommendations to prevent recurrence. They recognised that medical students were not asked their views about patient safety or quality of care. Recommendation 158 advised that, “… providers actively seek feedback from students and tutors on compliance by placement providers with minimum standards of patient safety and quality of care.”

Summary of Work: The University of Bristol provides undergraduate psychiatry education in partnership with three NHS trusts. We developed two specific questions in the computerised feedback received from medical students at the end of their placement: 1. A version of the NHS ‘Friends and Family test’ with a likert scale and 2. A direct question about patient safety with open text feedback. Results were summarised into a report and then fed back to Medical Directors for concerns to be investigated.

Summary of Results: After running this process for two units (106 students), we have received 7 pieces of specific feedback relating to safety, all of which have been reviewed and acted upon by the NHS trust involved.

Discussion and Conclusions: Involving medical students in reporting standards of care and patient safety concerns was illuminating; concerns were often specific and direct. The process encourages reflection on their role in identifying patient safety concerns at an early stage in training.

Take-home messages: Medical students are a valuable resource in monitoring and highlighting patient safety.
Senior medical students’ perception on the patient safety culture

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Background: The concept of patient safety culture refers to the series of values, attitudes, perceptions and individual and group skills that determine the engagement, style and proficiency on patient safety issues in health institutions.

Summary of Work: The degree of fifth year medical students’ perception of the dimensions of patient safety culture was assessed by using the Safety Attitudes Questionnaire (SAQ)–short form, Brazilian version, composed by 43 questions in 6 dimensions: field of current ward round, preceptor-student relationship, team communication, frequency of event information to patients, degree of patient safety, and about the hospital. Each question is rated on a 5 point Likert scale. Quantitative variables were presented by their frequencies. Statistical analysis was done with SigmaStat (SPSS, Chicago, IL).

Summary of Results: Results are expressed as percentages of the maximum possible scores for each field. The students showed good perceptions about the field of the current ward round (61.2%), the preceptor-student relationship (75.0%) and communication among staff members (66.7%). However, negative views regarding patient safety (8.9%) and the frequency of event information to patients (28.6%) were expressed.

Discussion and Conclusions: Students exhibited positive views in relation to their current ward round facilities, but frequency of event information and patient safety perception were negative. Since the participants are beginning their ward round training, further investigation should address whether this is related to lack of knowledge or previous clinical experiences.

Take-home messages: Satisfaction about ward facilities and preceptors should not be interpreted as a sign of overall quality. Every aspect of the patient safety culture should always be assessed.

Medical Student Engagement to promote Standard Precaution

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Background: Medical students have been the largest group of bloodborne pathogen exposure in Buddhachinaraj hospital, Thailand, and the incidence increases continually. Non-compliance to standard precautions is the main cause despite the pre-practice education program.

Summary of Work: Standard precautions promoting the program were conducted through 2 activities; first, behavior star charts were used to encourage ward nurses to provide immediate, direct but friendly feedback to the students in 3-month observation period (gold for compliance and black for non-compliance). Second, students who experienced bloodborne pathogen exposure were asked to join focus group discussion for their views on how to improve compliance.

Summary of Results: We had 924 stars on behavior star charts, the increase in the number of stars in each month shows increasing observations and feedback from ward nurses. Students from group discussion reflected that (1) lack of concentration and awareness were still the main causes, (2) narrating the procedures to patients could increase physicians’ concentration, (3) the role models for procedure learning of junior students are their seniors, not medical staff.

Our activities created an environment of participation among health care workers, strengthening relationships as well as teamwork. Medical students realized their importance in fostering safety in the workplace and also became more responsible for their own actions. Students appreciated that their voices were heard and acted upon.

Discussion and Conclusions: Whilst a pre-practice education program is still important, medical student engagement is necessary to improve standard precautions more effectively.

Take-home messages: In achieving objectives that involve students, it is important to engage them in the process.
**8JJ5 (20777)**

**Increasing patient safety by using simulation to teach non-technical skills to medical students**

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**Background:** Recognition of the deteriorating patient and prompt escalation to seniors using effective and concise communication is a crucial skill for junior doctors. Timely senior review increases patient safety, therefore the non-technical skills required to ensure this are paramount. The fluent communication of key clinical information is traditionally taught in a classroom environment. Does simulation training have a role in providing medical students an opportunity to further develop these crucial skills?

**Summary of Work:** At a national simulation training day for medical students all participants received formal classroom teaching, including both clinical and communication skills. Half of the thirty participants then experienced a scenario designed to develop their clinical communication. At the end of the day, all participants performed a scenario which assessed their ability to obtain and share information effectively and to assertively request assistance from a reluctant senior.

**Summary of Results:** The students who received non-technical simulation training, were on average, quicker at obtaining relevant clinical information, quicker to request senior assistance and quicker to challenge the senior when assistance was declined. During the debrief sessions, this group also reported a higher level of confidence when challenging the senior.

**Discussion and Conclusions:** Simulation training can contribute to the development of non-technical skills in medical students. Following this research, similar scenarios are used as regular elements in the medical student simulation programme.

**Take-home messages:** Simulation training is an effective way to provide a safe environment where non-technical skills can be practiced by medical students. It was demonstrated that students receiving such teaching performed better than those receiving classroom teaching alone.

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**8JJ6 (19713)**

**The study of work-related diseases and hazards of the central sterile services department (CSD) in a community hospital by 4th year medical students**

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**Background:** Central sterile services department is very important for running the hospital. The health care workers (HCWs) of this department risk exposure to the patient’s secretion or body fluid including needles and blades. Also there is the chance to be harmed by working conditions, working environment and ergonomics. Therefore occupational medicine survey and health policy in the hospital need to be explored in order to plan for safe working.

**Summary of Work:** Walk-through surveying and in-depth interviewing from the hospital director, nurses, physical therapist and 11 other HCWs from CSD were applied to collect data. The secondary data of occupational medicine and infection control section were collected also. Descriptive statistics and content analysis were used for data analysis.

**Summary of Results:** The hospital director emphasizes on the policy of healthy working and safety in the workplace. Working environment has been evaluated by the occupational health (light, heat, noise, dust, and place). An appropriate health promotion program was designed individually for HCWs such as aerobic dance and dietary control. Thai traditional massage and muscle relaxation course have been provided for anyone who has the repetitive muscle injury from work also. Additionally, physical therapists and nurses give them safety working education.

**Discussion and Conclusions:** From data analysis, it can be concluded that most HCWs had good perception level and appropriate practices to prevent work-related disease and hazards from working in CSD.

**Take-home messages:** The hospital policy and HCWs’ perception about work-related disease and hazards is essential for healthy working and safety in the workplace. HCWs are confident in the practice to reduce the incidence of work-related disease.
Teaching based upon Knowles’ adult learning principles is effective at improving clinical note-keeping in medical undergraduates

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Background: Medical note-keeping is a key skill that is often performed poorly in the clinical environment and can affect patient safety. We evaluated the effect of a large-scale learning event involving digital video clips of simulated ward-rounds to teach this skill.

Summary of Work: We delivered teaching (based upon Knowles’ assumptions of adult learning) on medical note-keeping to all final year medical students (n=280). Students watched video of simulated patient-doctor interactions (doctors and actors) and were asked to write an appropriate note entry in real time (pre-intervention). A brief teaching session on good note-keeping was delivered and the above process was repeated (post-intervention). A random sample of student scripts was obtained with student consent and scored (0-8) for brevity, clinical detail and structure by two observers, blinded as to whether the scripts were pre- or post-intervention. Descriptive statistics and student’s t-test were used to evaluate differences.

Summary of Results: Paired (pre/post intervention) scripts of 50 students were assessed. Pre-intervention 12% of scripts exhibited no formal structure, and 40% of students did not use the structure mentioned in the teaching. Post-intervention all students used structured entries and 72% used the recommended structure. Post-intervention, 66% of students had improved content scores and the cohort demonstrated improvement across all domains analysed. The overall median content score (range) increased from 4.5 (1-8) to 6 (3-8), P=0.005.

Discussion and Conclusions: Andragogical assumptions, in combination with authentic simulated doctor-patient interactions and the opportunity to practise this skill, appear to provide significant short-term improvement in ability.

Take-home messages: Appropriately designed large-scale teaching can be effective at improving complex non-technical skills.

Innovating medical handover training

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Background: The World Health Organization names inaccurate handovers as one of the High 5 patient safety risks. However, there are no specific medical handover teaching and training requirements for medical students available in Europe. The EU-funded PATIENT project aims to address this deficiency by developing novel handover learning and training opportunities in medical education across Europe.

Summary of Work: Experts from Germany, The Netherlands, Ireland and Spain have developed standardized handover training modules for medical students to be implemented in medical schools in Europe. Well-defined and evidence-based learning outcomes have been identified based on a training needs analysis of target groups as well as a group concept mapping involving international experts. The project is developing targeted modules to teach handover in various settings, with explicit learning outcomes, educational resources and appropriate teaching methods.

Summary of Results: Detailed curricula are being developed in the following key areas:
1. “Effective Communication”
2. “Risks and Errors”
3. “Simulation”
All educational materials are complemented by resources available at the interactive HANDOVER Toolbox (http://www.handovertoolbox.eu/).

Discussion and Conclusions: The PATIENT Project provides a platform for innovative and high-quality handover training for medical students and is an important step towards decreasing medical error and improving patient safety in Europe.

Take-home messages: Accurate and effective patient handovers are a key element in improving patient safety and quality of care. It is essential to start this training at the level of Medical Schools to help transform healthcare. Join the discussion on www.patient-project.eu!
8JJ9 (22037)
Utilising Trainee Doctors in Improving Clinical Safety

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S Mahgoub*, East Kent Hospitals University Foundation Trust, Medicine, Ashford, United Kingdom
L Ryan, East Kent Hospitals University Foundation Trust, Obstetrics and Gynaecology, Margate, United Kingdom
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P Newens, East Kent Hospitals University Foundation Trust, Medicine, Margate, United Kingdom

Background: A Trainee Patient Safety Group (TPSG) was established to explore and subsequently improve the safety of in-patients and reduce frequently occurring medical errors associated with doctors-in-training.

Summary of Work: The group, overseen and reporting to the Local Patient Safety Board, met fortnightly to review reported incidents occurring over the previous six months. Incidents involving doctors-in-training were categorised and strategies to reduce their recurrence were developed. The group designed interventions in the form of regular bulletins, posters, text messages, and educational sessions to raise awareness of commonly occurring safety issues and errors.

Summary of Results: Cognizance of common, frequently occurring patient safety issues and errors was increased in doctors-in-training leading to greater attention being drawn to these areas in everyday clinical practice. Furthermore, in the process of informing doctors-in-training of safety issues there was a greater willingness to report safety issues and medical errors suggesting cultural change was occurring.

Discussion and Conclusions: The initiative has led to greater understanding of patient safety concerns and through multi-format interventions has raised awareness of these issues to produce meaningful changes to patient safety. The TPSG, in the process of raising awareness of these issues, have improved their organisational and leadership skills by working with fellow clinicians and hospital management teams.

Take-home messages: TPSGs can utilise the front-line experience of doctors-in-training to meaningfully improve patient safety.

8JJ10 (20088)
Meningitis in children: Are junior doctors prepared?

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Rahul Chodhari, Royal Free Hospital NHS Trust, Paediatrics, London, United Kingdom

Background: Every year nearly 2000 people get meningitis or meningococcal septicaemia in UK, majority of them children. Currently, 1 in 10 children affected will die or have life time cost of 6 million US$, if seriously disabled by it. British Medical Journal (2005) paper identified high mortality rates when trainee doctors were unsupervised while reviewing patients with potential septicaemia or meningitis.

Summary of Work: An online tool was created to understand preparedness of Foundation Year 1 and 2 doctors at a teaching hospital in London. Questions were based around competency on the management of Meningitis and the usefulness of further training.

Summary of Results: Out of the 60 trainees, 50% admitted having only an ‘average’ understanding of meningitis, with 1 in 3 feeling they had ‘very little’ competency in diagnosing, investigating, treating and recognizing a deteriorating child. 50% of trainees were unaware of the local protocol. Furthermore, 90% felt additional teaching would be beneficial, with 62% recommending a presentation in compulsory teaching.

Discussion and Conclusions: There is an opportunity to enhance patient safety and reduce mortality by improving further education and awareness of such a common, severe condition. Trainee doctors are open to service specific learning particularly when it improves their job specific skills.

Take-home messages: Consequently, an interactive slide-show, for group-learning, was created based on handbook by Meningitis Research Foundation’s ‘Lessons from research for doctors in training’, which uses real cases with unwanted outcomes as learning tools. A freely available Royal Free Meningitis Protocol was also created based on Meningitis-UK guidelines.
Experiences of medical errors – a comparative study on younger and experienced doctors working in primary health care

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Background: Medical errors are a theme that provokes mixed experiences among doctors. Not much has been known about these experiences among Finnish doctors so far.

Summary of Work: The objective was to study the differences in the experiences of medical errors of young and experienced doctors in primary care. In 2011 a survey was sent to a convenience sample of doctors working in primary care in Southern Finland. The questionnaire inquired about the views of the participants on tolerance of uncertainty and committing a medical error, how they cope with these issues and which factors influence their ability to avoid errors.

Summary of Results: Of doctors, 165/244 responded (response rate 68%). The younger doctors (working experience ≤5y, n=85) experienced significantly more often fear of committing a medical error (70.2% vs. 48.1%, p=0.004), and admitted having committed a medical error during the past year more often than the experienced doctors (n=80) (83.5% vs. 68.8%, p=0.026). The younger doctors were also less prone to apologize to the patient about an error (44.7% vs. 65.0%, p=0.009). The younger doctors found on-site consultations and electronic databases more useful in avoiding mistakes than the experienced doctors.

Discussion and Conclusions: Medical errors are frequent, and are also feared by a large proportion of doctors. Coping with medical errors seems to improve with experience gained as a doctor. Means to support and ameliorate this process should be studied.

Take-home messages: Younger doctors do benefit from the possibility to consult more experienced colleagues on-site, and therefore a good tutoring system should be developed at every health center or group practice.

Anaesthetist attitudes towards introduction of checklists for emergency procedures

S N Phillips*, St George's Hospital, Anaesthesia, London, United Kingdom
V Ferrier, St George's Hospital, Anaesthesia, London, United Kingdom
M Kigozi, St George's Hospital, Anaesthesia, London, United Kingdom

Background: In 2009 the WHO surgical safety checklist was introduced. This is now standard practice with evidence showing its has increased the reliability of team working. In 2011 results of a national audit on airway management and complications were published. This demonstrated a large proportion of adverse events occurred outside the theatre environment. It concluded that checklists and debriefing should be introduced in the emergency situation.

Summary of Work: We carried out a retrospective audit of 65 patients who required intubation, outside of theatres. We looked at documentation, the use of checklists and debrief sessions. We then surveyed anaesthetists attitudes towards the introduction of a checklist for ‘non theatre intubations’.

Summary of Results: Documentation was poor. There was no evidence of checklist use or debriefing. This finding was supported by our survey, which showed few anaesthetists routinely debrief. This is despite evidence that: checklists improve focus on patient safety, learning from debriefing is translated into action and improves subsequent performance, and that all anaesthetists surveyed use the WHO safety checklist in theatre. We demonstrated reluctance the introduction of a new checklist.

Discussion and Conclusions: This work demonstrates that learning at a senior level may be ‘compartmentalized’ and cognitive dissonance is common. Whilst most anaesthetists subscribed to the WHO checklist, they did not translate this to other situations. We demonstrated barriers to the introduction of a checklist. Training will be carried out using checklists to improve mental modeling and team cohesion.

Take-home messages: There are barriers to the uptake of proven safety methods. The use of training is essential to overcome these.
8JJ13 (18647)
Study of Interns’ and residents' attitudes toward medical errors, Kerman, Iran, 2013

Habibeh Ahmadipour*, Kerman University of Medical Sciences, Community Medicine, Kerman, Iran
Nahid Mortazavi, Kerman University of Medical Sciences, Kerman, Iran

Background: Medical procedures from a simple injection to complex surgery may be accompanied with errors. Due to the load of clinical services done by medical interns and residents, their errors can cause harm to patients so their viewpoint toward error disclosure has particular importance.

Summary of Work: This research was a cross sectional study. All medical interns and residents were selected through census method. Data were collected using a questionnaire containing demographic data and questions about the experience of medical errors, results of medical errors, reasons for concerns about disclosure of medical errors and questions about student viewpoint toward error disclosure. The validity of the questionnaire was confirmed and its reliability determined using Cronbach’s alpha 0.8. Mean and standard deviation of viewpoint score was calculated and compared by independent T test.

Summary of Results: Two hundred seventy three questionnaires were completed. The mean and standard deviation of participants' viewpoint score was 57.70 ±17.20. There was no significant difference between the mean scores of interns and residents and also between males and females.

Discussion and Conclusions: Experience of medical error is common among medical interns and residents. Education systems should enhance the competency of interns and residents to prevent the occurrence of any error as well as development of a positive attitude to help them to deal with medical error.

8JJ14 (23015)
How do professionals learn about Medical Error?

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H Baynes, Hillingdon NHS Trust, London, Paediatrics, London, United Kingdom
T Bate, Hillingdon NHS Trust, London, Paediatrics, London, United Kingdom
J Round, St George’s, University of London, Paediatrics, London, United Kingdom

Background: Medical error is a big problem. The Department of Health estimates 850,000 errors occur annually (UK), causing substantial harm and costing over £1,000,000,000. Many errors are avoidable, but educational strategies to make professionals ‘error aware’ are not established. We sought to explore how staff learnt about error, and which strategies were most effective.

Summary of Work: We developed a questionnaire identifying clinical experience and understanding of medical error, including eight scenarios where mistakes had been made. This was sent to 122 nurses, medical students and doctors who were asked which errors had occurred in each scenario.

Summary of Results: 56.0% of nurses, 87.5% of students and 91.0% of doctors had received some error teaching, mostly postgraduate. 58.0% of doctors correctly estimated error incidence, significantly more than nurses (28.0%) or students (23.9%). Those with specific error teaching more often correctly estimated error incidence, but clinical experience had no impact. Doctors correctly identified 67.5% of the errors in the scenarios, more than nurses (61.6%) and students (61.3%). Seniority within each group improved the scores relative to less experienced colleagues. Those with specific error teaching scored similarly to those without.

Discussion and Conclusions: Error awareness and knowledge develops with seniority and relates to clinical role. Teaching on error improves knowledge of medical error but does not affect its identification in scenarios. This may be due to the type of teaching, or that the teaching error identification strategies is problematic.

Take-home messages: Medical error understanding can be acquired, but not through current teaching strategies.
SESSION 9: Simultaneous Sessions
Tuesday 2 September: 1600-1730

9A  SYMPOSIUM: The Value, Place and Effectiveness of Research in the Undergraduate/Postgraduate Curriculum
Location: Gold Plenary, Level +2, MiCo
Panel: Davinder Sandhu, Dario Torre, Anthony Artino, Jonathan Sandy, Eric Holmboe, representing AMEE Postgraduate Committee and AMEE Research Committee

This symposium is intended to reposition the purpose and value of research in the second decade of the 21st century. There are several fundamental questions that will be addressed. What is meant by research? Why is Research Important? Who should do it? When is the optimum time to undertake it? There are other challenges and areas where we seek more elucidation. Is the undergraduate and postgraduate curriculum informed by research, and what opportunities are there to engage with research and research undertaking staff? How satisfied are we that the structures are right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition? Are we right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition? Are we right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition? Are we right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition? Are we right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition? Are we right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition? Are we right to allow research in a timely fashion? Is a research degree increasingly a badge of honour and a marker of ability, perseverance and ambition?

9B  SYMPOSIUM: The Science of Learning and Change in Continuing Professional Development
GAME SESSION
Location: Auditorium, Level +3, MiCo
Panel: Jann Balmer, GAME- Global Alliance for CME/University of Virginia School of Medicine, USA, Jonas Nordquist, Karolinska Institutet, Stockholm, Sweden, Dan Moore (Vanderbilt School of Medicine, Nashville, USA, Robert Galbraith, Past President, Global Alliance for Medical Education, USA, Maureen Doyle-Scharff, Pfizer Inc, New York, USA

This symposium focuses on the theoretical and translational foundations of continuing professional development (CPD). A panel discussion format will highlight three themes that are critical to effective continuing education (CE) and continuing professional development: 1) competence and assessment of learning and change, 2) Complex learning and application, and 3) the importance of Micro and Macro Systems learning. The theoretical foundations for learning and change, knowledge translation and integration into practice are essential to building a framework for educational growth and ongoing competence. Effective CE/CPD closely aligns quality improvement data with the demands and expectations of the workplace environment, linking profession-specific behaviors with interprofessional competencies necessary in the workplace environment. As CPD builds on theoretical and evidence-based approaches, CPD professionals need to assess the impact of micro and macro systems on the desired individual and team performance behaviors and competencies necessary for improved care outcomes.

9C  SYMPOSIUM: XII Iberoamerican Session - “Priorities, Decision Making and Commitments in Medical Education” A Leadership Discussion
Location: Brown 3, Level +2, MiCo
Moderators: Pablo Pulido, PAFAMS, Emmanuel Cassimatis ECFMG (FAIMER), United States, John Prescott, AAMC, United States
Panel: Jadete Barbosa Lampert, Brazil, Ricardo León, Mexico, Arcadi Gual, Spain, John Norcini, FAIMER/Global, United States

This session, with input from academic leaders from diverse and international perspectives, will provide insight into the challenges confronting emerging and established health and medical education systems. Attention will be focused on describing significant efforts to enhance the quality of medical education itself through traditional means like accreditation and outcomes assessment, and also through exploring the development of practical and innovative working models and tools for quality improvement. It is clear that academic leaders must rely on critical thinking and decisive decision making to create needed solutions. Decision making is the mental process resulting in the selection of a course of action among several alternatives. Every decision making process produces a final choice in an action or an opinion of choice. If a person or an institution neither takes an action nor gives an opinion, this is also decision. There is a need to make exceptional decisions in order to translate quality medical education into significant improvement of health care outcomes. Thus, the purpose of this session is to analyze in a dynamic discussion ignited by the moderators, the critical issues facing each country or area, address the decision making discussion towards the realities and needed ongoing solutions, and to provide illustrative examples from past failures and successful actions.
that highlight the key role of insightful leadership. Described outcomes will indicate a way forward to make significant changes to improve the quality of Medical Education on a national, regional and global level.
9D1 (18587)
Post-Graduate Adolescent Interviewing Skills: A Reflection of the Sustainability of Structured Formal Undergraduate Training

Genna Bourget*, University College Dublin, Dublin, Ireland
Nadim Joukhadar, Dalhousie University, Halifax, Canada
Sarah Manos, Dalhousie University, Halifax, Canada
Karen Mann, Dalhousie University, Halifax, Canada
Kim Blake, Dalhousie University, Halifax, Canada

Introduction: In adolescence, individuals begin to assume responsibility for their own health care. Hence, effective adolescent interviewing and communication by physicians are critical. Education in this area occurs usually in undergraduate medical education (UME); whether these skills are maintained in residency is unclear. Our objective was to determine if entry-level residents (PGY1) who had received formal adolescent interview training (with standardized patients and structured feedback) in UME achieved higher scores on a validated rating scale, the Structured Communication Adolescent Guide (SCAG), than those who had not received formal adolescent interviewing training.

Methods: PGY1s, including international medical graduates, were recruited. Each participant conducted an adolescent interview with a standardized adolescent patient and mother pair (SPs). The themes of the patient case focused on sensitive subjects to adolescents, specifically sexual orientation and bullying. The SPs separately scored residents on their interview using the SCAG comprised of four sections (Getting started, Gathering Information, Teen alone, and Wrap up) each with a total item score and global score. Unpaired t-tests were conducted to compare the total item and global SCAG scores of the 'no formal training' group against the 'formal training' group, using the SP Mother and Daughter's scores separately. Unpaired t-tests were also conducted to determine if there were statistical differences between daughter and mother scoring.

Results: PGY1s who had received previous formal training (n = 23) had statistically significantly higher scores than those without (n = 29) on both the Total Item scores (maximum 58) and the Global scores (maximum 40).

<table>
<thead>
<tr>
<th>Group</th>
<th>Total-Item Score Mean (SD)</th>
<th>Global Score Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Formal Training</td>
<td>33.34 (10.90)</td>
<td>29.61 (5.92)</td>
</tr>
<tr>
<td>Formal Training</td>
<td>40.48 (7.90)</td>
<td>30.41 (6.22)</td>
</tr>
</tbody>
</table>

Significance: Total-Item Score P < 0.0013

The areas where training had the biggest impact were: separating the teen and mother and the "teen alone section" which included suicide, mood, safe sex and contraception, recognizing that there were other issues and discussing confidentiality. Scores given by the SP mother and daughter did not differ significantly. P values ranged from P < 0.8933.

Discussion: Our results suggest that PGY1s who had formal adolescent training in UME had retained the knowledge base and communication skills to interview an adolescent as they entered residency. These skills can be further built on in residency. Agreement between the mother and daughters’ scores provides inter-rater reliability to the scale, further validating the tool.

Conclusion: We demonstrated, using an established scale, that there was a sustainable effect of structured training in adolescent interviewing into postgraduate performance. Our findings support the need for formal adolescent training in UME. We suggest that PGY1s with no formal adolescent training should receive SP interviewing with adolescent feedback.

References:

9D2 (18902)
Checking the checklist: A comparison of case-specific checklists developed by different expert panels

Agatha M. Hettinga*, Radboud University Medical Center, Nijmegen, Netherlands
Cornelis T. Postma, Radboud University Medical Center, Nijmegen, Netherlands

Introduction: Clinical competences are commonly assessed by objective structured clinical examinations (OSCEs). A key aspect of the OSCE is the development of a checklist or rating scale. Often expert panels play an important role in the evolution of case-specific checklists. Our research question is: To what extent do case-specific checklists developed by different expert panels agree?

Methods: An OSCE scenario was presented to four different expert panels from different faculties. Effort was made to gather four experts for each expert panel. Each panelist was asked to prepare the meeting. Well before the expert meeting the experts were sent the case, they were asked to carefully read the case, and to send a checklist with items for history
taking, and physical examination. A panel leader ordered the different items. During the meeting the panelists were presented the list of items of their panel and asked to discuss the various checklist items and to develop a final checklist with 10-15 items for history taking and 10-15 items for physical examination. The four checklists for one scenario were compared. This procedure was performed for three common clinical scenarios.

Results: Results are presented in tables, showing different categories of checklist-items, namely 'items included by all panels', 'items included by 3 panels', 'items included by 2 panels' and 'items included by 1 panel', for all three scenarios. For each checklist the percentage items on that list that was included by all panels was calculated. The lowest percentage found was 14%, and for the checklist with the highest percentage of items that were included by all panels the percentage was 55%, with an average of 40%. The average percentage of items included by all panels or all but 1 panel was 70%.

Discussion and Conclusions: This study has shown that different expert panels develop different case-specific checklists for OSCE scenarios. One important question is whether the ranking of students changes using different checklists. Further research is needed to better understand the meaning of these differences.


9D3 (18661)
Validation of an Instrument for Measuring the Quality of Teamwork in Teaching Teams (TeamQ)
Irene A. Slootweg*, University of Maastricht/Academic Medical Centre, Department of Educational Development and Research/Professional Performance Research Group, Maastricht/Amsterdam, Netherlands Kiki Lombarts, Academic Medical Center, Professional Performance Research Group, Amsterdam, Netherlands Benjamin Boerebach, Academic Medical Centre, Professional Performance Center, Amsterdam, Netherlands Albert Scherbier, University of Maastricht, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands Cees Vleuten, van der, University of Maastricht, Department of Educational Development and Research, Maastricht, Netherlands

Introduction: Tackling the issue of teamwork between clinical teachers is one of the challenges in reforming high-quality postgraduate medical training. Clinical teachers should ideally share a mutual vision and arrive at specific agreements to supervise residents. Information that provides insight in these mutual visions and agreements is an essential first step in improving teamwork. Few evaluation instruments are available for measuring teamwork in health care settings, however none of them was considered suitable, in terms of aim and use of specific language, for measuring teamwork in a teaching team[1]. The aim of this study is to investigate the validity and generalizability of a tool for measuring teamwork in teaching teams (the TeamQ instrument). The research questions are: 1) what are the psychometric properties of the TeamQ instrument and 2) how many evaluations are needed per teaching team to generate a reliable teamwork measure.

Methods: The initial TeamQ instrument consisted of teamwork items that were selected based on a focus group and Delphi study.[2] From January 2012 till December 2013 we tested these items in teaching teams of multiple specialties in multiple organizations. In total, 1446 clinical teachers from 116 teaching teams were invited to complete the web-based TeamQ instrument. First, we conducted a principal component analysis to extract the number of factors (composite scales) underlying the TeamQ items. Second, the internal consistency reliability coefficient Cronbach’s alpha was calculated for each composite scale. Third, we calculated the number of clinician teacher evaluations needed to obtain reliable measures of the TeamQ scales (generalizability analysis).

Results: Data of 114 teaching teams were included in our study. The median response rate was 7 evaluations per team. The sample contained 48 small groups (<10), 54 medium sized groups (10-20) and 14 large groups (>20). The sample included surgical (n=45) and non-surgical specialties (n=53) as well as auxiliary disciplines (n=18). The PCA revealed a 8-factor structure of the TeamQ questionnaire. The factors were labelled as Task-expertise; Team-expertise; Decision-making; Leadership; Feedback-culture; Team-results; Residents'engagement; Residents' empowerment. The scales counted 3 to 11 items per scale. The reliability of TeamQ scales ranged from 0.75 for Decision-making to 0.93 for Leadership. The scale Residents'empowerment had a lower reliability coefficient of 0.66. The generalizability analysis revealed that 5 to 7 evaluations were needed to obtain reliability coefficients of 0.70 for all scales and 6 to 8 evaluations were needed to obtain a reliability of 0.80.

Discussion and Conclusions: This study provides a first indication of the validity of a new tool for measuring teamwork in teaching teams. The high response rates and the low number of evaluations needed for reliably measuring teamwork indicate the feasibility of the TeamQ instrument in the evaluation of teamwork in teaching teams in practice. For high quality residency training teams of clinical teachers may use the TeamQ results to reflect on and potentially improve the quality of the different aspects of teamwork. Future research could focus on further exploring the use of the TeamQ instrument for teaching teams of different sizes.
References:

9D4 (18856)
Validity: One word with a plurality of meanings

Christina St-Onge*, Université de Sherbrooke, University of British Columbia, Sherbrooke, Canada
Meredith Young, McGill University, Montreal, Canada
Kevin Eva, University of Toronto, Vancouver, Canada
Brian Hodges, Université de Sherbrooke, Toronto, Canada

Introduction: Compared to recommended standards, several works have claimed “less than optimal validation practices” are present in medical education research. Whether such disconnects between recommended practice and published work reflect genuine disagreements between practitioners and theoreticians, a lag in the uptake of the recommended standards, or implicit differences in different groups’ fundamental conception of validity, remains to be determined. However, since validity as a concept is expected to inform assessment development, implementation, and interpretation, it is critical to investigate the mechanism whereby such disconnects arise. The primary purpose of this study was to identify ways in which the term validity is used within medical education research to examine the potential for variable, implicit and sometimes unavowed conceptions of validity.

Methods: We used discourse analysis “to dissect, disrupt and render the familiar strange” (Graham, 2005, p.4) through an interrogation of the medical education literature that examined the ways in which the concept of validity is presented. The aim was to document the multiple possible “truths” surrounding the concept of validity in this field. We used a purposeful sample of references identified by a search of PubMed, ERIC, PsychInfo and the authors’ accumulated references. An iterative process was used to discuss and identify emerging discourses until consensus among the research team was achieved.

Results: Three discourses were identified. Validity as a test characteristic is underpinned by the notion that validity is an intrinsic property of an assessment instrument itself. Adopting this discourse makes it possible to label “tools” as “gold standard” and implies that validity claims apply across contexts. Validity as a hypothesis-driven evidentiary-chain emphasizes the importance of supporting the interpretation of assessment results with sound evidence and continuous analysis. In this discourse, validity does not belong to the tool/instrument itself, but reflects the process used for validation. Validity as a social imperative takes into account the downstream effect of assessment (e.g. a ‘fail’ decision), positive or negative, on assessees. Here, validity is called upon to justify the decision process regarding the consequences for assessees and the social implications of assessment.

Discussion and Conclusions: Validity can be called upon to signify that a tool can or should be used because it meets a certain standard. For others it speaks to a continuous quality assurance process put in place to justify use of a tool or to mechanism to ensure that the assessment process maintains social good. Independent of the underlying conceptualization, validity is a commonly-used and highly-loaded term in medical education. The observed discourses may explain – in part – the observed discrepancies between recommended and adopted validation practices. Each may fill very different and sometimes implicit needs within medical education. Validation appears to have several meanings in medical education; further research is needed to better understand who participates in each discourse and how as well as to understand the impacts of adopting different conceptions of validity on the development and monitoring of assessment.


9D5 (18840)
Junior doctor intercultural clinical communication: Lessons for transition to practice medical education

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Hashrul Nizam, Goulburn Valley Health, Melbourne Medical School, Shepparton, Australia
Jonathon Au, Goulburn Valley Health, Shepparton, Australia

Introduction: In many Western countries, junior doctors including International Medical Graduate (IMG) doctors and medical students are increasingly culturally diverse due to factors such as globalisation of the tertiary education system and health workforce shortages. In migration and refugee destination countries such as Australia, these graduates are delivering healthcare in a context where a significant proportion of the population may not have the English language skills to communicate effectively about their healthcare. Effective communication with patients from different language and cultural backgrounds is acknowledged as a desirable graduate attribute internationally in numerous medical education settings and communication curricula. In a study by junior doctors from the U.K., the U.S., and Europe, the authors point out that one barrier to the transfer of communication skills learned at medical school is the cultural heterogeneity of simulated patients compared to the cultural and social diversity of patients they
encounter in their training environments (1). Medical educators who are concerned with cultural and language aspects of healthcare communication seldom investigate or conceptualise communication in healthcare settings where cultural and linguistic diversity is commonplace amongst doctors, medical students, and patients. The aim of this study was to investigate junior doctor clinical communication in a culturally diverse healthcare setting, including investigating communication behaviours, challenges, and enabling strategies that the junior doctors engage in when delivering healthcare in a setting where patient and staff cultural diversity is commonplace. 

Methods: We adopted a qualitative research design including focus group discussions with junior doctors and semi-structured interviews with senior hospital staff employed at one regional hospital. There were 5 focus group interviews with 20 junior doctors in total as well as semi-structured interviews with 10 senior doctors and 4 senior administrative staff. These data were analysed thematically.

Results: The two major themes to emerge in the discussion about intercultural communication with the junior doctors were language as a barrier and cultural influences on healthcare communication. The sub-themes for language as a barrier were fluency, impact, and mediated communication. The sub-themes for cultural influences were uncertainty and cultural comfort. The results for the semi-structured interviews with senior clinical and hospital staff were likewise language as a barrier and cultural influences on healthcare communication. Additional themes were clinical skills, including communication, and patient education and counseling. 

Discussion and Conclusions: The findings suggest that while junior doctors have some strategies to address communication challenges such as language barriers and cultural sensitivities, they can struggle with cultural differences in patient expectations of healthcare and expression of symptoms. Senior medical staff reported that there is room for improvement, particularly in explaining the diagnosis and management plan to patients. There appears to be a disconnect between how well the junior doctors think they communicate and how the senior medical and hospital staff evaluate the junior doctors’ communication skills. Cultural and language barriers to effective communication can also be considerable. The findings form a needs analysis for culturally effective communication to inform transition to practice medical education.

9E1 (23007)
Snapshot of Learner and Simulated Patient (SP) Perceptions, Rewards, and Benefits in Interprofessional Telemedicine Simulation Training

Temple West, Eastern Virginia Medical School, Center for Simulation and Immersive Learning, Norfolk, United States
Alba Woolard, Eastern Virginia Medical School, Center for Simulation and Immersive Learning, Norfolk, United States

Presenter: Mary Loraine Lyman*, Eastern Virginia Medical School, Center for Simulation and Immersive Learning, Norfolk, United States

Summary: Telemed. Telehealth. Distance Medicine. Technology today successfully helps solve problems of medical availability for countless patients who do not have ready access to medical facilities for a myriad of reasons. Creating scenarios and working with both interprofessional medical personnel and standardized patients in electronic technology training sessions reveal new challenges as well as rewards. Through a variety of media – both live and electronic (paralleling the simulation itself) – and audience participation, we will create an engaging snapshot identifying some learner and SP perceptions of electronic simulation training. The snapshot will reveal some of the specific challenges, explore ways of managing the challenges, and highlight the rewards and benefits in setting up and training electronic simulations.

9E2 (22705)
"Yes, and" Your Way to Collaboration: A Technique for Enhancing Feedback

Alba Woolard*, Eastern Virginia Medical School, Sentara Center for Simulation and Immersive Learning, Norfolk, Virginia, United States
Amelia Wallace, Eastern Virginia Medical School, Sentara Center for Simulation and Immersive Learning, Norfolk, Virginia, United States

Summary: Rationale: When Simulated Patients (SPs) and Instructors give feedback to learners, there has to be some instantaneous trust in order for the learner to be receptive to the feedback. Statements that may seem to disagree with a learner’s choices, or may seem argumentative, can make it easy for a learner to become unresponsive to feedback. By using “Yes, and,” SPs and Instructors can validate the strong behaviors that learners have, and add ideas for further refinement.

Technique: “Yes, and,” sometimes referred to as “Yes, add,” is considered the first rule of improvisational comedy, or improv. In improv, players can create several cohesive scenes together based on a one word suggestion from the audience. The players can instantly collaborate without having to discuss what they are going to do. They do this by accepting each other’s ideas as valid, and then adding something else into the scene. This acceptance followed by addition is called “Yes, and.” It allows the players to skip arguments, and build scenes upward together. By using this technique, SPs, Instructors and learners are able to skip conversations of good and bad, and build the learners’ strengths upward together.

Format:
2 minutes: Introductions
3 minutes: Demonstration of “Yes, and” in improvisational comedy
8 minutes: Demonstration and practice of “Yes, and” in SP or Instructor and learner feedback
2 minutes: Questions
**9E3 (22121)**

It takes a village – cultivating collaboration between faculty observers and standardized/simulated patients in feedback

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**Summary:** For a student to receive feedback in a way that inspires him/her to change and adapt behaviors, many perspectives are needed. However, because of preexisting perceptions of hierarchy in both clinical and educational settings, it can be difficult to create a dynamic in which the standardized patient and faculty operate on the same peer level. For instance, a standardized/simulated patient (sp) may become deferent to the faculty member’s opinion of an encounter in instances of differing perceptions of student performance. In such a case, the student may not fully benefit from the full scope of the patient’s perspective. Additionally, if patient centered communication is advocated for during role play, and these skills are not applied in the context of feedback, it may minimize the importance of the patient’s perspective overall to the student. As a result, we have found it valuable to cultivate the relationship between sp and faculty by adapting ways to facilitate an equal partnership in the feedback process. For this to occur, it is essential that the feedback construct includes and engages all members of the interaction (student, standardized patient and faculty observer).

In this Fringe session, participants will view a brief learner and sp encounter and participate in the feedback process utilized in a Family Medicine Clerkship. Discussion will center on exploring techniques involved in creating a collaborative partnership in feedback between standardized patients and faculty.

**9E4 (22630)**

Inside information, a different look into the larynx

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**Summary:** We present a review of an innovative engagement workshop, which took place at the Simulation Suite, Cochrane Education Centre, Cardiff, in December 2013. It offered medical students and members of the public an insight into medical simulation, as they learnt about the breathing and vocal apparatus. The evening consisted of 3 workshops, focusing on the anatomy, function and importance of the larynx in different settings:

1.) Larynx exposed: Anatomy demonstration of the larynx, using videos, anatomical models and real anatomy specimens. Participants were able to explore the vocal apparatus, see the size and shape of the vocal cords, and watch how the cords move as sound is produced.

2.) Larynx in action: Welsh National Opera singer, Soprano Ros Evans described the full range of sounds that can be produced by the vocal cords, and gave a practical session on how these sounds are created.

3.) Larynx at risk: A simulation manikin presenting stridor, a medical emergency, where members of the public were required to participate, helping the anaesthetist reassure the patient, help with intubating equipment and monitoring vital signs as the patient’s life was saved.

The session was recorded not only photographically, but also in drawings by a team of illustration students of Cardiff School of Art and Design, whose sketches formed the basis of a concluding reflective session, where the relationship between images, sounds, emotions and thought processes in the voice training, anatomy and clinical environments were explored.
9F SHORT COMMUNICATIONS: The CANMEDS Competencies
Location: Theatre Room 11, Level 0, MiCo

9F1 (20188)
CanMEDS 2015 Project: An Overview of New and Emerging Concepts

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Background: The CanMEDS 2005 Framework describes seven roles and competencies for Canadian physicians. The goal of the CanMEDS 2015 project is to bring the current framework in alignment with recent developments in medicine. Accordingly, a project was undertaken to identify new and emerging concepts.

Summary of Work: A review of the 2012 Table of Contents of the five top journals in medical education (as identified by impact factor) was undertaken. Once a concept was identified, key articles were located through a directed review of the literature.

Summary of Results: The following concepts emerged from this review: professional self identity, emotion as a form of competence, systems thinking, handover (transfer of care), and global health. Key articles for each concept were organized according to four questions: What is the concept? How is it represented in the current framework? What are the issues with this representation? How could the concept be better represented in the CanMEDS 2015 framework?

Discussion and Conclusions: Each of the Expert Working Groups charged with updating the roles and competencies were provided with a copy of the document. Consequently, some of this material has been incorporated into the first draft of the updated framework. For example, the concept of professional identity has been added into the Professional role description.

Take-home messages: Since its launch in 1996, CanMEDS has become the most widely applied physician competency framework in the world. The new and emerging concepts project is one initiative to ensure that the framework continues to reflect the current practice environment.

9F2 (20661)
Longitudinal monitoring in residency programs

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Background: The residency programs have made the shift to the CanMEDS Physician Competency Framework. Faculty must now teach and assess the different roles of this framework: Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional. Working in silos is no longer possible. It has become essential to work together to develop a global vision of the program, aiming for the same targets and orchestrating efforts to achieve them.

Summary of Work: We have developed pedagogical web sites for entire programs that allow for longitudinal monitoring of what residents accomplish throughout their course program. The sites bring together the different tools developed, as well as the specifications for the learning goals and the various opportunities provided to assist residents in developing their skills and abilities. Discussion forums can be used by faculty to discuss the program or a resident competency level, and by clinician educators and residents to discuss cases or other important questions. Pedagogical web sites also offer the opportunity for residents to set up a portfolio in which they gather evidence of their competency level.

Summary of Results: Fifteen programs have adopted this approach and are satisfied with the results. A formal survey will be sent to all the participants (program directors, clinician educators, and residents) over the next several weeks and the results will be presented in August.

Discussion and Conclusions: We are constantly reflecting on how to maximize pedagogical effectiveness. Sometimes, less is best. Also, we must keep in mind that we have to adapt to the solutions that are and will be imposed by the Royal College of Canada. But, a global vision of the program and the orchestration of efforts can increase the program’s effectiveness.

Take-home messages: The whole is greater than the sum of its parts.
**9F3 (21528)**  
**Self-assessment, regulator of the development of the Scholarship competency of medical students**

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*Jean-Sébastien Renaud*, Université Laval, Évaluation, Québec, Canada

**Background:** A computerized longitudinal tool was developed to monitor the development of competencies of the students in the MD program at Université Laval. This tool, based on CanMEDS and designed to be a driving force for the development of the competency “Scholarship”, uses in part a precocious and continuous self-assessment process supervised by an advisor. One of the objectives of this innovative approach is to promote a better level of comfort of the student when faced with formal evaluation and feedback in clinical settings, such as clerkship rotations.  

**Summary of Work:** We compared two groups of students in our program during their final year. One group had been exposed to these modalities of self-assessment from their entry into the MD program, whereas the other had not.  

**Summary of Results:** The same questionnaire was given to both groups with the intention of measuring their level of comfort during their evaluations in clerkship rotations. Afterwards, in a simulated clinical setting students of both groups were placed in a feedback session.  

**Discussion and Conclusions:** Medical observers assessed their reactions in order to measure concordances with the self-assessment results of the students.  

**Take-home messages:** We introduced the use of self-assessment as a driving force for the development of the Scholarship competency and we wish to share the results of a study for monitoring the implantation of an innovative pedagogical approach. Finally, we propose reflections about the measure of the degree of comfort of students facing formal evaluation in clinical settings.

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**9F4 (23099)**  
**IMCE: Using virtual patients for integrated teaching of CanMEDS competencies**

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*Michael Li*, University of Toronto, Internal Medicine, Toronto, Canada  
*Lisa Richardson*, University of Toronto, Toronto, Canada

**Background:** CanMEDS is an educational framework that identifies essential physician competencies, and has been adopted by medical schools internationally to encourage holistic training. However, CanMEDS roles are often taught separately from core medical content, which differs from clinical reality and may engender frustration in learners.  

**Summary of Work:** The Internal Medicine Clinical Encounters Project (IMCE) is a student-led initiative to create online virtual patient cases on Internal Medicine topics. These cases aim to facilitate knowledge translation and clinical reasoning development. They also teach medical expert and non-medical expert CanMEDS roles in a clinical context as trainees complete essential management steps for a clinical case.  

**Summary of Results:** These cases are being piloted as a resource for clerkship students at the University of Toronto to supplement ward experience. Ongoing research projects will evaluate the effectiveness of IMCE cases as a teaching tool for CanMEDS competencies. Surveys and focus groups will be used to compare IMCE cases with topic-matched PowerPoint presentations on knowledge acquisition and self-evaluated confidence level. Preliminary findings suggest there may be no difference between IMCE cases and PowerPoint presentations for knowledge acquisition and confidence level. However, students appreciate the integrated CanMEDS teaching and the realistic learning environment of IMCE cases.  

**Discussion and Conclusions:** IMCE cases and PowerPoint presentations may be similar in facilitating knowledge acquisition and increasing confidence, but interactive cases may provide a more enjoyable learning environment, particularly for CanMEDS competencies.  

**Take-home messages:** Results from ongoing studies will help direct future virtual patient case design and the teaching of CanMEDS competencies.
Implementing a successful competency-based medical education (CBME) reform at the Université de Montréal (UdeM)

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Background: A longitudinal CBME revision of our educational programs, from under-graduate studies to certification, was introduced at UdeM in 2013.

Summary of Work: Adapted from CanMEDS 2005, a framework1 of competencies reflecting UdeM culture/context was developed by collaborative work between all levels of training. It provided clinical teachers a common language regarding CBME and a development path of the competency for each role from admission to specialty certification. A network of medical teaching leaders in CBME was established with the mandate to train clinical teachers and support program and clerkship directors in integrating CBME into their curricula. In order to facilitate observations and relevant feedback to trainees on the acquisition of their competencies, the CBME implementation committee (CBMEIC) introduced new assessment tools based on relevant clinical situations.

Summary of Results: Based on the new framework and with the support of the medical leaders and the CBMEIC, residency programs and clerkship directors in integrating CBME into their curricula. In order to facilitate observations and relevant feedback to trainees on the acquisition of their competencies, the CBME implementation committee (CBMEIC) introduced new assessment tools based on relevant clinical situations.

Discussion and Conclusions: Successful implementation of our CBME curriculum required support from direction, transformation of milestones into educational tools, networking of medical teaching leaders in CBME and collaboration with academic program directors. It is still a work in progress as the model is spreading.

Take-home messages: Principles guiding this reform were progressive acquisition of competency from authentic professional activities and frequent meaningful feedback to learners.

Common practice situations can become triggers for teaching in the CanMEDS Intrinsic Roles

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Background: Clinical teachers (CT) struggle to train students and resident in all domains of competency based medical education (CBME) frameworks. They must use their own clinical and non-clinical activity as a basis to teach within the CBME domains in their day-to-day practice. We sought to find common trigger words that CTs could use to stimulate teaching in surgical and non-surgical disciplines.

Summary of Work: At grand rounds, CTs, residents and students from multiple disciplines were oriented to the study and completed a workshop-based exercise. They provided three trigger words or phrases that described a specific CanMEDS Intrinsic Role from daily practice followed by three teaching points for each trigger.

Summary of Results: CTs in all disciplines with frequent exposure to CanMEDS still found it difficult, but managed to identify words that could categorise their Intrinsic Role tasks and trigger teaching. Most trigger words described situations. Some situations like discharge planning were identified as teaching triggers for multiple Roles. Surgical disciplines tended to identify trigger words that reflected acute care instead of elective situations.

Discussion and Conclusions: Learners and CTs together identified trigger words and relevant teaching points used frequently and based in daily practice.

Take-home messages: Trigger words or phrases are useful tools to stimulate CBME domain teaching in daily practice.
Changing assessment practice: Making quality visible as an impetus to change

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Background: A faculty-wide review of MCQ assessment revealed uneven practice and a need for change. However, changing entrenched behaviours is challenging. Two key steps in behaviour change are intention formation and subsequent action initiation.

Summary of Work: Drawing on Dornyei & Otto’s process model of motivation, the goal of this work was to devise an intervention that could motivate intention formation and act as an instigation force for action. A method of diagramming MCQ assessment quality was devised using scatterplots of discrimination index vs item facility. Different zones of the scatterplot were demarcated to identify zones of more and less preferable quality. Compound indices of test quality were devised e.g., test yield and distractor quality. Information on tests was compiled into reports for lecturers. The graphics and report format were revised in consultation with lecturers to yield easily understandable summaries.

Summary of Results: Consultations with lecturers yielded different reactions when undertaken using raw item-analysis data and using the reports. The reports allowed lecturers to appraise test quality at a glance and to easily compare tests. For programme convenors, differences in test quality were easily illustrated and tracked. Many lecturers initiated action e.g., departmental working groups, after engaging with reports.

Discussion and Conclusions: It is possible to get lecturers to engage with some technical aspects of test quality in a non-threatening way. An easily digestible report can augment intention formation and action initiation.

Take-home messages: The use of behavioural theory can help inform the design of interventions aimed at changing assessment behaviour.

Determining required test time

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Background: Available test time influences the performance of students on a test. It is argued both in favor and against time as a relevant factor in determining student performance. There is ample data in literature that describes the role of time to answer questions. Hence, there is a paucity of literature about setting test time in relation to goals and content of the questions. This study aims to explore the effect of time on student performance and providing guidance in setting test time.

Summary of Work: A key-feature case-based test in the 2nd year of the master in medicine was administered by computer. The questions on this test are aimed at essential decisions in the case; e.g. diagnoses, treatment, follow-up. Time needed to answer each question was automatically recorded by the computer. Questions were divided in different categories: e.g. content, type or form, and essential decision. Furthermore difficulty of questions and student performances were investigated.

Summary of Results: Time needed to answer different categories of questions is determined and compared. More time is needed to determine a diagnosis compared to treatment or follow-up. ‘Good’ performing students are faster than ‘poor’ performers.

Discussion and Conclusions: Based on the time needed to answer different categories of questions is determined and compared. More time is needed to determine a diagnosis compared to treatment or follow-up. ‘Good’ performing students are faster than ‘poor’ performers.

Take-home messages: Analysis of the test-item in advance is advised in order to be able to underpin the time set for the exam.
9G3 (19199)
Review of items with low difficulty index in the Swiss federal licencing examination (FLE) of human medicine: Why tough items are tough

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Background: The Swiss FLE has introduced since 2011 a revised multiple-choice questions exam with 300 vignette-based items assessing the Swiss catalogue of learning objectives (SCLO) for undergraduate medical training.

Summary of Work: We reviewed all 52 items of the 2011 and 2012 exams with a difficulty index of < 30%, regrouped by specialities. Experts (n=37) from the five Swiss medical faculties were asked for each item to identify its associated objectives and indicate whether they were taught, assess the item relevance for senior students and for primary care, judge its difficulty and indicate its correct answer.

Summary of Results: For 72% of the 52 items, the objectives identified were relevant and easy to find in the SCLO, for 18% the objectives were not found, and for 10% they were imprecise. The objectives for 73% of the items were also taught. Relevance for senior students and for the field of primary care were correlated with the low difficulty index (p=.001). Multivariate logistic regressions showed that the identification of the correct answer was linked to the specifications of the item construction (p<.001) and its relevance to primary care practice (p=.005).

Discussion and Conclusions: Experts were found as students to have difficulties answering questions with low difficulty index. While for most of the items, the content was taught and covered in the SCLO objectives, primary reasons of their difficulty were more related to the item quality itself and their relevance to primary care. Further analyses of the questions suggest that using vignettes does not always guarantee that the item assesses the application and reasoning level.

Take-home messages: Several quality indicators may be taken into consideration when reviewing the FLE items: not only its content should be clearly linked to objectives identifiable in the SCLO, but also its relevance to the primary care dimension and its construction.

9G4 (21828)
How to use item analysis to improve teaching, learning and assessment in medical school

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Background: Medical schools have replaced True/False MCQ with One-Best-Answer Item (OBAI) because of its ability to test the nuances of real-life clinical decision-making. A good OBAI should not be overly easy or difficult and can differentiate between high and low scorers. Post-test item analysis usually emphasise on difficulty and discrimination indices. We aim to also incorporate distractor functionality analysis to improve teaching-learning.

Summary of Work: We performed a post-test item analysis for distractor functionality, difficulty and discrimination indices on ninety OBAI with clinical stems. The response options in each item have one most correct answer and four distractors. Distractors are classified as non-functioning if <5% of candidates select it.

Summary of Results: Half of the 360 distractors were non-functioning. Seven OBAIs (7.9%) did not have any functioning distractors. These items were overly easy with 92-100% passes and poor discrimination index of -0.01 to 0.16. Another 28 OBAIs (31.5%) had only one functioning distractor. Most were also too easy. Some items had satisfactory difficulty and discrimination indices and require minor amendments for improvement. Item analysis also detected gaps in students’ learning.

Discussion and Conclusions: Conducting item analysis post-test is important to evaluate quality of OBAIs for improvement. It can reveal weaknesses in students’ learning and faculty’s teaching. Weak items should be removed or modified and good ones retained.

Take-home messages: Conduct item analysis post-test. Do not set overly easy questions. Correlate distractor functionality with difficulty and discrimination indices. Use results to improve item-writing and teaching-learning. Identify good items for future use.
9G5 (20635)
The case for retiring the open-ended format in written summative assessment in clinical medicine

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Background: There is a widespread belief that constructed-response or open-ended written assessment tests higher order cognitive processes in a manner that multiple-choice questions cannot, and consequently have higher validity.

Summary of Work: The evidence for this in the literature was reviewed, and an explanation for the findings explored in terms of learning theory.

Summary of Results: Neither assertion is tenable given extensive accumulated evidence indicating that results of the two formats are highly correlated, that they essentially test the same cognitive constructs, and that the multiple-choice format may be more predictive of later performance.

Discussion and Conclusions: It appears that open-ended assessment remains in widespread use because of the counter-intuitive nature of this observation, as well as unfamiliarity with the broader educational literature. That multiple-choice may have higher validity is explicable in terms of a cognitive-constructivist understanding of learning, particularly from the standpoint of conceptual change theory with its emphasis on mental models and their application to complex problem-solving. From this perspective, context-rich multiple-choice assessment invokes the same cognitive processes required for proficiency in a domain and therefore reflects the purpose for which learning is undertaken more faithfully than does the open-ended format.

Take-home messages: In the assessment of clinical medicine, there is no place for open-ended assessment other than for restricted fields such as ethics and communication, and in diagnostic (as opposed to summative) assessment. The context-rich multiple-choice assessment provides superior information with higher reliability, validity and cost-effectiveness.

9G6 (22505)
National Electronic Assessment is possible, affordable and valid

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Background: Electronic assessment offers potential for streamlining workflow and reducing error, particularly in large scale assessments. We report on how challenges relating to scalability, performance and sustainability have been addressed and tested in the development of an e-assessment delivery and management platform.

Summary of Work: The University of Edinburgh has developed a platform for e-assessment making full use of the emerging cloud technologies. The system provides a single location for authors to create items to a specified template, editing and quality assurance of the content, and subsequent assessments to be built and delivered online. All registered students have access to practice materials with feedback. This has resulted in successful pilots of national assessment events in prescribing safety (PSA) led by the Medical Schools Council of Great Britain and the British Pharmacological Society.

Summary of Results: In 2014, the PSA was delivered to all UK medical schools reaching some 8000+ students, whilst also being piloted in medical schools in the Republic of Ireland and in Malta. Around 70,000 drug order sentences were written and instantaneously marked as well as more conventional MCQ question styles. Some UK schools, having participated in earlier pilots of the assessment, incorporated the 2014 PSA into their summative assessment activity.

Discussion and Conclusions: The flexibility of the cloud-based architecture has proven a cost-effective, reliable, secure and adaptable methodology through which to deliver service-oriented large scale electronic assessment, locally, nationally and internationally.

Take-home messages: E-assessment, delivered at any scale, via a web service model exploiting cloud storage and elastic computing, is feasible, secure and cost-effective.
**9H1 (20125)**

The effect of reflection and assessor feedback on the confidence of medical students to perform an endotracheal intubation

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**Background:** Medical students’ self-perceived competence correlates poorly with objectively assessed competence. Biased self-evaluation can inter alia be ascribed to the overconfidence phenomenon, indicating that poor performers lack insight into their shortcomings. People with confident ignorance are often wrong but never in doubt and this may be due to lack of appropriate and clear feedback or failure to incorporate feedback into self-perception. This study aimed to determine the effect of reflection and assessor feedback on the confidence of students to perform an endotracheal intubation.

**Summary of Work:** An experimental design was used with pre and post-assessment confidence measures. The intervention entailed the performance of a simulated endotracheal intubation, followed by either assessor feedback (Cohort 1) or student reflection (Cohort 2). Fourth year medical students (n=120) were randomly allocated to the cohorts and control group during their end-of-block assessment. The items of the assessment tool corresponded with the items of the four-point rating scale for self-assessment of confidence.

**Summary of Results:** Compared to their performance grades the pre-assessment confidence measures of all students who underperformed (<75%) were higher while those who obtained 75% or more were lower. The confidence levels of all students dropped in the post-assessment, with a more pronounced drop in the underachievers who reflected or received feedback.

**Discussion and Conclusions:** Reflection and feedback on the performance of an endotracheal intubation resulted in students feeling less confident, especially the underperforming students, probably due to having obtained insight into their shortcomings.

**Take-home messages:** Feedback and reflection on performance seem to lessen confident ignorance.

**9H2 (22916)**

The value of adding students’ self-assessment to online faculty feedback on their perception of the usefulness of this feedback

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**Background:** At our faculty, we developed a program, generating automatically personal feedback to every student in a competency-based curriculum based on their results on an integrated OSCE at the end of the clinical clerkship year. This study investigates if self-assessment on similar competencies (aspects of medical knowledge and communication), previous to faculty feedback has an influence on the perception of the usefulness of this faculty feedback.

**Summary of Work:** 149 students of 286 participants, randomly divided, filled in a self-assessment form after the OSCE. All participants received the faculty feedback form, the self-assessment group with inclusion of their self-assessment. Data were collected on the one hand via a questionnaire using closed questions as well as open ended questions, on the other hand via a focus group, inviting participants to share their perspectives regarding –among other aspects- the usefulness of the faculty feedback for their learning process.

**Summary of Results:** Response rate on the questionnaire was 77.2%. 6 students participated in the focus group. The data indicate that the self-assessment group perceives the feedback on the OSCE as more useful (p = 0.05) for their learning process. In addition, students found it rather difficult to evaluate themselves on the different competencies. The focus group supported these findings and revealed the importance of narrative feedback.

**Discussion and Conclusions:** The findings suggest that self-assessment or reflection seems to trigger students to perceive faculty feedback as more useful in steering their learning process.

**Take-home messages:** Self-assessment preceding faculty feedback enhances students' positive perception of this feedback.
9H3 (23065)
Practice does not always make perfect: Negative thoughts degrade performance in novice medical trainees learning suturing techniques

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James Lyons, McMaster University, Kinesiology, Hamilton, Canada

Background: Peer comparison can influence a learner’s self-efficacy beliefs and skill acquisition. Our previous work has shown that novice medical trainees who believe that they are performing worse than the group average on a baseline suturing task (regardless of how they actually perform that technique), experience significant self-efficacy and performance degradation when learning a new suturing technique. Our objective was to further examine how this type of feedback influenced their strategies during independent practice time.

Summary of Work: Regardless of their actual performance on a baseline suturing task, novice trainees (n=30) were divided into one of three groups where they received either no feedback, or fabricated performance summaries indicating that they were performing better or worse than their peers. After receiving this manipulation, trainees performed and practiced a new suturing technique.

Summary of Results: At baseline, there were no differences in self-efficacy and performance. Those receiving the negative comparative feedback reported significantly lower self-efficacy and performed worse on the new suturing task compared to the other groups. Despite the degradation in psychological and behavioural outcomes, this group did not differ (p=0.720) in how they practiced independently (time and number of sutures completed). These results will also be discussed in terms of the expert assessment of the video data (GRS and checklist).

Discussion and Conclusions: Our findings suggest that negative peer comparison is detrimental to individual performance and psychological beliefs notwithstanding having had the same amount of physical practice as the other groups.

Take-home messages: Negative thoughts degrade learning in novice trainees acquiring basic suturing techniques despite having had equal amounts of independent practice.

9H4 (20171)
Thematic analysis of clinical teachers’ experiences of feedback: What factors make it easier, or more difficult, to give feedback?

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Background: As feedback is essential to learners’ development, faculty should develop competence and self-efficacy in feedback skills. Effective feedback can be challenging because of the cognitive, technical, and psychosocial skills required. We examined factors that contribute to the “difficulty” of feedback based on teacher’s experiences.

Summary of Work: During two workshops on “giving effective feedback”, participants wrote about situations in which providing feedback was relatively easy and relatively difficult. Participants reflected on features of the situation, the learner, and themselves. Participants were clinical teachers responsible for medical student and resident education (n=23). All responses were anonymous. Thematic analysis of transcribed responses was performed using the constant comparative method.

Summary of Results: Three themes were identified: 1) The attitudes and skills that teacher and learner have related to feedback and professional development, including self-awareness; 2) the relationship between teacher and learner; and 3) contextual factors, such as time pressures, location and privacy, work flow, and prompts (e.g., evaluation forms).

Discussion and Conclusions: Teachers contribute to the feedback dialog by taking a learner-centered approach and matching content to learner’s needs. Learner receptivity influences the willingness of both to engage in a dialog. We will use this thematic framework to create video-recorded scenarios of varying difficulty utilizing standardized learners. Workshops using the videos will allow faculty to practice the cognitive, technical, and psychosocial skills required for giving effective and constructive feedback.

Take-home messages: Analysis of faculty experiences with providing feedback has identified themes which allow development of feedback scenarios of varying difficulty.
Development of a verbal feedback quality assessment instrument for health professionals in the workplace

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Background: It is common for a clinical educator to observe a student or junior clinician carry out a clinical task, which is followed by feedback regarding their performance. Effective feedback is vital for the development of expertise. However poor feedback can result in negative emotions (anger, humiliation, demotivation), damaged relationships and deterioration in performance. No published instrument exists to assess the quality of verbal feedback in the health professional workplace.

Summary of Work: An extensive literature review, involving health professional, education, business and psychology literature, was performed to identify important elements of an educator’s contribution to high quality feedback. A preliminary feedback quality instrument was developed based on these extracted elements. The instrument then was refined through three rounds of a Delphi technique involving a panel of experts.

Summary of Results: The feedback quality instrument contains twenty three items that describe observable educator behaviour in feedback. Although the instrument analyses the educator’s performance, the items describe educator behaviour that facilitates learner engagement in feedback.

Discussion and Conclusions: A feedback quality assessment instrument for health professionals in the workplace was developed by an extensive literature review and refined using a three-round Delphi technique involving a panel of experts. Further instrument testing in the field is planned.

Take-home messages: A feedback quality instrument has been developed to assess and guide the educator’s role in verbal feedback in the health professional workplace. It could also be used in faculty development to promote best practice feedback, as well as in research to evaluate the impact of feedback on performance.

Researching feedback dialogue using interactional analysis

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Background: Feedback conceptions in the literature can broadly be categorised in relation to the following perspectives of learning: information transmission, constructivist and sociocultural. Feedback may be understood as information transmission or ‘telling’. A constructivist perspective of feedback posits that feedback should develop students’ ability to monitor, evaluate and regulate their learning. Feedback as a social and cultural phenomenon can be seen in findings linking strength of the ‘educational alliance’ to feedback acceptance and the way institutional and professional cultures shape feedback practices.

Summary of Work: We systematically collated data from the assessment and feedback cover pages and journal entries of postgraduate students enrolled in the Certificate in Medical Education. Data analysis was informed by interactional analysis, where action is seen as social and situated, and mediated through the use of language including question asking, use of pronouns and other linguistic features.

Summary of Results: Multiple feedback dialogue loops between student and tutor, both across and within modules were clearly present in the data. Students and tutors initiate feedback loops. Materials also influenced the dialogue in unexpected ways. Feedback dialogue was related to task, process, self-regulation and self. The latter revolving mainly around relationship building/establishing rapport and reassurance; a common feature of the feedback dialogue within our online distance learning context.

Discussion and Conclusions: This systematic approach to analysing dialogic feedback enabled insight into previously undocumented aspects of feedback such as the interactional features that promote and sustain feedback dialogue.

Take-home messages: This paper contributes to the shift away from seeing feedback as input, to feedback as a dialogical process. Furthermore we present an innovative methodological approach to analyse feedback dialogue in situ.
Background: Increasing interest is directed towards longitudinal and organizational approaches to educational development in medical education. This paper reports on a strategic approach aiming to enhance educational development. A master’s programme in medical education was implemented in which a model of Scholarship of Teaching and Learning (SoTL) was applied throughout the programme. Participants study educational problems in their own practice, explore existing knowledge within medical education, investigate and develop their practice, document the process, get feedback from peers and make the results public. The participants come from different professions, like physicians, nurses, physiotherapists and represent different nationalities.

Summary of Work: The outcomes in terms of learning, professional development and dissemination were examined. Students from the first two cohorts (n=25) answered an open-ended questionnaire regarding their learning and the impact on the organization where they work. Contributions of scholarly work in terms of publications, submissions to conferences etc. were mapped.

Summary of Results: The results showed that they had applied a scholarly approach and changed their educational practice in different ways. Examining their own practice, relating to theory and comparing to other contexts were mentioned as important factors to develop confidence for change. 18 of 25 were involved in educational projects, eight articles had been published/submitted and 21 poster/oral presentations had been conducted.

Discussion and Conclusions: A master’s programme with a strategic approach can enhance development of educational practice both on an individual and an organizational level.

Take-home messages: Enhancing a SoTL approach in close connection to educational practice may support individuals’ ability to change their practice.
A Teaching Logbook for the Development of Doctors as Medical Educators

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Background: As junior doctors with formal teaching roles at Princess Alexandra Hospital (PAH), we directly observed the effects of near-peer teaching and its impact upon students, tutors and the teaching faculty. As educators, we felt unable to demonstrate evidence for the preparation, accomplishment and reflection on our teaching activity and we lacked a conceptual framework to develop ourselves as teachers. We therefore designed and published a teaching logbook to bridge this deficit. This consisted of a teaching activity log which includes planning and reflection, a dedicated syllabus for personal development and recommended resources.

Summary of Work: The logbook was launched at PAH, recruiting more than 20 junior doctors. The research consisted of two elements; firstly we sought subjective feedback using a 6-point Likert scale exploring perceptions of using a logbook. We also organised a focus group in which we explored further the successes and shortcomings of the logbook, and took on board suggestions for improvements.

Summary of Results: Our data and feedback to date shows encouraging benefits of using the teaching logbook, although we recognise that there has been variable degrees of engagement by its users. It has also garnered great interest from the Education Faculty and the affiliated School of Medicine.

Discussion and Conclusions: A teaching logbook is a promising method of developing junior doctors as educators, guiding them in their development as effective and reflective tutors.

Take-home messages: We encourage institutions to consider using this teaching logbook to help develop their doctors as teachers.

Factors which augment or hamper medical teachers’ ‘Transfer of Learning’ of teaching skill at workplace

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Background: The aim of the study is to identify the factors that augment and hamper the ‘Transfer of learning’ of a teaching skill i.e. ‘tutoring in case based learning’ through a ‘formal’ faculty development approach i.e. ‘Workshop’ and transfer of that skill at workplace i.e. from the ‘faculty development community’ to ‘workplace community’.

Summary of Work: It is a mixed method study. For this, a survey was conducted at Riphah International University by using learning transfer system inventory LTSI (Holton and Reids A. Bates, 2003). The senior faculty from health and medical sciences (n=51, basic scientists=25 and clinical scientists=26) participated in the workshops on ‘tutoring’ in ‘case based learning’. At the end of the workshop, faculty filled out the LTSI (Holton and Reids A. Bates, 2003). The data was analyzed by using the SPSS VERSION 17. These factors were further explored through qualitative method i.e. ‘explanatory model’. Homogenous purposeful sampling was done and semi structured interviews were conducted with the 08 faculty members.

Summary of Results: Among the 16 factors of LTSI, the faculty rated higher (in MEAN value) to motivation to transfer, transfer design, transfer Effort performance expectation, performance, self efficacy, opportunity to use, Peer support, Learner readiness, content validity, Performance outcome expectation but rated borderline to supervisors support, positive personal outcomes, performance coaching, resistance to change, personal capacity for transfer and supervisor opposition. In Qualitative research the following themes were identified; positive organization environment, linking of trainings with promotions & rewards, supervisors and peer support & constructive feedback on performance, reflection after the faculty development activities and its use at workplace, use of teaching portfolios, use of peer coaching should be encouraged at workplace.

Discussion and Conclusions: It is imperative to consider the factors that helps in ‘Transfer of learning’ while planning, designing and implementing a faculty development program.
The motivational factors for participation in the course “Art of medical education”: A qualitative study

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Background: «The art of medical education» is a basic course for young and inexperienced medical teachers. The course was developed and delivered by the Croatian Association for Medical Education. 220 teachers from the Medical School, University of Zagreb finished the course. A comprehensive evaluation was performed after ten years of experience. We would like to present here the results of qualitative evaluation related to the motivational factors for participation at the course.

Summary of Work: Focus-group method was used with pre-defined discussion topics: motivation for the course; positive learning experience during the course; impact on the everyday teaching and suggestions for the course improvement. Four focus groups, with 32 participants, were held. Discussions were audio-taped, verbatim transcribed and analysed using grounded theory. Three researchers were, individually, analysed transcripts, applying open-coding, axial-coding and selective-coding in order to define categories and concepts. Finally, three of them meet together to discuss the results and to achieve consensus.

Summary of Results: The four categories describing the motivational factors emerged from the analysis: 1) obligation, requirements for the academic advancements; 2) personal interest, desire for a new knowledge; 3) combination of obligation and intrinsic motivation; 4) interaction and learning from others, colleagues as well as the course leaders. A naturalistic and narrative codes coming from the analysis will be present and discussed.

Discussion and Conclusions: Different motivational factors should be appreciated in the development and delivering any staff-development activities.

Take-home messages: How to transform obligation into intrinsic interest?
9J1 (18537)
Learning authentic Clinical Communication: An educational initiative based in the clinical workplace

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Background: Clinical communication education for medical students has become increasingly separate from the clinical workplace over the last twenty years in the UK. It tends to be front loaded to the early years of the medical school curriculum to a time when students have little experience of working with patients. Many good reasons exist for this separation, however learning by simulation alone is not ideal and the literature now points towards a new direction for clinical communication teaching and learning that blends experiential learning with authentic experiences in the clinical workplace.

Summary of Work: The Communication on the Wards project was created to build upon prior initiatives to integrate teaching with ward based learning in an authentic environment with patients, students and clinical communication teachers working together. The project ran from January to July 2013 with senior medical students who signed up electronically to work with clinical communication teachers on hospital wards to interview and clerk patients and receive detailed feedback on their performance.

Summary of Results: The presentation will describe the practical structure of the ward based teaching session and the workplace learning pedagogy underpinning it, as well as sharing evaluation data, both individual and from a focus group, of the 40 student participants of the project.

Discussion and Conclusions: The presentation will conclude with an overview of the challenges and successes of the project together with thoughts for the future of this kind of teaching and learning and how it can be sustainably integrated into the core undergraduate curriculum.

Take-home messages: Workplace learning theory emerges from the literature to point the way to inform the teaching and learning of Clinical Communication in the undergraduate medical curriculum. This teaching initiative demonstrates a practical way to do this for the future.

9J2 (23115)
Empathy, Self-Disclosure, and Boundary Turbulence with Advanced Cancer Patients

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Background: Empathy as well as Boundary Management are essential elements of communication between physicians and patients with advanced cancer. Previous studies show that physician self-disclosure is frequent and empathy infrequent.

Summary of Work: Objective: Increased understanding of cancer communication involving empathy and patient-physician boundaries.

Design: Standardized patients (SPs) portrayed patients with advanced cancer consulting a new physician. Physicians consented to unannounced SP audio-recorded visits. Sample: 34 audio-recorded visits with 18 community family physicians and 16 community oncologists. Analysis: Qualitative thematic analysis, iteratively creating a coding system using key words and phrases in areas of interest, and assessment of whether the impact was patient or physician-centered.

Summary of Results: Three dialogue categories included physician statements concerning the patient’s experience–empathy, affirmation, and acknowledgement; and 3 concerned the physician’s experience–self-disclosure, transparency, and projection. Physicians responded to 66% of patient cues for acknowledgement or affirmation whereas only 19% to patient cues for empathy. Physician transparency (91%) was very common, and physician self-disclosure (65%) was common in these encounters. Twenty-nine per cent of physician self-disclosures and 79% of physician transparencies were coded as Useful. Useful and Not Useful self-disclosures were highly correlated; empathy, Useful and Not Useful transparency, and projection were moderately correlated.

Discussion and Conclusions: Whereas empathic statements by physicians remain rare, acknowledgement and affirmation (“empathy-light”) were common. Most physicians self-disclosed but few of these were judged patient-centered. Physicians using empathic statements and patient-centered transparency were more likely to use projection and physician-centered transparency, thus engaging in boundary turbulence.
Take-home messages: Boundary management, in addition to empathy, is important in physician-patient communication training.

**9J3 (22504)**

**A Matter of Attitude – analysis of reported changes in student attitude towards clinical communication pre and post curriculum intervention. A novel report from a new curriculum in Pharmacy**

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**Background:** The MPharm at Birmingham was initiated in October 2013, providing opportunity to create an innovative, highly novel, evidence based and creative approach to helping students develop their communication ability and professional identities. Design of the course revolves around the concept that all of the professionalism teaching relates to a single, complex simulation evolving over the entire programme. In Year 1 students were introduced to ‘Wood Brooke’, a fictitious (but plausible) inner city pharmacy servicing a GP surgery and community-hospital, with central ‘families’, pharmacy, staff and population demographic. Teaching methods include panel-interviews, group and one-on-one role plays with simulated-patients, lectures and small group cases. New characters are ‘fed in’ by live role play or video links.

**Summary of Work:** Pre-teaching, students (n=80) completed a validated CSAS (Communication Skills Attitude Scale), which will be repeated March 2014 to identify shifts in outlook related to students’ fundamental attitudes and values relating to the importance of good communication for pharmacists and their feelings about how clinical communication is taught at Birmingham. Focus groups with first year Pharmacy students in their second semester will provide qualitative feedback on positive and negative attitudes towards clinical communication learning.

**Summary of Results:** Results will be presented first at AMEE 2014.

**Take-home messages:** Findings from both methodologies will be used to develop the communication curricula and complex simulation for subsequent years and to refine first year teaching interventions.

**9J4 (20694)**

**Challenges in the communication between doctor and patient with different ethnic backgrounds: A realist review**

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**Background:** Due to migration worldwide, doctors see patients from many different ethnic backgrounds. This causes challenges for doctor-patient communication and the training of doctors. Many papers have been published in this area, but a recent overview of the influencing factors of intercultural communication is missing. We therefore used a realist synthesis, allowing us to use an exploratory focus to understand the interplay of communication between doctor and patient in an ethnic cultural context.

**Summary of Work:** A systematic search was done to find literature published till October 2012 using MEDLINE, EMBASE, PsycInfo, Cinahl and Cochrane and Education Resources Information Centre (ERIC). The terms used were related to intercultural communication and included cultural, ethnic, communication, healthcare worker and synonyms of these words.

**Summary of Results:** One hundred and forty-four articles met the inclusion criteria. Influencing factors of intercultural communication between doctor and patient are derived from the level of both the patient and the doctor. An influencing factor for the doctor was, for example, knowledge of communication with ethnic different patients. Practice experience and a good doctor-patient relation were found to facilitate the communication. On the patient’s side, language differences and experiences with healthcare influenced the communication. Knowledge of the medical system was a facilitator.

**Discussion and Conclusions:** Differences in ethnic backgrounds between patient and doctor seem to influence the communication process. Insight into the influencing factors provides input for the development of communication training for doctors.

**Take-home messages:** Doctors should know the influencing factors of intercultural communication in order to facilitate their communication with their patients.
9K SHORT COMMUNICATIONS: Empathy
Location: Amber 4, Level +2, MiCo

9K1 (21765)
How students learn empathy: The adventure and exploration in empathy-promoting activities

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Background: Empathy underlies one of the key professionalism goals of medical education. Various exercises and activities have been introduced to promote empathy and other humanistic values, yet it is not clear how students learn empathy in these activities.

Summary of Work: This study aimed to explore how students learn empathy for patients in two learning activities – “Disease Lottery” and film discussion groups. In “Disease Lottery”, each student group with 3-4 members was paired with one patient. Students interviewed the patient, imagined themselves as the patient and gave presentations in a first-person narrative as if they were the patient. In film discussion groups, 6-8 students discussed in groups about how characters in the movie think and feel after watching this movie. The authors interviewed these students, analyzed the audio records, and attempted to identify students’ learning responses in these activities.

Summary of Results: Preliminary data suggest that students found these activities useful, and their empathy learning was triggered by peer interaction, the rich context and the experience brought out by the activity, and the connection between the student and the target object. A more detailed analysis will be provided.

Discussion and Conclusions: Empathy learning is a complex process with many factors determining the outcome. Findings from this study will enable the enhancement of empathy teaching effectiveness.

Take-home messages: The further understanding about how students learn in empathy-promoting activities helps educators enhance teaching effectiveness.

9K2 (22147)
A multi-institutional study on empathy and personality

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Background: Associations between students’ personality and empathy have been shown in a small number of studies conducted in single institutions. This is a multi-institutional study that assessed associations between students’ personality and empathy across institutions in Portugal.

Summary of Work: This was a questionnaire study with the Portuguese adaptations of the NEO-Five Factor Inventory (NEO-FFI) and the Jefferson Scale of Physician Empathy (JSPE-spv). The participants were 472 undergraduate students from three medical schools (response rates=81.2%, 87.1% and 87.3%). A sub-sample of 334 students was selected to assess personality differences between the students with the highest (Top tercile, M=121.9; SD=8.6) and the lowest (Bottom tercile, M=97.8; SD=5.6) empathy scores.

Summary of Results: A regression model with gender, age and university had a predictive power (pseudo R2) for belonging to the top or bottom empathy group of 6.4%. The addition of personality dimensions improved the predictive power to 16.8%. Openness to experience and Agreeableness were important to predict top or bottom empathy scores when gender, age and university were considered. Based on the considered predictors the model correctly classified 69.3% of all students.

Discussion and Conclusions: There were across-school associations between the Big5 dimensions Agreeableness and Openness to experience and the empathy of medical students. Personality made a significant contribution identify the students with top empathy scores.

Take-home messages: To understand how to enhance student empathy, medical schools may need to pay attention to personality.
Self assessed empathy and stress in medical students. A pilot study at University of Witten / Herdecke

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Background: According to different studies, empathy significantly decreases during medical education and residency. We wanted to know whether there are differences concerning empathy and distress between medical students of different years of education at Witten / Herdecke University, where a problem-based and practice based curriculum is realized.

Summary of Work: We conducted a cross sectional pilot study with an online questionnaire focusing on empathy, distress and learning environment. 172 questionnaires of medical students from 1st to 6th year (return rate 36%) were analyzed.

Summary of Results: High rates of self-assessed empathy (Interpersonal Reactivity Index, Jefferson Scale for Physician Empathy) were discovered in all years without significant differences. High values for distress were found (WHO-5, distress thermometer). Distress was mainly caused by aspects of the hidden (e.g. emotional pressure), formal and informal curriculum (e.g. inadequate role models and unsuitable learning environment). Students recommend organizational and structural changes, development of lecture and didactics, personal feedback and adaption of examinations.

Discussion and Conclusions: In contrast to other studies, we did not found a decline for empathy in different years of medical education. Whether this is due to the special curricular aspects at Witten / Herdecke University or due to other reasons remains open. The study population shows high grades of self-assessed empathy. To prevent students from distress further development of curriculum and learning environment is necessary. The students recommendations could be helpful to reach this goal.

Take-home messages: First results from German medical students show high rates of self-assessed empathy, independent of academic year. Distress does not correlate with empathy scales.

Don't tell me, show me: Promoting empathy and facilitating consistent learning in psychiatry

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Background: The University of Southampton psychiatry clinical attachment offers a spiral curriculum in Third and Final years, enabling students to learn a range of topics over time. Teaching, delivered by multi-disciplinary teams at 27 centres, brings students rich but different learning experiences.

Summary of Work: To ensure a consistent learning experience while keeping the diverse opportunities offered, a Psychiatry Portal (www.sotonpsychiatry.co.uk) was introduced in 2009. Using topic-based approach it supports the spiral curriculum by providing interactive learning on core sciences, virtual cases, and symptoms and signs for 8 topics. Core sciences present succinct concepts in a visually engaging manner. Designed to promote empathy, virtual cases illustrate compelling longitudinal patient stories with tasks, demonstrating the development, evolution and outcomes of psychiatric conditions. Symptoms and signs are short videos of clinical phenomena. Using questionnaire, interviews and tracking student experience was investigated in 2013.

Summary of Results: 75 and 20 students participated in the questionnaire and interviews. Overall feedback was positive. 92% agreed with the portal helping their study and preparation for Psychiatry training; 83% learning the scientific knowledge from the Portal enabling them to link it with conditions they saw on clerking patients and making differential diagnoses; and 74% using the Portal reinforcing their confidence in talking to patients. Tracking data supported these, showing high portal usage, i.e. in 2012-2013 290 used the depression core sciences, 206 virtual case and 121 symptoms and signs.

Discussion and Conclusions: The Psychiatry Portal, offering interactive emotionally engaging learning, facilitated and enhanced student learning of psychiatry.
Take-home messages: Visual and emotionally engaging eLearning enriches student learning of psychiatry.
9L1 (20042)
Development and Delivery of a Physician Management & Leadership Program (PMLP) in Newfoundland and Labrador (NL), Canada

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Background: While all physicians should be able to demonstrate various leadership and manager skills, many are asked to take on such roles without relevant training.

Summary of Work: Needs assessment (literature review, interviews, online survey); program design, delivery, and evaluation.

Summary of Results: A needs assessment identified preferred topics, delivery formats, and features unique to physician leaders in NL. Ten modules were developed and delivered using a hybrid model consisting of in-person and online sessions between September 2012 and April 2013. Thirty-seven (N=37) participants; 81.1% were in leadership positions (70.0% for less than five years). Paired samples t-test analyses of pre/post data indicates significant increases in post-module knowledge and confidence at p<.05 probability level. Overall, 91.0% of participants agreed the modules were relevant to their current positions. Six months’ post-program evaluation data collected from participants and stakeholders demonstrated improved performance and application of knowledge/skills obtained from the program in the workplace.

Discussion and Conclusions: This program successfully addressed some of the educational needs of physician leaders in NL and the local context in which they lead and practice. Evaluation data shows significant increases in knowledge and confidence, satisfaction with the program, and impact on the workplace and subsequent healthcare delivery.

Take-home messages: Memorial University, the provincial government, and the regional health authorities are collaborating to design, develop, deliver and evaluate PMLP. The program serves as a key resource for physician leaders who have an interest in further developing their healthcare management and leadership abilities in this province.

9L2 (20590)
Do residents receive feedback on leadership competencies? A framework analysis

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Background: Clinical leadership is important for quality, safety and efficiency in patient care. Clinical leadership can be divided into five domains of competencies: (1) demonstrating personal qualities, (2) working with others, (3) managing services, (4) improving services, (5) setting directions (Medical Leadership Competency Framework, 2011). Residents receive feedback on CanMEDS roles during their training. Since leadership is not an explicit CanMEDS role, we wondered whether feedback on leadership is implicit part of this feedback and whether it fits into the five leadership competency domains.

Summary of Work: We used 600 feedback forms of internal medicine residents. We performed a five-step framework analysis: (1) selecting feedback on leadership; (2) identifying a thematic framework for coding the leadership feedback; (3) pilot indexing the leadership feedback; (4) charting leadership feedback on the framework and; (5) interpreting the data, examining whether the five leadership competency domains were reflected in the feedback.

Summary of Results: Of the 600 forms, 77 contained feedback on leadership, in total 120 comments. The framework analysis revealed five themes: (1) personal leadership; taking charge of professional growth, (2) multidisciplinary collaboration, (3) management of persons, time, means. These three themes fit into the first three leadership competency domains mentioned before. Furthermore, we found (4) vision and (5) directions, which both fit into the domain setting directions.

Discussion and Conclusions: Residents do not receive a lot of feedback on their leadership competencies. The provided feedback fits into four of the five domains of leadership competencies. Little attention has been given to the domain improving services. Future research should identify situations that are useful to generate explicit feedback on leadership competencies.

Take-home messages: Explicit and specific feedback on leadership behaviours is necessary for residents to develop clinical leadership.
9L3 (22204)
Developing the role of leader in residents: Wonder & Improve

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Judith Voogt, UMC Utrecht, Internal Medicine and Dermatology, Utrecht, Netherlands
Olle ten Cate, UMC Utrecht, Center for Research and Development of Education, Utrecht, Netherlands
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Background: Societal changes have caused a competency- and outcome-based educational reform in (under)graduate training programs. Emphasis on leadership roles and systems-based learning has been promoted by the Next GME Accreditation System and CanMEDS 2015. The Wonder & Improve method was developed at the UMC Utrecht to strengthen these competencies in residents.

Summary of Work: The effect of implementing the Wonder & Improve method on the development of leadership skills and organizational awareness in residents was investigated. In elective sessions, residents are challenged to keep wondering about inadequacies in clinical practice. Next, they prioritize these points for improvement, translate them into improvement projects and take initiative for carrying them out. The method was successfully implemented in six residency programs in the Netherlands. Improvement points were analysed and the effect of the programme on leadership skills was assessed.

Summary of Results: A total of 114 improvement points were identified by the residents in 13 sessions. Most improvement points were related to organizational (63%) or technical (29%) factors. The intended improvement of health care quality mainly focused on efficiency and safety. Residents mentioned that they gained insight and ownership on organisational issues. Moreover, they felt empowered for changing clinical practice.

Discussion and Conclusions: This study shows that it is possible to create leadership skills and organizational awareness among residents using the Wonder & Improve method. This indicates that a situated learning approach can be applied for implementation of intrinsic CanMeds roles in postgraduate training.

Take-home messages: Organizational awareness is an important first step to develop leadership skills. A situated learning approach appears to be effective.

9L4 (19804)
Developing a National Leadership Programme for Directors of Nursing and Midwifery in Ireland, a co-design approach

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Background: This study describes how a co-design approach was used to develop a National Leadership Programme for 75 Directors and Assistant Directors of Nursing and Midwifery in Ireland. The overall programme aims were to enhance individuals’ leadership competencies and support strategic organisational development and reform in the Irish healthcare system.

Summary of Work: Participants attended an ‘Assessment Centre’, completing competency based assessments and psychometric tests. At workshops they co-designed the programme outcomes, content, structure and learning methodologies. Participants agreed criteria for the strategic organisation development (OD) projects and executive coaching.

Summary of Results: Learning priorities were mapped against a leadership competency framework which informed programme content and structure – a 6 month 3 x 2 day modular programme including master-classes, networking events and project presentations. The strategic OD projects were facilitated through regionally based action learning teams. Executive coaching was provided throughout.

Discussion and Conclusions: The co-design enabled the creation of a multifaceted programme. The competency framework, psychometrics assessments, and robust theoretical models provided rigor. Regionally based action learning teams enabled participants’ model new ways of working across the new structures being implemented in the Irish system. Success of this leadership development programme was attributed to the co-design process by engaging participants as adult learners and partners. It provided us with sufficient flexibility in meeting participants current and emerging development needs whilst ensuring a sound pedagogical underpinning.

Take-home messages: Leadership is a ‘social activity’ best learned through experiential and reflective activities. Co-design approaches to leadership development enable discovery of what really matters to leaders and their development.
More text box than tick box: An analysis of a narrative leadership feedback tool

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Background: Research points to the effectiveness of narrative feedback, reflection and subsequent action planning. Building on a small scale study, we continued our investigation into the quality of a narrative leadership tool used in the south east of the UK. The LEADER tool, for assessing leadership competencies, records a professional conversation between trainer and trainee.

Summary of Work: Using specificity of feedback, evidence of reflection and the recording of developmental goals as our primary indicators of quality, we analysed a sample of LEADER tools. Each LEADER was analysed for the three indicators of quality with a 4 point scale for each indicator ranging from 0 to 4 e.g. 0, no specific feedback through to 3, very specific feedback.

Summary of Results: The results confirmed those of our initial local study. 76% of assessments provided specific/very specific feedback. 75% indicated very clear/clear developmental goals being set. Only 55% of LEADER tools analysed provided some evidence of trainee reflection and this seems to be the least satisfactory aspect of the tool.

Discussion and Conclusions: The LEADER tool is a relatively new, qualitative assessment tool. Used in a professional conversation between trainer and trainee, it tries to capture, in words, the nuances of trainees developing and sometimes struggling with specific leadership skills. Building on preliminary work in assessing this narrative tool, our analysis continues to support the value of the LEADER tool in capturing narrative feedback to trainees that is specific and which sets developmental goals. Work is perhaps needed in encouraging trainers and trainees to develop ways of encouraging and recording reflection on leadership experiences.

Take-home messages: Our leadership assessment tool helps shape narrative feedback that is useful in terms of the specificity of feedback and in the setting of developmental goals for trainees.

Leadership in crisis situations: Merging the interdisciplinary silos

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Background: Crisis situations in medicine pose a significant threat to patient safety. When these rare crisis situations occur, patient outcome is critically dependent on a coordinated interprofessional and interdisciplinary health care team for effective and timely intervention. Traditionally a single medical specialist assumes the role of team leader. However, certain clinical situations require the simultaneous involvement of multiple specialists, who are individually trained to be team leaders. The aim of this study is to determine how different specialties approach the role of leader, in order to better define leadership, and improve interdisciplinary leadership communication and education.

Summary of Work: Our qualitative study features purposively sampled, semi-structured interviews, based on a literature review, with 27 clinicians, from three different specialties involved in crisis resource management in three different centers across the country; Otolaryngology, Anesthesia and Pediatric Emergency Medicine.

Summary of Results: We identified different physicians’ beliefs in what constitutes decisive leadership. We found that appropriate leadership transitions during crisis intervention is perceived to be more a function of the scenario. However, the personality of individual clinicians and their relationships in a particular hospital has proven to be of importance.

Discussion and Conclusions: The preliminary findings suggest that physicians have differing approaches to leadership in crisis situations and that leadership may need to be dynamic, fluid and transferred among physicians on a case by case basis.

Take-home messages: This study highlights the need for a potential shift in the way crisis team training is taught. A curriculum including interdisciplinary leadership skills and transference of leadership in crisis situations should be considered, and could be taught through simulation.
Dealing with the challenges to medical student learning of evidence-based medicine: A qualitative study

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Background: Evidence-based medicine (EBM) is a fixture in many medical school curricula. Yet little is known about challenges medical students face in learning EBM. Knowledge of these learning challenges can facilitate the design of EBM education to target these challenges and improve training.

Summary of Work: We interviewed 30 EBM educators (19 faculty members and 11 librarians) from medical schools in the United States (n=13) and Canada (n=4) to elicit perceptions of students’ EBM learning challenges and potential solutions. Based on Association of American Medical Colleges 2012 Graduation Questionnaire data, we selected institutions with at least 60% of graduates reporting confidence in practicing EBM. Interviews were recorded, transcribed and analyzed using thematic analysis. Initially two researchers reviewed all transcripts and, using open coding, identified codes related to EBM learning challenges. Codes were vetted by an additional researcher for appropriateness and then applied to all transcripts.

Summary of Results: We identified four categories of learning challenges: discomfort with uncertainty, insufficient clinical knowledge to contextualize questions, difficulty with EBM skills (e.g. an inability to critically appraise and locate evidence) and lack of faculty role models. Participants identified possible solutions to these challenges including: use of inquiry-based learning, integration of case-based methods, development of online skills modules and faculty development. To build upon suggested solutions, we considered our findings in the context of learning theory and instructional design principles.

Discussion and Conclusions: Our findings identified several challenges students face when learning EBM and potential solutions. This knowledge, in conjunction with guidance from educational theory, can be used to inform EBM curricular reform.
9M3 (18968)
Evaluating an innovative quality improvement initiative undertaken by final year medical students

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Background: Frontline quality improvement (QI) in healthcare entails learning from data to improve care. We teach medical students a framework and measurement strategies and in their final year they conduct a QI clinical audit project during their Obstetrics and Gynaecology clinical placement.

Summary of Work: We evaluated the QI project using a mixed methods approach (questionnaires, focus groups, a workshop, and observation). We aimed to: identify workload, satisfaction and achievement of learning objectives; identify opportunities to improve the project and revise it; and implement the changes and re-evaluate.

Summary of Results: At baseline, 68 people completed the online questionnaire (21 students, 47 staff), 32 students participated in focus groups; and 17 participated in a workshop. Strengths: value to clinical staff and service, acquisition of QI skills, shared learning and the importance of accurately measuring and monitoring processes of care. Challenges: lack of engagement by clinicians, difficult access to patient records, time constraints to complete/supervise the projects. Revisions: refined processes for topic selection and written report, more resources to assist students and staff. The post evaluation (questionnaire-11 students, 11 clinicians; focus groups, 20 students) evaluation revealed: more focused and appropriate student audit topic selection, improved standard and utility of written reports, and improved standard of oral presentations.

Discussion and Conclusions: This evaluation has highlighted the value of embedding QI skills in undergraduate medical teaching programmes. Take-home messages: Streamlining processes through formative evaluation facilitates high quality student QI projects in a complex setting, given time constraints and competing learning priorities.

9M4 (19124)
Why is Gender Medicine a Must in Medical Training?

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Background: Gender Medicine needs to be incorporated in the curriculum of all medical degree programs. This as usual meets with strong resistance on the part of students to efforts to increase their course load and exam burden.

Summary of Work: We decided to incorporate Gender Medicine in the compulsory curriculum to make it a "normal" course. These efforts were supported by various legal and ministerial “Gender subsidies and guidelines.”

Summary of Results: At Innsbruck Medical University Gender Medicine was in 2008 incorporated in the compulsory curriculum of all medical degree programs, human medicine, dental medicine and molecular medicine, namely in Semesters 3 and 10. Moreover, Gender Medicine is compulsory in the Clinical-PhD-program. In 2013 Gender Medicine was introduced as a key word for registration of diploma and PhD-theses and without advertising this fact already identified 127 diploma and eight PhD-theses in the first year.

Discussion and Conclusions: The model for implementation of Gender Medicine in compulsory medical education and as part of the examinations has over the years, as anticipated, caused it to be viewed as "normal" despite initial resistance and aggression. Meanwhile, even the benefits of Gender Medicine, namely various possibilities for subsidies, have been recognized and utilized.

Take-home messages: Gender Medicine can and should be incorporated in all compulsory medical curricula. For science it offers new research approaches and possibilities for subsidies as well as being the basis for tailored offerings in prevention, diagnosis, therapy and rehabilitation for our patients.
9M5 (22231)
Perceived effects of a mind-body training program on physicians: Exploratory study

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Background: Awakening the “Sensible” Being (ASB) is a formative practice developed in Europe geared toward care giving and support. It examines how use and movement of the body allow for the development of presence to oneself and to others, both of which are desirable qualities for health-care professionals. To our knowledge, there have been no studies that have specifically examined the effects of ASB on physicians. Our objective was to explore if and how ASB training followed by physicians modifies the quality of their self-awareness, their presence to others, as well as their relationship to health and their medical practice.

Summary of Work: Qualitative research based on two types of semi-structured interviews (comprehensive and elicitation) conducted with six doctors from France having completed their ASB training (500-hours over 4 years). The content of the interviews was first analyzed thematically then grouped into categories linked by items and sub-items.

Summary of Results: Participants report taking more active responsibility for their health. Several note a greater self-awareness allowing them to make new choices based on their needs. Some report better mind-body equilibrium with more coherence in their lives. In certain circumstances, they consider being more attentive to self-care. Regarding their professional lives, they report being more aligned with their vocational identity and notice changes in their professional relationships including with their patients.

Discussion and Conclusions: ASB appears to be an interesting type of formative practice for the development of certain qualities deemed valuable for health-care professionals.

Take-home messages: Mind-body training programs such as ASB may provide interesting avenues for professional development of health-care professionals.

9M6 (20799)
Health promotion / prevention program: Outlining a competency-based teaching programme

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Background: Brazilian health promotion and prevention programmes are usually done by clinicians dedicated to family and community medicine. Medical students learn its principles by lectures and seldom may develop their knowledge in the community. Our curriculum is still dedicated to specialist medical formation. This contrasts with our community needs, as nowadays we have high rates of chronic diseases.

Summary of Work: Project intends to sensitize students about the importance of health promotion and morbidity prevention, providing competency based training for the recognition of modified factors that increase cardiovascular morbidity. The challenge is to select risk group by biometric exams and “point of care” laboratory tests: glucose, cholesterol, and triglycerides.

Summary of Results: Steps: (1) evaluate of specific knowledge at the beginning and at the end of the project; (2) use self-evaluation of health status as a sensitizing strategy using lab tests and a structured anamnesis with database information that allows outlining specific diseases risks; (3) development of the whole program by the students at the university hospital staff.

Discussion and Conclusions: The proposal programme works towards the “shows how” level in Miller’s pyramid.

Take-home messages: A relevant point is to dedicate special efforts to the implementation of health promotion programmes at specific clinics, as cardiology, where the curriculum is based at diseases studies. That is the reason why we started the project at our university hospital. Even though the disease approach is mainly emphasized in hospital, this paradoxical situation may be a strong aid for the students’ perception in the promotion and preventing the same diseases they will face in the future.
**9N1 (18971)**  
Are academic achievement, age, gender and year of study related to Emotional Intelligence in undergraduate medical students?

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**Background:** Emotional Intelligence (EI) is the ability to deal with your own and others emotions. Emotional intelligence is thought to be significant in achieving good interpersonal relationships and success in academics, life and career. Therefore, it is important to measure EI and understand its correlates in an undergraduate medical student population.

**Summary of Work:** The objective of study was to investigate the relationship between the EI of medical students and their academic achievement (based on cumulative grade point average), age, gender and year of study. A cross-sectional survey design was used. The Schutte Self Report Emotional Intelligence Scale (SSREIS) and demographic survey were administered in the three medical schools in Saudi Arabia from April-May 2012.

**Summary of Results:** The response rate was 30%. For the Optimism subscale, the mean score was $M=3.79$, $SD=.54$ ($α=0.82$), for Awareness-of-emotion subscale $M=3.94$, $SD=.57$ ($α=0.72$) and for Use-of-emotion subscale $M=3.92$, $SD=.54$ ($α=0.63$). Multiple regression showed a significant positive correlation between CGPA and the EI of medical students ($r=.246^{**}$, $P=.000$) on the Optimism subscale. No correlation was seen between CGPA and Awareness of Emotions and Use of Emotions subscales. No relationship was seen for the other independent variables.

**Discussion and Conclusions:** The current study demonstrates that CGPA is the only significant predictor, indicating that Optimism tends to be higher for students with a higher CGPA. None of the other independent variables (age, year of study, gender) showed a significant relationship.

**Take-home messages:** There is insufficient evidence to support the inclusion of EI as a criteria for selection of medical students. The trainability of EI and its positive effect on student achievement merits further investigation.

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**9N2 (20517)**  
Emotional intelligence development in 1st year allied health professional students

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**Background:** Mackay et al 2013 found that the trait Emotional Intelligence (EI) of allied health students at the start of their training programme was statistically significantly different from their qualified counterparts. The mean Global EI score for qualified practitioners was higher than the students suggesting changes in student EI might occur during university education. However, Petrides 2009 states that Trait EI scores are likely to remain relatively stable across the life-span. This study aims to demonstrate any change in EI during the first year of radiotherapy and diagnostic radiography degree programmes.

**Summary of Work:** 502 1st year students from degree programmes at four universities (Hong Kong, Ireland, UK, Australia) were invited to complete an online Trait EI questionnaire on three occasions (beginning, middle and end) during year one of study. A Repeated Measures ANOVA (Greenhouse-Geisser methods) was undertaken across the three time points with correction for difference in age and gender along with an analysis of the 1st and 3rd time points using a paired T-test.

**Summary of Results:** 81 students completed all three questionnaires ($n=16\%$) with males=21 ($25.9\%$) and females=60 ($74.1\%$). The ANOVA revealed no statistically significant differences across the three time points. 109 students had completed questionnaires for time points 1 and 3 ($n=22\%$). The paired T-tests revealed no statistically significant differences.

**Discussion and Conclusions:** No change in emotional intelligence was evident in this sample during the first year of the degree programmes.

**Take-home messages:** Emotional intelligence might not be developed during the first year of practitioner training.
9N3 (20748)
The influence of motivation on learning and academic performance of medical students: A review of the literature

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Background: Our earlier review (Kusurkar et al. 2011) on motivation in medical education highlighted the association of motivation and academic performance, but the underlying mechanisms need further investigation. The research question for the current review was “How does motivation influence learning and/or academic performance in medical students?”

Summary of Work: We chose to use the broad literature search strategy for PubMed and PsycINFO (1979-2013), and ERIC (until 2010) from Kusurkar et al. (2011). We then selected only articles investigating the relationship of motivation with learning and/or academic performance. Application of the other inclusion and exclusion criteria led to selection of 24 articles which were analysed using a meta-ethnographic approach.

Summary of Results: Across 8 studies, Pearson correlations of motivation with learning ranged from 0.13 to 0.59. Across 9 studies, Pearson correlations between motivation and performance ranged from -0.16 to 0.29. Three among these nine studies employed Structural Equation Modelling (SEM) and found that motivation positively influences learning which in turn influences academic performance either positively or negatively. These three studies included a few common and a few different variables, like intrinsic motivation, mastery and performance goal structures, task value etc., in their models, based on three different theories. Ten articles on motivation and performance did not add any information for exploring underlying mechanisms.

Discussion and Conclusions: Motivation seems to have a definite influence on learning, but the mechanism of influence of motivation on academic performance needs further clarification.

Take-home messages: A model of motivation and academic performance is proposed using an integrative approach combining different theories and factors identified in this review.

9N4 (22212)
Exploring fortigenesis in medical students

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Background: To increase student throughput and retention a reductionist perspective of understanding the student as a passive receptacle of processing information has to be discarded. Students need to be understood holistically within their dynamic complexities. Fortitude is important in the development of self-regulated individuals who can effectively deal with the demands of university life and achieve academic success. Also, medical students work within a humanistic-oriented care approach, insight and understanding of fortigenic factors will be particularly salient to them as the nature of their work demands that they be responsible for their own well-being in order to effectively manage the wellbeing of their patients. Fostering insight and a positive sense of self as conceptualized by the theory of fortigenesis, could positively facilitate the process of transformative learning thereby contributing to academic performance. This study explores the level of fortigenic factors in medical students.

Summary of Work: Study was conducted at the Nelson R Mandela School of Medicine with first and third year medical students. The Fortitude Questionnaire and The Motivated Strategies for Learning Questionnaire administered, were found to be valid and reliable instruments. Data was analysed with SPSS. Inferential techniques included the use of correlations and chi square test values; which were interpreted using the p-values.

Summary of Results: The results revealed significant correlations between fortitude and Critical Thinking, Help Seeking behaviour, Control of Learning Beliefs, Metacognitive Self-regulation and Intrinsic Goal Seeking behaviour. A converse relationship was found between levels of fortitude and test anxiety.

Discussion and Conclusions: Developing fortitude amongst students may not only foster more resilient and academically stronger students but it may also be critical for the development of therapeutic patient relationships.

Take-home messages: Strengths perspective: Fortigenesis is an import consideration for medical students’ academic success.
Discussion and Conclusions: Lower resilience was associated with lower self-reported QoL in this large, randomized sample of Brazilian medical students.

Take-home messages: Resilience influences self-reported QoL during medical school.
Introduction: Closer levels of clinical supervision are increasingly promoted in teaching hospitals to ensure patient safety. However, the current literature fails to establish how a supervisor's bedside presence influences a trainee’s involvement in patient care and learning opportunities. A supervisor’s ability to respond simultaneously to both patients’ and trainees’ needs in fast-pace, high-stakes clinical environments requires further exploration.

The objectives of this PhD were to:
1. study the effects of level of clinical supervision on patient care and trainee learning during acute care episodes;
2. explore the learning opportunities emerging from the clinical activities performed in acute care environments;
3. better understand the tensions between service and education experienced by the medical trainees and clinical supervisors in acute care environments.

Methods: This program of research combined two sequential studies:
The first, simulation-based, study was a mixed-methods study. Fifty-four residents each completed a first supervised scenario, followed by a second unsupervised scenario, both related to similar medical crises. For the supervised scenario, residents were randomly assigned to one of three levels of clinical supervision (distant, direct, immediately available). Measures of quality of care, trainee’s participation in patient care, and trainee learning were collected for the quantitative analysis. Supervisor-resident interactions were recorded for the qualitative phase of the study.

The second, observational, study was based on constructivist grounded theory methodology. We used purposive sampling and participant observation for data collection. Two observers spent approximately 350 hours in critical care units of two academic hospitals. We observed the interactions between residents, critical care fellows, and attending physicians during 74 acute care episodes. Fieldnotes were collected and analysed using an iterative process and theoretical sampling.

Results: Results from the simulation-based study revealed that a closer level of supervision led to better patient care and decreased resident participation, but had no impact on learning. The qualitative findings of this study explained how trainee and supervisor involvement in patient care was only partially related to the level of clinical supervision. Significant learning opportunities emerged from supervisor-trainee interactions.

The observational study further explored the interactions among supervisors and trainees that focused on learning. We described how these interactions allowed supervisors to promote various degrees of trainee involvement in patient care, and how trainee involvement could become the object of further learning interactions. We also focused on the transitions from patient care to learning (shifting to learning) to identify the main triggers and hindrances of these shifts, and the strategies used to overcome unfavorable conditions for learning. We compared how our participants balanced patient care and learning in different clinical contexts: multidisciplinary rounds and medical crises. Different strategies (in series vs. in parallel) appeared adaptive to different contexts and presented different learning opportunities.

Discussion and Conclusions: Closer level of clinical supervision appears to benefit patient care without negatively affecting learning. Learning and patient care overlapped at times, but at other times were distinct activities that competed for participants’ time and attention. We believe that supervisors, to interact effectively, must not only understand how learning works, but also how the context in which learning occurs can affect their ability to interact.

Developing a socio-constructivist, community of inquiry-based conceptualisation of critical thinking and applying this to investigate critical thinking in problem-based learning tutorials

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Introduction: Critical thinking is considered to underpin clinical reasoning, clinical judgment and decision-making. Promotion of critical thinking is one of several intended learning outcomes claimed for the problem-based learning (PBL) component of medical curricula, but there is relatively little empirical evidence for this. Moreover, existing studies fail to take account of the social interactions of PBL group members and the effect of hard scaffolding (e.g., scenarios, PBL process) and soft scaffolding (facilitative interventions) on enabling or impeding critical thinking. Especially relevant to critical thinking in the context of PBL tutorials is Lipman’s (1) socio-constructivist concept of the Community of Inquiry (Col). This is a social group characterized by the constructs of cognitive presence (critical thinking); social presence, arising from the social environment and social interactions of group members; and teaching presence, in the form of hard and soft scaffolding. Garrison, Anderson & Archer (2) developed a theoretical framework and coding scheme based on the Col constructs and used this to analyse computer-mediated communications. An
adaptation of this Framework was developed to investigate critical thinking in the PBL context. Research questions were:

1. To what extent is critical thinking demonstrated by students participating in PBL tutorials in the early years of a Scottish medical curriculum?
2. To what extent does the social environment and social interactions influence whether critical thinking takes place in this context?
3. To what extent does teaching presence influence whether critical thinking takes place in this context?

**Methods:** Six PBL groups were recruited from the pre-clinical years of a Scottish medical curriculum. For each group, a two-hour PBL tutorial was recorded on audio- and video-tape. Audio-tapes were transcribed. Video-tapes were helpful in identifying speakers. Transcripts were subject to interpretative analysis, using the adapted CoI Framework.

**Results:** The CoI Framework allowed identification of aspects of critical thinking during different steps of the PBL process, but particularly during the brainstorm of learning issues; and when students shared answers to previously-set objectives. Critical thinking generally manifest as external exploration/information gathering and internal exploration/creative thinking. Both hard and soft scaffolding could enable these aspects of critical thinking. Positive and negative manifestations of social presence were identified, but it was less clear whether these directly enabled or impeded aspects of critical thinking.

**Discussion and Conclusions:** Aspects of critical thinking were enabled by particular types of facilitator intervention, including the asking of probing questions; by scenarios with ethical or social dimensions; and by simple adaptations to the PBL process, such as the numbering (prioritization) of learning issues. To ensure PBL promotes critical thinking, educators should therefore attend to the PBL process, and train tutors to make appropriate facilitative interventions.

**References:**

**9O3 (18967)**

Factors influencing development of professionalism in doctors: Insights from established practitioner narratives

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**Introduction:** The importance of the hidden curriculum within medical education is well known. During medical training and individual doctors will encounter hundreds of clinicians in teaching roles all of whom contribute to learning in one way or another. More understanding of how the hidden curriculum operates at the grassroots level of clinical learning and teaching is needed. My research explored how notions of professionalism are formed with particular reference to role models and the hidden curriculum.

**Methods:** The broad theoretical perspective for this study is interpretivism within a constructionist epistemology. The specific theoretical perspective for this research is symbolic interactionism. In depth interviews were audio and video recorded with 12 senior doctors about their notions of the meaning of professionalism they felt they had learned about the concept. Three separate analyses were carried out: thematic analysis of the transcripts looking at the concepts of professionalism for these doctors; narrative analysis exploring the characterisation of the protagonists in the stories told; and a metaphorical analysis of the talk used by the doctors when discussing the nature of medicine.

**Results:** There are three dimensions relevant to the way professionalism is learned about and practised by doctors:

- Individual professionalism closely associated with professional identity development;
- Interpersonal relationships, including the ‘atmosphere’ existing between people as they interact;
- Environmental professionalism produced by the community, or the culture, in which doctors are working, learning and living.

Doctor role models are influential in passing on the principles of professionalism and were characterised within the narratives in two main ways: those who were kind, daring, clever, capable, enthusiastic, supportive, caring, encouraging and appreciative (heroes); and those who were bullying, abusive, exploitative, belittling, excluding, sexist and dishonest (villains) and deemed to be lacking in professionalism. Furthermore influential impressions are made at all stages of life, including childhood. The metaphorical talk used by participants in relation to the culture of medicine produced six main metaphors: MEDICINE AS FAMILY, MEDICINE AS JOURNEY, MEDICINE AS WAR, MEDICINE AS HIERARCHY, MEDICINE AS SPIRITUAL EXPERIENCE and MEDICINE AS MACHINE.

Collectively my three studies show that for senior doctors, understanding of professionalism is influenced by three main factors: by preconceptions of medicine held from an early age, by the totality of the environment in which learning takes place and by the interpersonal encounters along the way.

**Discussion and Conclusions:** Professionalism is demonstrated through the actions of doctors whose behaviour is profoundly influenced by the particular culture of medicine to which they are exposed as they study and work. In particular the way doctors and other health professionals are treated in their formative years has a long-lasting effect. A hostile, bullying and hierarchical environment encourages development of anger, frustration and fear. A caring, supportive, challenging and just environment encourages the development of competence and...
companion and a caring professionalism in doctors. If we cannot look out for each other as doctors, how can we do so to the extent needed to provide a caring and compassionate health service for patients? Actions really do, it appears, speak louder than words.


904 (18672)
The cultural complexity of problem-based learning across the world

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Introduction: Problem formulation:
Problem-based learning (PBL) can be conceptualized as an educational approach carrying cultural norms and values that reflect the context in which it was originally developed. Applying PBL in other contexts, specifically in non-Western settings, might therefore be challenging. Considering the current globalization and popularity of PBL across medical schools worldwide, this PhD research aimed to explore the cross-cultural applicability of PBL.

Framework and research questions:
A constructivist, socio-cultural lens informed the formulation of the research questions: 1) How is PBL shaped across cultures? 2) How does PBL shape learners across cultures? These questions are based on the socio-cultural assumption that learning is influenced by the (cultural) context in which it takes place. In this context, learners and PBL shape, or construct, each other in a complex web of interactions. The framework enabled insights in this ‘cultural complexity’ of PBL across cultures.

Methods: Methodology:
Four studies investigated four different elements of the cultural complexity of PBL. Studies 1 and 2 focused on how group discussions and self-directed learning in PBL, respectively, were shaped and shaped learners across cultures. Data were collected simultaneously in a cross-cultural case study in three medical schools, located in the Middle East, East Asia and Western Europe, using an activity theory approach. 88 interviews with students and staff, 32 observations of tutorials, and document analysis were conducted. Studies 3 and 4 focused on how PBL prepared learners for practice, and how PBL was successfully and unsuccessfully implemented, respectively, in a cultural environment very different from where PBL was originally developed. Data were collected simultaneously in a comparative mixed methods study in two medical schools in sub-Saharan Africa. A questionnaire was administered (n = 194) and 22 interviews were conducted with students and graduates, and work diaries and field notes were collected.

Results: Main results.
Cultural factors were identified, uncertainty and tradition, group relations and face, hierarchical relations, achievement and competition – which, particularly in the non-Western settings, contradicted with cultural values of the PBL approach, and shaped PBL in culture-specific ways. This influence was not straightforward, however, as many mediating contextual factors were identified, such as the nature of secondary education and human and material resources. Complex interactions between PBL, learners, and the context determined the way PBL and its learners were shaped, which differed across cultures. However, although to different degrees, learners across contexts were found to develop similar skills and competencies in the social and cognitive domains, which was considered a valuable preparation for practice in diverse contexts.

Discussion and Conclusions: Discussion and implications.
Applying PBL seems to be more challenging in non-Western settings, but its outcomes seem valuable for work contexts across the world. Insights from this research in the cultural complexity of PBL show that PBL is applicable across diverse cultures, but not across all medical schools. Its applicability and desirability depends on cultural and contextual factors and local priorities. Its implementation should be carefully designed based on a local cultural complexity analysis, and it should be acknowledged that PBL processes and outcomes differ across cultures.

905 (18894)
Assessment of virtual patient design in undergraduate medical education: A qualitative and quantitative study of participation, interaction, and learning

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Introduction: Virtual patients (VPs) are widely used online electronic teaching cases for medical education. International collaboration has produced standards published by Mediquitous® (2010), all allowing sharing between authors and institutions. This represents a paradigm shift in VP development. However, we do not know how VPs should best be designed. My research question is: how do VP design principles influence students participation, interaction, and learning from VP cases.

Methods: This research adopts both qualitative and quantitative methods in a two-stage research process.
All VPs were authored for the research using the software DecisionSim®, compliant with the Medbiquitous® VP standard. The first stage is a grounded theory study into VP design at one centre, Warwick Medical School, UK. Participants are undergraduate medical students. I used focus groups in a classic grounded theory approach. Participants completed two VPs before participating in a structured one-hour focus group. I used iterative sampling and a constant comparative analysis, facilitated by digital recording and computer assisted qualitative data analysis. Using open, axial, and selective coding I abstracted a model describing the impact of VP design properties on students. The second stage of the research was a multicentre randomised 2x2 factorial study design exploring student experiences with VPs in three UK Medical Schools: Warwick, Birmingham and Keele. The two design variables in the VPs were chosen: (1) branching in the VP cases; and (2) structured clinical reasoning instruction (SR), present or absent. We invited students to complete cases followed by a self-reported evaluation tool (the EViP questionnaire). Primary outcome measures included clinical reasoning performance in an integrated VP assessment, user metrics across all centres. I collected summative clinical and written assessments from one centre (Warwick Medical School). This study was funded by Arthritis Research UK, Grant 19330, and has institution review board ethics approval.

Results: In the qualitative component, from six focus groups (n=46) I abstracted a three layer model describing how design influences learning. The model describes the interaction between student factors, VP design properties, and organisational and environmental factors, and how they influence learning and behaviour. In the quantitative study, 591/719 students consented, completing 1773 VPs, returning 1229 evaluations (69%). In total 296 students (50.1%) completed all four cases. The key findings were that although students preferred SR present, presence or absence made no significant differences in global VP performance (P>0.3) or evaluation scores (p>0.3, ANCOVA adjusted for institution, gender, and VP). As predicted by the model, institution factors did influenced performance, use and evaluation (P<0.05).

Discussion and Conclusions: This is the largest prospective multi-centre study into VP design conducted to date, and has the potential to inform authors, faculty and institution on how to adopt, design, repurpose, and integrate VP cases into undergraduate education. The model and all research cases are available for open access use, and are published under a creative commons licence.

9P SHORT COMMUNICATIONS: Simulation 3
Location: Theatre Room 13, Level 0, MiCo

9P1 (22688)
The Simulated Patient Methodology as a Research Tool – a reflection on the RECEPTS (Receptionist rECognition and rEferral of Patients with Stroke) study

Ruth Mellor, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom
Elizabeth Bates, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom
Janet Jones, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom
James Sheppard, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom
Satinder Singh, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom
George Bouliotis, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom

Presenter: Connie Wiskin*, University of Birmingham, Health & Population Sciences, Birmingham, United Kingdom

Background: Simulated patients (SPs) are most commonly associated with teaching/assessment in Medical Education, but have wider application to facilitate clinical research. This study is concerned with GP reception staffs’ ability to manage options when patients/carers phone in describing stroke-like symptoms. GP Receptionists are key in determining the urgency of a patient’s situation and when/if an appointment should be made, but training remains minimal. Our study aimed to examine receptionist’s ability to recognise symptoms and direct patients to emergency care.

Summary of Work: Design was a prospective cross-sectional study, with unannounced simulated patients making telephone calls (USPTs) where stroke vignettes were played out. 52 General practices participated, and 510 USPTs were made. Descriptive statistics were used to summarise type of stroke symptoms identified by receptionists in questionnaires and the proportion of USPTs correctly referred for care. The ‘obviousness’ of each vignette was defined by experts. Logistic regression analyses were used to examine likelihood of immediate referral by obviousness of the USPT and Mantel-Haenszel odds ratios were calculated to describe the likelihood of immediate referral by individual symptom.

Summary of Results: 179/183 of receptionists were able to name at least one symptom; 110 receptionists reported one or more incorrect symptoms, and 420/520 of simulated calls were correctly referred. Of interest for this presentation is the method – how the SPs were trained/standardised for the task, and their impact on the study.

Discussion and Conclusions: The SPs generated important findings about receptionists’ knowledge, and training needs.

Take-home messages: From a methodological perspective this paper adds to knowledge about integration of educational methodology in a research context.

9P2 (22595)
Identifying and Correcting Communication Failures using Artificial Neural Networks: Designing a Computerized Tool for an Advanced Simulation Centre

Annamaria Bagno*., University of Genoa, Department of Health Sciences, Genoa, Italy
Anna Siri, University of Genoa, School of Medical and Pharmaceutical Sciences, Genoa, Italy
Loredana Sasso, University of Genoa, Department of Health Sciences, Genoa, Italy

Background: In healthcare, effective communication involves reaching a shared understanding about a given situation and, in some cases, a shared course of action. This requires a wide range of generic communication skills, from negotiation and listening, to goal setting and assertiveness, and being able to apply these generic skills to various contexts and situations. This study explores how Artificial Neural Networks can be applied to identify and correct communication failures in healthcare students through the Simulation Centre.

Summary of Work: 246 medicine and nursing students were observed in our simulation centre in relation to their communication skills applying a tool that assessed according to: terminology, listening, attention, and clarity. Through the ANNs we coupled Terminology with Clarity, and Listening with Attention.

Summary of Results: Various factors influence the risk of communication failure. Test data evaluation shows that the ANN model is able to correctly predict the performance of more than 75% of the communication failures. We are studying how though ANNs it is possible to compensate the measurements of each of the 4 factors, by attributing a weight to each factor. We shall present the first results of this pilot study at the conference.

Discussion and Conclusions: We are developing a computerized system, which by using this approach, will be able to ensure a more objective and accurate evaluation of communication interactions.

Take-home messages: Artificial Neural Networks can be applied to identify and correct communication failures.
Cognitive load in virtual reality simulation compared to traditional dissection skills training of mastoidectomy

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Peter Trier Mikelsen, The Alexandra Institute, Dept. of Otorhinolaryngology, Aarhus, Denmark
Per Cayé-Thomasen, Rigshospitalet, Dept. of Otorhinolaryngology, Copenhagen, Denmark
Lars Konge, Centre for Clinical Education, Centre for HR, The Capital Region of Denmark, Dept. of Otorhinolaryngology, Copenhagen, Denmark
Mads Sølvsten Sørensen, Rigshospitalet, Copenhagen, Denmark

Background: The integration of novel and unorganized information and skills represents a complex learning task which according to cognitive load theory could lead to a cognitive overload challenging the actual learning. Virtual reality (VR) surgical simulators with built-in tutorials could reduce the cognitive load and enhance skills learning. Reaction time on a secondary task can be used to approximate the cognitive load.

Summary of Work: 20 otorhinolaryngology residents performed three mastoidectomy procedures on a freeware VR temporal bone simulator (The Visible Ear Simulator™) first and then one procedure on a cadaveric temporal bone. Reaction times were tested on a secondary task at baseline and during the procedures to explore the cognitive load. The two reaction time scales were normalized and the relative increases in reaction times were compared.

Summary of Results: A significant increase in reaction time relative to baseline measurement was found for dissection compared to simulation. Reduced reaction times with repeat training were found.

Discussion and Conclusions: A VR temporal bone surgical simulator was found to reduce cognitive load compared to traditional dissection surgical skills training in mastoidectomy. A lower cognitive load leads to more efficient learning as more cognitive resources can be focused on gaining and integrating new knowledge and skills. Learning complex yet essential surgical skills can be a challenge for the novice and repeat training on a VR simulator could be an effective learning tool.

Take-home messages: A lower cognitive load in VR simulation training of complex surgical skills could lead to better learning.

Developing innovative local manikin for undergraduate clinical skills training: Intravenous insertion manikin attached to simulated patients

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Bambang Djarwoto, Faculty of Medicine Gadjah Mada University, Skills Laboratory, Yogyakarta, Indonesia

Background: Imported commercial manikins for undergraduate students to practice in skills laboratory are very expensive. Therefore medical schools in developing countries try to develop local manikins to get better design and price.

Summary of Work: This study aimed to explore the advantages, disadvantages, and suggestions to improve a local intravenous line insertion manikin attached to the lower arm of a simulated patient. Clinical Skills Laboratory FM UGM produced this low-cost and innovative manikin made from silicone, silicone plus oil, and latex. Three groups of respondents: 30 students, 15 teachers, and 15 simulated patients were randomly invited to review those manikins using survey questionnaire and structured interview. The data were analyzed using Mann-Whitney test and using "inductive content analysis".

Summary of Results: The manikin was highly accepted by the respondents, and the best manikin was made by silicone (p<0.05). However, the manikin needed improvement on the skin design and prevention of fluid leakage from the pump and pipe. This innovative and cheap local manikin is designed to stimulate undergraduate students, not only to practice inserting a needle into a vein but also to learn how to communicate with patients at the same time.

Discussion and Conclusions: The local intravenous insertion manikin can be used for undergraduate students practicing integrated clinical skills in skills laboratory. However, the manikin should be evaluated and improved regularly.

Take-home messages: Producing a local manikin for undergraduate students to practice can give multiple benefits: we can have our own design, teach integrated clinical skills, and cheap maintenance.
Practice What You Preach: Motivating Change

Amelia Wallace, Eastern Virginia Medical School, Center for Simulation and Immersive Learning, Norfolk Virginia, United States
Mary Rubino, Eastern Virginia Medical School, Family and Community Medicine, Norfolk Virginia, United States

Presenter: Temple West*, Eastern Virginia Medical School, Center for Simulation and Immersive Learning, Norfolk Virginia, United States

Background: There are myriad communication techniques for providing simulated patient (SP) feedback on learner communication skills to enhance the patient-physician interaction. SPs sometimes become so wedded to certain basic formats or vocabulary sets that they are resistant to expand their horizons or to effect change by layering new techniques onto existing, and well rehearsed, conventions.

Summary of Work: SPs trained in 27 basic communication techniques were used to delivering feedback to medical learners with reasonable ease. So, when Motivational Interviewing techniques were added on top of their known and comfortable practices for the purposes of enhancing third year medical student-patient relationships, SPs had a difficult time making the transition. It disrupted their comfort levels; they resisted; they struggled with it and against it. Slowly, they began to understand, not only the benefits of Motivational Interviewing, but its rewards as well.

Summary of Results: Now, SPs who embraced and became comfortable with the Motivational Interviewing skills want to use it all the time!

Discussion and Conclusions: Persistence pays. Trainers may want to include motivational technique when training SPs to adopt new concepts. Discussion will center on how trainers and faculty were able to motivate SPs to make these changes to their feedback, small steps at a time and how once a few SPs grappled with, and succeeded with, the new concepts, a momentum gathered.

Take-home messages: Changing behaviors can be hard; but it can be done!
9Q  CONFERENCE WORKSHOP: How to introduce Team Based Learning into a lecture-based course (22369)
Location: Workshop Room 1, Level 0, MiCo

Georgina Morris*, Imperial College London, London
Office of the Lee Kong Chian School of Medicine, London, United Kingdom
Naomi Low-Beer, Lee Kong Chian School of Medicine, London Office of the Lee Kong Chian School of Medicine, Singapore
James Stratford-Martin*, Imperial College London, London Office of the Lee Kong Chian School of Medicine, London, United Kingdom

Background: Team-based learning (TBL) is an active, learner-centred, large group instructional strategy. It is gaining popularity in medical education having been adopted by over 60 schools of medicine, dentistry, veterinary medicine and the allied health professions. Existing learning materials, e.g. from a lecture-based course, can be used as the foundation for TBL sessions, which encourage greater interactivity through incorporating a 'flipped-classroom' approach. Participants prepare in advance of TBL sessions, check their learning through answering questions both individually and in small groups (readiness assessment), then work in their groups to apply and advance their knowledge and skills in tackling tasks (application exercises).

Intended Outcomes: Participants will share existing teaching methods and challenges with their peers during discussion-based exercises. In small groups, they will then consider how elements of TBL could be incorporated into their educational context to enhance learning. Participants will construct a plan for how this could be achieved in their setting, to take away and discuss with colleagues.

Structure: In an introductory small group exercise, participants will identify barriers to active student participation and assessment for learning that may exist in their own contexts. A short, interactive tutor-facilitated session will link the participants’ experiences with potential solutions that could be obtained through use of TBL. A final exercise will give participants the opportunity to produce a strategy for the introduction of TBL in their setting, utilising available facilities and resources to best effect.

Who should attend: Intermediate and advanced teachers who regularly teach undergraduate or postgraduate learners in large groups will benefit from this session.

Level: Intermediate

9R  CONFERENCE WORKSHOP: Entrustment decision-making (21272)
Location: Suite 3, Level +2, MiCo

Olle ten Cate*, University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands
Ankel Felix*, University of Minnesota, Center for Research and Development of Teaching, United States
Eric Holmboe*, Accreditation Council for Graduate Medical Education, United States
Linda Snell*, McGill University / Royal College of Physicians and Surgeons of Canada, Canada
Claire Touchie*, University of Ottawa, Canada

Background: One of the approaches to competency-based medical education is a focus on Entrustable Professional Activities (EPAs) for teaching, feedback and assessment. Using EPAs has implications for the evaluation of clinical competence. Key is the idea of entrustment: when, and based on which information, can trainees be trusted to conduct EPAs with little or no supervision? From the literature we learn that trustworthiness of trainees involves knowledge and skill, conscientiousness, truthfulness and discernment of own limitations (Kennedy et al 2008). One needs to show competence, reliability, honesty, and some vulnerability, before we tend to trust (O'Neill 2002). How does entrustment come about in undergraduate, postgraduate and practitioner contexts?

Intended Outcomes: At the end of the workshop, the participant should have a clearer view of CMBE with EPAs, and should be aware of factors that should determine entrustment decisions. Given what we currently know about entrustment decision-making, this workshop may serve to generate new ideas.

Structure: 1. Introduction to competency-based medical education and assessment focused on entrustable professional activities (plenary with discussion)
2. Developments in assessment in the workplace: how does entrustment decision making relate to current practice of trainee assessment in the workplace (plenary with discussion)
3. Which information in the workplace can help to inform formative and summative assessment, enabling entrustment decision, i.e. decisions to decrease supervision level (small group discussion)
4. Plenary discussion

Who should attend: We welcome educators involved with clinical teaching and workplace learning, and those responsible for clinical trainee assessment.

Level: Intermediate
**9S  CONFERENCE WORKSHOP:**
Young medical educators’ workshop: Fostering your career in medical education (22729)

**Location:** Workshop Room 3, Level 0, MiCo

*Monica van de Ridder*, Albert Schweitzer hospital, Department of Education, Dordrecht, Netherlands  
*Soren Huwendiek*, University of Bern, Institute of Medical Education, Department of Assessment and Evaluation, Bern, Switzerland  
*Stewart Mennin*, Mennin Consulting & Associates, Department of Education, Albuquerque, Brazil

**Background:** The number of young medical educators is increasing. In comparison to careers in other areas like biomedical research, strategies in the advancement of careers in medical education (research) are less obvious. The workshop will explore successful strategies for career advancement especially for young educators.

**Intended Outcomes:** At the end of the workshop participants will be able to: (1) identify principles and practices of career advancement in medical education; (2) apply these principles and practices to their own needs.

**Structure:** After an introduction to general career advancement principles in medical education, participants will have the opportunity to develop their own concepts and questions and discuss them with other participants and facilitators.

**Who should attend:** Young medical educators with interest in a career in medical education (research).

**Level:** Introductory

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**9U  CONFERENCE WORKSHOP:**
Curriculum transformation in the ePBLnet project: Is modernisation by ‘repurposing’ from another curriculum, worth the effort? What is the best way to do it? (22500)

**Location:** Suite 8, Level Mezzanine, MiCo

*Terry Poulton*, St George’s University of London, Institute of Education, London, United Kingdom  
*Panos Bamidis*, Aristotle University of Thessaloniki, Lab of Medical Informatics, Thessaloniki, Greece  
*Sergo Tabagari*, David Tvlidiani Medical University, AIETI Medical School, Tbilisi, Georgia  
*Andrey Loboda*, Sumy State University, The Faculty of Medicine, Sumy, Ukraine  
*Gulmira Derbissalina*, Astana State University, Astana, Kazakhstan  
*Nana Shavlakadze*, Kutaisi State University, Kutaisi, Georgia

**Background:** ePBLnet is an EC-funded supra-regional project across Eastern Europe, South-East Asia and the Caucuses. It is modernising the medical curricula in six institutions in Georgia, Ukraine and Kazakhstan, with a remit to build networks and develop dissemination activities to form a sustainable network across EurAsia. Karaganda, Astana, David Tvlidiani and Zaporozha Medical Universities, and Sumy and Kutaisi State Universities, have chosen to develop a Problem Based Learning (PBL) curricula, moving to learning styles with greater relevance to clinical practice than their previous subject-based didactic curricula. St George’s University, University of Nicosia and Aristotle University of Thessaloniki are partners in this transformation, which is based on the St George’s curriculum and includes an interactive PBL using ‘virtual patients’. An advantage of a consortium approach to these developments, is that post-Soviet countries retain similar educational structures and face similar challenges and opportunities for cross-institutional solutions. Nevertheless there are many cultural issues (social, societal, healthcare), in adapting a UK curriculum.

**Intended Outcomes:** Participants will have considered how to transform subject-based curricula to PBL-based curricula, analysed the possible routes of repurposing, and considered the effectiveness, both pedagogically and economically, of various repurposing approaches.

**Structure:** Partner from three universities will demonstrate the challenges of repurposing from an existing curriculum and illustrate how it varies, often depending on national circumstances and approaches. Delegates will then, in four groups, critically analyse the strengths, weaknesses, opportunities and threats of these curriculum-repurposing approaches, and then discuss their views.

**Who should attend:** Those interested in changing their curriculum, or modernising their subject-based teaching.

**Level:** Introductory
9V CONFERENCE WORKSHOP: A practical, friendly but powerful way to promote collaboration through movies and role-playing (19462)

Location: Suite 7, Level Mezzanine, MiCo

Juan-Jose Beunza*, Universidad Europea (Laureate International Universities), Clinical Sciences, Madrid, Spain
Hugh Barr, CAIPE (Centre for the Advancement of Interprofessional Education), School of Biomedical Sciences, London, United Kingdom
Elena Gazapo, Universidad Europea (Laureate International Universities), Clinical Sciences, Madrid, Spain

Background: Teamwork competencies are an essential part of health care, especially in the hyper-specialized and defragmented environment we currently face. Recent information on medical errors (UK, Spain, Germany) has brought the focus into the importance of communication and collaboration competencies among health workers, in parallel to considering structural reforms. It is questionable whether we really have an efficient program to train our students/professionals on it. Very often, we just send trainees into the field, hoping they will somehow learn the competence and skills from professionals. However, qualitative research shows again and again that professional do not have a clear concept and do not practice a clear model of collaboration in their interprofessional work.

Intended Outcomes: We will cover the following aspects:
1. Importance and role of emotions in collaborative practice, and to identify them.
2. How emotions are generated by interests, and to analyze together how emotions change as interests are managed.
3. How to transform a frontal confrontation based on positions, into an interest based negotiation.
4. How to develop adaptation skills to navigate successfully into a changing and sometimes unstable working environment and to see negotiable opportunities where others only see confrontational threats (fear to change).

Average satisfaction rate of previous courses is 9.5/10.

Structure: The program is structured around the following learning tools: interactive case discussion based in real stories and/or brief edited segments of movies/TV series; theory principles applied to the previous cases and based on business negotiation techniques; role playing and debriefing.

Who should attend: Lecturers and health professionals concerned in how to promote collaboration and trust in the workplace.

Level: Introductory
**9X  CONFERENCE WORKSHOP:**

Teaching problem oriented approach (POA) in the era of an electronic medical record (EMR) (19502)

**Location:** Suite 4, Level +2, MiCo

*Jacob Urkin*, Faculty of Health Sciences, Ben-Gurion University, Center for Medical Education, Beer-Sheva, Israel

*Carmi Margolis*, Faculty of Health Sciences, Ben-Gurion University, Center for Medical Education, Beer-Sheva, Israel

*Emanuel Sikuler*, Faculty of Health Sciences, Ben-Gurion University, Center for Medical Education, Beer-Sheva, Israel

*Shlomi Codish*, Clalit Health Services, Medical Informatics, Tel-Aviv, Israel

**Background:** Problem oriented medical records that aim to guide, care and teach a systematic problem oriented approach (POA) to solving clinical problems, became a mainstay of medical recording and clinical thinking in the last quarter of the 20th century. POA also became an important conceptual basis for structuring the clinical part of the electronic medical record (EMR). However, the central emphasis of EMR is to elaborate decision support tools, while the basic tenets of medical thinking are minimized. In this workshop, we intend to review the principles of the POA, enable participants to practice using them while analyzing real clinical cases and then discuss how a POA can facilitate clinical problem solving and care carried out by students, residents and staff who use an EMR.

**Intended Outcomes:** Participants will:
1) Recognize POA principles for teaching and patient care.
2) Be able to review the use of POA in clinical medicine.
3) Understand the implications of EMR in using POA.

**Structure:** Case-based discussion of POA principles, with emphasis on common errors: 30 minutes. Practice analyzing cases in small groups: 40 minutes. Discussion of practical use of POA to improve problem solving and care by EMR users.

**Who should attend:** Clinicians and Teachers of medical decision making.

**Level:** Intermediate

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**9Y  CONFERENCE WORKSHOP:**

What to do about learning climate? (22160)

**Location:** Suite 3, Level +2, MiCo

*Marcelo Garcia Dieguez*, Universidad Nacional del Sur, Health Science, Bahia Blanca, Argentina

*Larry Grupen*, University of Michigan, Medical Education, Ann Arbor, United States

*Eduardo Durante*, Instituto Universitario del Hospital Italiano, Family Medicine, Buenos Aires, Argentina

*Win May*, University of Southern California, Clinical Skills Education and Evaluation Center, Los Angeles, United States

*Alejandro Cragno*, Universidad Nacional del Sur, Health Science, Bahia Blanca, Argentina

**Background:** The terms “learning environment” and “learning climate” are often used interchangeably in educational literature. Educational climate has proved to be a determinant of students’ learning, and is related to academic achievements, students’ satisfaction and aspirations. Over the past years, many published studies have investigated the educational climate. Most of them are related to validity evidence for different instruments aimed to measure this construct in order to effectively influence the educational climate and ultimately positively modify learners’ outcomes.

**Intended Outcomes:** At the completion of the workshop, participants will be able to 1. Identify the influence of the learning climate on educational outcomes, 2. Select appropriate tools to measure it, and 3. Reflect on implementing strategies to improve it.

**Structure:** After a short introduction about the concept and overview of the most frequently used instruments, participants will be assigned to small groups to reflect on the learning climate in their own institutions and discuss what interventions might improve the learning climate. The small groups will report back summaries of their key observations to the full group.

**Who should attend:** This will be of interest to teachers engaged in undergraduate and postgraduate training, or those interested in the importance of factors affecting learning climate and how to modify it.

**Level:** Intermediate
9Z CONFERENCE WORKSHOP:
Sensible Care: A creative workshop on stress and self-care for health sciences educators and students (21494)
Location: Suite 2, Level +2, MiCo

Alida G Herbst*, North-West University, Potchefstroom campus, School of Psycho-social Behavioural Sciences, Potchefstroom, South Africa
Cornelia M Drenth*, Hospice Palliative Care Association of South Africa, Research, Pretoria, South Africa

Background: Senior health sciences students usually have to reach a number of outcomes towards professionalism before entering practice. One of the aspects related to professionalism relates to managing stress and balancing one's professional and personal life. This interactive workshop was designed to teach senior students in the health sciences about the risk of compassion fatigue (professional burn-out) and the responsibility to manage one's own self-care. Teaching activities used in this workshop include story-telling and clay work and serve as projection techniques to facilitate a personal, yet essential, experiential learning process for both students and teachers in the health sciences.

Intended Outcomes: This workshop aims at offering health sciences educators a glimpse of how creative techniques can be used to facilitate fairly complex and sensitive topics such as stress management, professional burn-out and the responsibility of health science professionals to manage their own self-care.

Structure: This interactive workshop guides participants through a process consisting of four stages:
• Awareness
• Confrontation with the realities of care giving
• Reflection
• Action and planned change

Workshop activities include:
1. Introduction and ice breaker
2. A story to connect to ourselves
3. Reflection on the story and critical discussion on caring for others and the risks of professional burn-out
4. Creating a container for self-care: creative session with potter’s clay
5. A personal commitment and planned action for self-care.

Who should attend: Health sciences educators involved in teaching professional behavior (particularly issues related to stress management and the prevention of professional burn-out).
Level: Intermediate

9AA CONFERENCE WORKSHOP:
MEDEDWORLD 2: An introduction to MedEdWorld for Individual Users - How you can keep up-to-date in the rapidly advancing field of medical education: MedEdWorld as a valuable tool
Location: Suite 1, Level +2, MiCo

Ricky Shek*, AMEE, Dundee, United Kingdom
Catherine Kennedy*, AMEE, Dundee, United Kingdom
Ken Masters*, Medical Education & Informatics Unit, College of Medicine & Health Sciences, Sultan Qaboos University, Sultanate of Oman

How you can keep up-to-date in the rapidly advancing field of medical education: MedEdWorld as a valuable tool
The field of medical education is ever evolving. It is increasingly recognised that medical educators must keep abreast of the latest developments in the field locally, nationally and internationally. MedEdWorld offers the international health professions community an easily accessible means through which they may keep up-to-date with developments in their areas of interest. MedEdWorld includes news, and information about literature, resources, courses and conferences in the field of medical education from around the world. Attend this short introductory session to discover more about how MedEdWorld can support you in your work. This session will offer an overview of the MedEdWorld website's most innovative features including: Add Content, which enables members to share their own activities; Follow, an innovative feature that allows users and members to receive personalised updates on newly added MedEdWorld content; and MedEd Publish, an e-library of easily searchable papers that have not been published elsewhere.

Workshop participants are encouraged to bring along a laptop or other device to fully participate in this session.
9BB  AMEE-ESME COURSE: Essential Skills in Medical Education Assessment (ESMEA) Course
Location: Suite 5, Level Mezzanine, MiCo

Closed Session
**9CC POSTERS: Professionalism**

Location: South Hall, Level 0, MiCo

**9CC1 (23002)**

**It takes more than knowledge: Professionalism and communication skills**

Majka Woods, University of Minnesota Medical School, Office of Medical Education, Minneapolis, United States

Kathleen Watson*, University of Minnesota Medical School, Office of Medical Education, Minneapolis, United States

**Background:** The fundamental job of all medical schools is to prepare students to become successful interns who will in turn become successful and productive practicing physicians. While it is expanding, there remains little evidence of systematic, broad consensus about both the academic and personal and professional qualities every medical student and intern should possess in order to be successful.

**Summary of Work:** Multiple data sources were compiled from focus groups of program directors, surveys regarding performance, and data from institutional exams and evaluations to understand the areas that are of recurrent concern. Multiple sources all indicate that professionalism and communication are critical areas that often the underperformers are cited as lacking.

**Summary of Results:** In compiling and analyzing the data it is striking how the themes of communication and professionalism recur. And indeed, professional lapses crossed all other competency areas, except for medical knowledge. Further study is needed to better understand how to connect these more explicitly in the curriculum.

**Discussion and Conclusions:** In conclusion this study is focused on how to better connect the early medical education experiences to requirements for later success. With the understanding that a strong commitment to scientific and clinical inquiry is imperative it is time to move beyond these areas and focus on the more tacit areas that program directors defined as the keys to success.

**Take-home messages:** We hope that others will begin looking at closely at these areas and continue to develop both curriculum and assessments that allow future medical students to develop the skills to be successful interns early in their medical education.

**9CC2 (21117)**

**A Unique “White Coat Ceremony” for Cultivating Professionalism in Medical Students, Prior to Commencing Clinical Training in Japan**

Michito Hirakata*, Keio University School of Medicine, Medical Education Center, Tokyo, Japan

Toshiaki Monkawa, Keio University School of Medicine, Medical Education Center, Tokyo, Japan

Rika Nakajima, Keio University School of Medicine, Medical Education Center, Tokyo, Japan

Noriko Okuyama, Keio University School of Medicine, Department of Orthopedics, Tokyo, Japan

James Thomas, Keio University School of Medicine, Medical Education Center, Tokyo, Japan

Keisuke Kouyama, Keio University School of Medicine, Clinical Research Center, Tokyo, Japan

**Background:** Professionalism is a fundamental competency for medical students and physicians; however, due to its subjective nature, there has been no standardized methodology established for teaching this important proficiency. Historically, white coat ceremonies (WCC) have been performed to develop a humanistic focus to medicine and enhance the professional behavior of medical students.

**Summary of Work:** To demonstrate, emphasize and nurture medical professionalism and humanistic qualities in medical students, we have developed a unique WCC that consists of two main components; (1) a project designed to create a student-authored-oath (SAO) and (2) a ceremony, introduced in 2006, containing formal addresses, quoting aphorisms from Osler, et al. given by our Dean and guest speakers who are leading experts in professionalism. In the SAO project, an SAO committee, organized by 4th year students prior to clinical training, conducted a survey on students’ perceptions of “Good Doctors”. Students interviewed health care professionals and patients regarding society’s need for excellent physicians, before compiling their oath, and declaring it in front of their relatives, peers and senior doctors.

**Summary of Results:** We found that our students were motivated and enthused by the WCC and further developed their commitment to the three ethical principles of beneficence, respect for patients’ autonomy, and justice. Through our SAO projects, students discussed the principle attributes, and society’s needs, for high quality, humanistic physicians. Finally, students reaffirmed their dedication to the competent, compassionate and ethical care of patients.

**Discussion and Conclusions:** The WCC, including the SAO project, is a valuable opportunity for medical students and encourages professionalism and humanism in clinical medicine.
9CC3 (20660)
Code of Conduct: How students describe it during clinic practice

Laura Cominetti*, Nursing Degree Course, Turin University, Turin, Italy
Luigi Cirio, Nursing Degree Course, Turin University, Turin, Italy
Barbara Chiapusso, The Nursing Association of Turin, Turin, Italy
Ines Monino, Nursing Degree Course, Turin University, Turin, Italy
Maria Valentina Musa, Nursing Degree Course, Turin University, Turin, Italy
Valeria Dimonte, Nursing Degree Course, Turin University, Turin, Italy

Background: Our course offers several educational initiatives in order to give students the conditions to acquire a good knowledge of the process they have to put in place when they have to make a choice. The aim is to outline students’ perception of the professional life from an ethical conduct perspective on the basis of their experience. To compare students’ feedback with professional nurses ones.

Summary of Work: The survey has been conducted during March and May 2011. The population was composed of 3rd year students. Students were told to observe and shortly narrate events lived during their internship, that were able to emphasize values and competencies of the nurse profession in its everyday clinical practice. Globally 122 on 322 replies were reported. Data analysis has been made through a posteriori contents and focus classification.

Summary of Results: Nurse are people mainly involved in the narrated events, probably because teacher’s example and experience are considered as the focal point of the educational process to choices. 76% of students has decided to describe non-adhesion events. Focuses highlighted in the reports are mainly linked to everyday profession practice: quality of provided therapies, professional group importance, need/right of information and terminality. Among the contents, respect, collaboration and solidarity are mostly highlighted. Art. 26 and 30 of the Code of Conduct are the 2 most mentioned articles, but 13 articles have never been mentioned, probably because they don’t deal with the direct relation with patients.

Discussion and Conclusions: Teacher’s good example and experience as a starting point of an educational process.

Take-home messages: Need of increasing training and reflection moments with our students who often insufficiently think about their conduct.

9CC4 (21654)
Medical trainees’ views on educational climate of medical professionalism: A comparison between clerkship and internship

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Background: Educational climate is critical for developing the medical professionalism for all levels of medical trainees. The purposes of this study are to investigate the medical trainees’ views on climate of professionalism and reflections and to compare their values between clerkship and internship.

Summary of Work: Participants consisted of 245 medical clerks and 60 medical interns and postgraduate (PGY) trainees at Kaohsiung Medical University Hospital. We employed the instrument of 10-item Climate of Professionalism Survey developed by Quaintance et al. Clinical teachers’ taught and modeled professional behaviors from mostly to rarely (score 4 to 1) were surveyed and rank analysis and quality surveys were analyzed.

Summary of Results: Mean total scores (±SD) were not different (32.8±7.8 vs. 32.3±6.8) between clerkship and internship/PGY groups. Clerkship showed a significant higher score (3.58±0.66 vs. 3.38±0.58, p=0.003) in Item 1 (Acts professionally in relating to patients, students, colleagues, and staff). Two groups of medical trainees provided the three highest scores in Items 1, 4 (Creates an environment of warmth and mutual respect), and 5 (A good role model of professionalism) and the lowest score in Item 3 (Discusses own strivings and shortcomings toward professionalism). Major observations and reflections included: difficulty in caring patients and family with severe or terminal illness, patient-doctor communication, applying teaching strategies by modeling, role play, and web technology, and limitations of adapting teaching to different levels of learners’ needs and discussions of dispute issues.

Discussion and Conclusions: Medical trainees between clerkship and internship/PGY shared the common values on climate of professionalism. Sound
behaviors with patients, learners, and staff, interactions with warm and respect, and role modelling by clinical teachers are the critical factors for creating the good climate of professionalism.

Take-home messages: Medical trainees' views on climate of professionalism are valued by the clinical teachers' professional actions and modelling teaching. They expected teachers exhibited more reflections and discussions on professionalism.

9CC5 (20789)
Walking the path towards professionalism education

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Background: Professional values and attitudes are an essential part of a medical school curriculum. Additionally, including professionalism in the curriculum seems to be an institutional challenge requiring a holistic approach. In our medical school, professionalism was not included formally in the curriculum and not objectively assessed.

Summary of Work: A working group was established including faculty members, students and former students. The working group established objectives and strategies to formal and informal teaching of professionalism.

Summary of Results: A program of action was designed including curricular activities and informal action promoted by the students committee. These strategies included several steps beginning with an extended revision of scientific reports; guidelines designing; assessment of faculty and students perceptions of professional environment; and discussion of learning methodology and assessment. This process of integration is still ongoing.

Discussion and Conclusions: The whole process of including formal and informal teaching of professionalism in the medical curriculum is quite challenging. However it is more efficient when it is done as an action involving the faculty has a whole. Professionalism teaching can only be achieved by involving all faculty members, as this area exceeds curriculum and involves all subjects and places of education from canteen to the wards, from the front door to the curricular lines.

Take-home messages: Including professionalism in the curriculum is a broad process that should involve a holistic approach, from faculty's professionalism environment evaluation to curriculum development.

9CC6 (20001)
The Respectful Minds: The Important Core of Medical Professionalism

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Background: The Respectful Mind is one of the 5 minds for 21st century skills and also the core of medical professionalism that doctors should possess. The objective was to study and develop the knowledge of medical students about honouring patients.

Summary of Work: A quasi-experimental study in 4th year medical students, year 2013 was conducted. In the first week, they did questionnaires about the principles of respect for patients. After that, they viewed a video about disrespect towards patients by medical personnel and mass communications personnel and asked for their comments. In the last week, they were tested with the same questionnaires. The answers of both questionnaires were analysed.

Summary of Results: All 60 medical students participated. The results from the first and second questionnaires showed in percentage that the students were knowledgeable about respect towards patients in autonomy 61.7:88.3; dignity 27.6 : 65.0 and diversity 11.7:61.7. They thought that the behaviours which expressed respect for the patients were good communication skills 66.7:95.0; kindly human relationship 50.0:86.7; keeping confidentiality 50.0:86.7 and non-maleficence 16.7:35.0.

Discussion and Conclusions: Medical students have a good basic knowledge about respect for patient autonomy, but lack knowledge regarding patient dignity and diversity. Thailand is a multicultural society where people live together without problems in spite of the diversity. These factors make the students less aware of the respect for patient dignity and diversity, which are quite abstract. However, the students could use good communication skills and kindly human relationship as an expression of respect properly. The medical students have had some knowledge about respect for patients.

Take-home messages: Medical doctors should have respectful minds.
9CC7 (22898)

Exploration of case based discussion as a tool for learning professionalism

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Background: Professionalism is difficult to define and although some aspects are well described, others are nebulous. This presents a real challenge in teaching 'professionalism'. The use of case based discussion is ubiquitous in surgical training and this may present an effective tool for learning professionalism.

Summary of Work: The aim of this study was to explore the meaning of professionalism to surgical trainees, explore how trainees learn professional behaviour, and determine whether case based discussion could be a useful tool in this respect. This study was a qualitative analysis, which comprised five case based discussions conducted with five surgical trainees each followed by semi-structured interviews. The trainees were asked to choose their own cases for discussion to demonstrate professionalism. The case discussions and interviews were recorded and transcribed. The data was then used for thematic analysis which identified themes that emerged.

Summary of Results: The perception of professionalism came through in five main themes, namely: indistinct definition, communication, escalation, teamwork, and accountability; the learning of professionalism emerged in four themes which were role modelling, experience, courses, and tacit learning. The choices of cases proved interesting and very useful to enhance learning.

Discussion and Conclusions: Despite the nebulous nature of professionalism, surgical trainees have similar understanding of professional behaviour, developed through experiential learning. Behaviour is learned through role modelling and the 'hidden curriculum'.

Take-home messages: Case based discussion is a powerful strategy for teaching and learning professionalism, not to be under estimated. It can be used both formatively and summatively, but needs to be directed explicitly to steer trainees' learning.

9CC8 (22492)

Factors associated with attitudes towards medical ethics and professionalism in medical teachers in Thailand

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Background: There is little evidence to describe medical teachers’ attitudes towards ethics and professionalism. The present study was aimed to examine the attitudes towards medical ethics and professionalism in medical teachers, and to identify factors associated with their attitudes.

Summary of Work: 52 medical teachers were invited to answer the self-administered questionnaire, which included information on teachers’ characteristics, their experience and attitude towards scenarios concerning medical ethics and professionalism, and opinion on the importance of medical ethics and professionalism in the curriculum. Considerable experience and good attitude was defined as more than 90% of total score. Factors associated with good attitude were examined using logistic regression.

Summary of Results: The median age (IQR) of the teachers was 37.6 (35.3-45.3) years, with 48% being male. The median experience score (IQR) was 7 (6-8) out of 8. The median attitude score (IQR) was 43.5 (40-45) out of 50. Twenty four teachers (46%) and 16 teachers (30.8%) had a great deal of experience and good attitude respectively. Age, sex, having a physician in their family, and previous attendance to medical ethics and professionalism courses were not associated with good attitude (p > 0.05). The teachers with good attitude preferred to integrate ethics and professionalism teaching in other clinical subjects more than those with poor attitude (p < 0.05). Case studies and practice with patients were the preferred teaching methods.

Discussion and Conclusions: Teachers’ attitudes towards medical ethics and professionalism was generally good. Teachers’ attitude was not related to whether they have attended courses or have had experience concerning ethics and professionalism.
Markers of highly professional behavior correspond to exam performance

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Background: Observation-based assessment of professionalism among resident physicians has been shown to be closely associated with residents’ knowledge, clinical skill, and conscientious behaviors. This study sought to determine if observation-based assessments of medical students’ professional behaviors correlated equally well with 1) conscientious behavior throughout medical school, 2) United States Medical Licensing Exam Step 1 and 2 performance.

Summary of Work: Assessments of professionalism by faculty, resident physicians, and peers over four years of medical school were analyzed for all Mayo medical students from 2006-2013. Highly professional medical students were defined as those receiving a total professionalism score at or above the 75th percentile on an observation-based 5-point scale (1, needs improvement; 5, exceptional). They were compared with medical students who received scores below the 75th percentile on several measures of conscientious behaviors (such as completion of required annual training on infection control). Correlations of professionalism assessments and scores on the USMLE Steps 1 and 2 were evaluated.

Summary of Results: 43430 faculty observations of student professionalism were made during the study period with a mean rating of 4.26 across all measures (SD 0.32). Students in the top quartile of this rating (rated > 4.44) did show strongly positive correlations between the absence of conscientiousness-related behavioral concerns throughout medical school. There was an overall correlation (Pearson R) of 0.24 between professionalism measures and USMLE Step 1 (p<0.001) and 0.23 for Step 2 (p<0.001).

Discussion and Conclusions: Observation-based assessments of professionalism are associated with conscientious behavior and examination scores.

Take-home messages: Professionalism ratings are meaningfully associated with conscientious behavior and licensing examination scores.

Measuring professionalism as a major criteria of medical education in medical students of Shiraz University Of Medical Sciences (S.U.M.S)

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Background: Professionalism in medical education is a major criteria that should be considered prior to knowledge and skills. Developing and assessing professionalism is an international challenge. Our purpose is to evaluate the importance of professionalism in medical students of S.U.M.S.

Summary of Work: In this descriptive cross-sectional study, 420 medical students were participated in this study, we present the results of evaluating importance of professionalism in medical students of of S.U.M.S. They were evaluated based on checking different component of professionalism like Accountability and initiative, responsibility and sense of duty, being concern of welfare of patients, self-care and self-growth. Data were analyzed by SPSS 19. (P<0.05) was considered significant.

Summary of Results: 420 residents of (s.u.m.s) participated in this study. 45% of medical students believe that Accountability and initiative is the important factor, 68% agree with Responsibility of sense of duty as an important component, 34% of them believe that they should be concerned with self care and self growth, 65% think that they should be aware of welfare of patients.

Discussion and Conclusions: Professional attitude and behavior requires reflection and it is better for medical students to participate in ethical and professionalism classes in order not to ignore patients.

Take-home messages: Professional attitude and behavior requires reflection.
9CC11 (19126)
A Measurable Approach to the Assessment of Professionalism

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Noel Irias, Ross University School of Medicine, Advanced Introduction to Clinical Medicine, Miramar, United States
Rita Hudac, Ross University School of Medicine, Advanced Introduction to Clinical Medicine, Miramar, United States
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Jeffrey Isacson, Ross University School of Medicine, Advanced Introduction to Clinical Medicine, Miramar, United States

Background: While the teaching of professionalism is difficult, the assessment of professionalism is even more problematic. Multiple methods of assessment, administered by multiple assessors over a period of time are needed to achieve completeness. The challenge consists in the fact that a search of the current literature reveals definitions and assessment methods that are vague and therefore deemed subjective by students. In spite of this challenge, we are required to assess professionalism in all clerkship evaluations, as one of the ACGME competencies. Our objective is to describe a measurable method of evaluating professionalism, currently used in the Advanced Introduction to Clinical Medicine Department (AICM). The categories evaluated under professionalism include attitude, language, professional appearance and communication skills.

Summary of Work: In AICM, professionalism and interpersonal communication skills constitute 8% of our students’ grade. We use a detailed evaluation for grading, which includes concrete, yet detailed and descriptive elements for each component being evaluated, including dress code. We set the expectations during AICM orientation by asking our students to read the evaluation form and sign it.

Summary of Results: Compassion can be considered as one of the fundaments of the medical profession. Self-compassion has been defined as extending compassion to one’s self or the ability of being yourself, however, only focuses on the health professional. Moreover, the broader concept of compassion entails other aspects such as empathy, the principle to treat the other as you wish to be treated, and reciprocity in the relationship.

Discussion and Conclusions: Compassionate engagement has been operationalized based on five dimensions, ‘dedication’, ‘be yourself’, ‘empathy’, ‘reciprocal relationship’ and ‘treat the other as you wish to be treated’. Compassion is the heart of a healthy engaged doctor. And, healthy engaged doctors lead to healthy satisfied patients.

Take-home messages: We advocate the introduction of more compassion research in medical education.

9CC12 (20584)
The Concept of Compassionate Engagement

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S Sana, Compassion for Care, Psychiatry, Utrecht, Netherlands
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Background: High engagement levels among doctors lead to better personal health and better quality of patient care. Medical students and young doctors demonstrate high levels of dedication, and studies have shown that they are vital and vigorous. Apart from these investigations about engagement and wellbeing, we have proposed to add the concept of compassion to this field of research.

Summary of Work: To define and operationalize research-criteria for compassionate engagement in healthcare. An extensive literature search and retrospective analysis of the results of a nationwide study in The Netherlands about engagement and associated dimensions among medical residents were performed. Engagement has been characterized by vigour, dedication and absorption.

Summary of Results: Compassion can be considered as one of the fundaments of the medical profession. Self-compassion has been defined as extending compassion to one’s self or the ability of being yourself, however, only focuses on the health professional. Moreover, the broader concept of compassion entails other aspects such as empathy, the principle to treat the other as you wish to be treated, and reciprocity in the relationship.

Discussion and Conclusions: Compassionate engagement has been operationalized based on five dimensions, ‘dedication’, ‘be yourself’, ‘empathy’, ‘reciprocal relationship’ and ‘treat the other as you wish to be treated’. Compassion is the heart of a healthy engaged doctor. And, healthy engaged doctors lead to healthy satisfied patients.

Take-home messages: We advocate the introduction of more compassion research in medical education.
9DD POSTERS: Curriculum Strategies: Electives and Integration
Location: South Hall, Level 0, MiCo

9DD (18812)
Flexible selective time during the pre-clinical research years significantly increases academic productivity during medical school

Justin Peacock, Mayo Clinic, Mayo Medical School, Rochester, United States
Presenter: Joseph Grande*, Mayo Clinic, Laboratory Medicine and Pathology, Rochester, United States

Background: In 2006, selectives were implemented at Mayo Medical School, which permitted students opportunity in the pre-clinical years to pursue research endeavors. The purpose of this study was to survey current and former Mayo medical students regarding the impact of selectives on their research interest and productivity.

Summary of Work: We created the survey about medical student research using the “Google Forms” software in accordance with an IRB-approved protocol. We surveyed 527 current and former Mayo Medical School students from the 2004-2017 graduating classes. We received responses from 183 participants (35% response rate). The survey results were analyzed using JMP statistical software. We grouped the classes into pre- (2004-2009) and post-selective (2010-2014) groups for the comparison studies.

Summary of Results: Post-selective students published significantly more papers (5.2 compared with 2.7, p=0.0005) and gave significantly more presentations (5.6 compared with 2.6, p=0.0002) during medical school than pre-selective students. 47% of the respondents indicated that selectives had a strong or very strong impact on their current research interest, while 42% reported a neutral impact. Respondents spent an average of 3.3 ± 0.3 weeks of selective time on research, resulting in 0.9 ± 0.1 publications and 1.0 ± 0.1 presentations, which represented 36.9 ± 4.0% and 34.0 ± 3.6% of the students’ total medical school publications and presentations, respectively.

Discussion and Conclusions: Flexible selective time during the pre-clinical years results in significantly more medical student academic productivity.

Take-home messages: Dedicated selective time has been used by students to increase academic productivity.

9DD2 (20737)
Peer-learning and peer-support to improve Student Selected Components

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Rachel Brooks, Cardiff University, Child Health, Cardiff, United Kingdom
Chisako Okada, Cardiff University, Child Health, Cardiff, United Kingdom

Background: In accordance with “Tomorrow’s Doctors”, our syllabus includes Student Selected Components (SSCs). We present the development and use of peer-support and peer-learning within these.

Summary of Work: Subjects and setting: 22 medical students, studying their 3rd year SSC in the years 2011-13. There was a range of topics: autism; child poverty; intellectual disability; safeguarding; medical education; audiology; vulnerable groups. Two educational supervisors shared facilitation of group meetings (6-10 students) which met fortnightly. For each meeting students presented progress and problems. These were discussed with the facilitators enabling group participation and cooperative problem solving.

Evaluation: We reviewed marks and other outcomes to assess the quality of the final SSCs. We sent out a questionnaire to all participating students, using Survey Monkey, between 5 months, and 2 years 5 months since completion of their SSC.

Summary of Results: Marks:- All passed, with 18 distinctions, and 10 scoring >80%. Outcomes:- 6 papers were published; 4 others presented at scientific meetings. 3 also won prizes. Questionnaire results:- 13 of the 22 responded.
• Peer-learning: 12/13 learned from other students (both general and specific SSC learning outcomes).
• Peer-support: 9/13 received support; 10/13 supported others; 12/13 felt peer-support was important, and 7/13 more positive towards it after their SSC.

Thematic analysis of free text answers will be presented related to peer-learning and peer-support.

Discussion and Conclusions: This was a successful model and enhanced the value of these attachments for student’s learning and development.

Take-home messages: SSCs can be adapted to successfully incorporate peer-support and peer-learning.
9DD3 (19942)
Using an Innovative Online Collaborative Platform to Recruit Students for International Medical Volunteering

Faheem Ahmed, King’s College London, School of Medicine, London, United Kingdom
Na’eem Ahmed, St George’s Hospital, London, United Kingdom
Mahfuj Ahmed*, King’s College London, London, United Kingdom
Raihaanah Al-Hoque, Selfless, London, United Kingdom
Muslima Chowdhury, Selfless, London, United Kingdom

Background: Over the past decade, there has been a significant rise in electives undertaken in developing countries by students and doctors in the UK and US. Understanding the complexity of tropical disease and developing cross-cultural communication skills has become increasingly important in daily practice to meet the needs of diverse patients backgrounds. Handling challenging clinical duties in developing countries has also shown dramatic improvements to participants’ clinical knowledge and emphasises the importance of learning how to manage patients with limited resources.

Summary of Work: Evidence suggests that almost all medical students in the developed world actively use a form of social media including facebook and twitter. Selfless UK, is an international charity that has developed an innovative online platform for students to volunteer on medical placements overseas. Students are able to create their own profile and select projects that particularly appeal to them, ranging from general medicine to ophthalmology. Our international projects help facilitate students’ elective placements tailored to their needs. By using social media, we have been able to successfully engage and promote global health opportunities to a wider audience of students.

Summary of Results: Selfless has over 1,000 online members. Students have provided strong positive feedback for our programmes overseas, stating that the projects were ‘easily accessible’, serving as a ‘highly efficient solution to arranging a tricky elective process’ and enabled them ‘to get hands on clinical experience’.

Discussion and Conclusions: Recognising the importance of social media, Selfless UK has used its unique volunteering platform to increase the number of international medical electives by providing greater opportunities to a wider audience.

Take-home messages: Social media is an effective tool in increasing medical volunteering opportunities in the developing world.

9DD4 (21754)
How medical schools encourage students to take the first step as citizens of the world? The value of self-directed international medical elective preparation in Japanese medical students

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Yasuyuki Suzuki, Gifu University, Medical Education Development Center, Gifu, Japan
Takuya Saiki, Gifu University, Medical Education Development Center, Gifu, Japan
Rintaro Imafuku, Gifu University, Medical Education Development Center, Gifu, Japan

Background: The number of Japanese medical students venturing abroad remains a minority. The previous national survey showed only 3% participated in international medical elective (IME). It is little known how Asian medical schools promote students’ participation in IMEs. Gifu University offers students 4-8 weeks of self-directed IME opportunities. We aim at exploring their cognitive process and challenges during preparation.

Summary of Work: We conducted a qualitative study with 10 candidates for self-directed IMEs by semi-structured interview during pre-elective preparatory period. The preparatory process, personal goals and learning objectives were inquired. Thematic analyses were used for analysis.

Summary of Results: Students gained deeper self-reflection, enhanced problem-solving ability, more global view points, and less hesitation in intercultural communication, by completing each preparatory step in non-native language with different cultural perception. This led to their higher self-confidence. Positive peer influence and continuous educational support were two key components to maintain their motivation for self-directed IMEs.

Discussion and Conclusions: This survey indicated successive achievements during self-directed preparation could convey some personal development to students. Resulting self-confidence and motivation would result in successful participation in IMEs.

Take-home messages: Among medical students in non-English speaking countries, self-directed IMEs can be a useful model to facilitate their global experience as citizens of the world.
Interventions to prepare medical and nursing students for the ethical issues encountered on their electives: A systematic review

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Felicity Jones, King’s College London, School of Medicine, London, United Kingdom
Molly Fyfe, King’s College London, Department of Education, London, United Kingdom
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Background: International health electives (IHEs) pose significant ethical challenges for students travelling to low resource settings. We undertook a systematic review of the literature to identify: 1) ethical issues addressed in interventions to prepare students for ethical challenges 2) educational approaches; and, 3) ethical theories underpinning these approaches.

Summary of Work: We searched nine electronic databases of peer-reviewed literature and identified grey literature through key word search and expert consultation. Articles that described ethical training conducted by universities or professional bodies were included for thematic analysis.

Summary of Results: Our search for published literature retrieved 1478 hits; 22 articles met our selection criteria. The grey literature search returned 40 hits; 17 were selected. Once duplicates were removed, we retrieved six sources of published literature and six sources of grey literature for data extraction.

1) Interventions aimed to address a wide range of ethical issues – little evidence of consensus about the priorities for an ethical electives curriculum.
2) A wide range of educational approaches have been used with many encouraging interaction with case studies. A minority of interventions provide guidance on how to formulate responses to case studies.
3) Only five out of twelve interventions explicitly stated underpinning ethical theories.

Discussion and Conclusions: The ethical issues addressed, educational approaches used and ethical theories referenced are varied. The majority of interventions do not state their ethical theories referenced.

Take-home messages: Our review suggests the need for consensus on learning content and educational strategies to prepare students for electives. More explicit discussion is needed about the ethical theories required to develop appropriate training for IHEs.

Student-Selected Components: Approaches to Increasing the Consistency of Assessment

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Vivienne Crawford, Queen’s University Belfast, Medical School, Belfast, United Kingdom
Michelle Marshall, University of Sheffield, Medical School, Sheffield, United Kingdom

Background: Student Selected Components (SSCs) are modules selected by students within the undergraduate medical curriculum in the UK. This complies with the GMC recommendation that 10% of curricular time be available for student choice. In Glasgow, Belfast and Sheffield, SSCs are delivered in blocks of dedicated time or are embedded with other teaching. The heterogeneous nature of SSC programmes means that they involves a large number of assessors from different backgrounds, a variety of different teaching modalities and a wide range of topics. Although programmes vary between Schools, the main purpose of SSCs is similar and includes development of skills in research, critical appraisal, problem solving and communication. One of the ongoing challenges is to produce a robust and valid assessment strategy which helps to ensure similar standards between SSC assessors and this is explored in this study.

Summary of Work: This study describes and compares the quality assurance approaches adopted by three different SSC programmes in the UK.

Summary of Results: These approaches include the use of clear assessment criteria, double marking/moderation, aligning assessment to the learning objectives and assessors training programme. In addition, providing feedback to assessors about their own students’ scores in comparison to their peer group is included.

Discussion and Conclusions: A number of strategies are used to enhance the consistency of assessment and have support from existing literature. Careful consideration should be given to local needs before identifying the best approach to implement.

Take-home messages: A number of strategies are used to enhance the consistency of assessment and have support from existing literature. Careful consideration should be given to local needs before identifying the best approach to implement.
9DD7 (22966)
Teaching dyads: The power of linking basic scientists and clinicians

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Jeffrey Chipman, University of Minnesota Medical School, Office of Medical Education, Minneapolis, United States

Background: Improving curriculum is an ongoing effort at many schools. In order to keep up with the fast passed changes in both the basic science and clinical fields and to provide students with the best teaching and learning experiences faculty need to understand how to work together.

Summary of Work: Course directors (basic scientists and clinicians) were intentionally paired with an academic counterpart. The dyad’s were formed to provide feedback and information on the content being delivered from another perspective; both bringing in addition basic science information and more clinically relevant content. Each pairing resulted in improved content, new cross discipline contacts and a better understanding of how integrated the two areas need to be in order to provide the most efficient and effective educational experience.

Summary of Results: In the first two years of undergraduate medical school curriculum more than half of the courses now have a basic science and clinical dyad team to help inform and improve the curriculum. Content continues to be improved and given more clinical context. This model is being extended into the clinical education years in academic year 2014-2015.

Discussion and Conclusions: The use of an overt dyad model has improved conversations between the basic scientists, created a stronger clinical orientation in the basic science years and we hope will create a model of continuous discovery in the clinical years.

Take-home messages: The use of basic science and clinical dyads in both the basic science education curriculum and the clinical education curriculum is critical in creating an environment that fosters clinical curiosity backed with scientific understanding.

9DD8 (19233)
A teaching scheme re-establishing basic science during clinical years helps to bridge the divide between pre-clinical and clinical training and boosts clinical confidence

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Zoe Rutter-Locher, King’s College Hospital, London, United Kingdom
Adam Pennycuick, King’s College Hospital, London, United Kingdom
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Catherine Howard, King’s College Hospital, London, United Kingdom
Zanna Voysey, King’s College Hospital, London, United Kingdom

Background: The disjunction between pre-clinical basic science training and clinical training remains a key issue facing medical curriculums. Recent studies have explored the benefits of bridging this divide by incorporating clinical material into pre-clinical training years. Few, however, have addressed this issue from the opposite direction. The authors therefore assess the efficacy of a teaching scheme that re-establishes basic science during clinical training years.

Summary of Work: 102 clinical medical students attended a series of evening seminars in Neurology, Hepatology, Nephrology and Respiratory Medicine. Seminars provided a refresher on pre-clinical basic science relevant to the specialty, putting this information back into clinical context through patient cases. The scheme was evaluated both objectively, through pre- and post-session multiple-choice test, and subjectively, through 5-point Likert scales assessing students’ confidence and attitudes towards session usefulness.

Summary of Results: Prior to the course, students from universities with greater chronological segregation between basic and clinical science expressed significantly lower confidence in basic science knowledge (p=0.01). The teaching scheme effected a significant improvement in test scores (p<0.0001) and confidence in both pre-clinical (p<0.0001) and clinical science (p<0.0001) in each specialty. Students consistently rated the seminars as very useful (mean Likert score 4.7/5). Results did not vary significantly between students in the first or last year of clinical training, nor with intercalation.

Discussion and Conclusions: A teaching scheme re-establishing basic science during clinical years helps to bridge the divide between pre-clinical and clinical training and boosts clinical confidence.

Take-home messages: This programme is of particular benefit to universities with curriculums reflecting greater chronological segregation of basic and clinical science.
9DD9 (22219)
Role Model and Work Place Experiences in the First Year Medical Students at Faculty of Medicine, Srinakharinwirot University

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Background: The first year medical students at Faculty of Medicine, Srinakharinwirot University always learn basic science without work place experience. In a new course of Road to Medical Professionalism, we developed new learning strategies by adding experiences with role models and real patients. Student perception driving by each learning activities were evaluated at the end of the course.

Summary of Work: All topics of the course were conveyed by three major learning activities; traditional lecture, role model and work place experiences. Survey questionnaires were distributed to 184 of 1st year medical students. Descriptive analysis was performed to compare the mean scores of each item.

Summary of Results: One hundred and twenty five (67.93%) questionnaires were obtained. Among respondents, male were 50.4% and female were 49.6%. Mean score’s perception of all participants in traditional lecture, role model and work place experiences were 4.23, 4.34, and 4.26 respectively. Mean score’s perception in high-scored student group (get A grade) were highest in Role model experience (4.59) and lowest in traditional lecture (4.47). Among low scored group, the highest mean score was in traditional lecture (4.04) while the lowest mean score was in role model (3.87).

Discussion and Conclusions: All learning strategies had similar results of students' perception in the whole class. The high score students more concern about role model and work place experiences, while the low score group pay more attention in traditional lecture.

Take-home messages: Role model and work place experiences should be promoted in 1st year medical students.

9DD10 (22247)
An exploration of student views and expectations about a new integrated pharmacy programme for Ireland

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Background: Internationally educators are reflecting on the challenges of designing integrated curricula for healthcare professionals. The Pharmaceutical Society of Ireland commissioned a review of education of pharmacists in Ireland. This research, supported by international trends, led to the recommendation for a 5 year fully integrated pharmacy programme for Ireland. This study was conducted to understand students' needs to fully inform the design of the new integrated pharmacy programme nationally. The study was designed to determine students' expectations of an integrated programme and their perception of the merits, value and challenges of studying pharmacy through an integrated programme.

Summary of Work: Qualitative methodology was used to explore students' opinions. Nine focus groups were conducted; three in each of the three institutions delivering pharmacy programmes in Ireland. The student representative on the National Forum was also interviewed.

Summary of Results: The study showed that students recognised that the role of the pharmacist is changing and felt that an integrated programme would provide better context for learning and preparedness for practice. Students had an expectation that experiential learning would be provided in all sectors in an equitable and transparent manner. There was strong support for optional subjects, placements overseas and interprofessional education. Students identified that fiscal constraints were a potential barrier and might impact on the attractiveness of the degree.

Discussion and Conclusions: This study is informing the development of the integrated pharmacy programme in Ireland, and will be of interest to those involved in curriculum design further afield.

Take-home messages: Exploring student views and expectations is an important aspect of student-centred curriculum design.
9DD11 (20223) 
Innovation for the integration of knowledge in medicine students of the UNAM, Mexico

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Background: One of the objectives of the curricula in medicine is that doctors acquire knowledge, abilities and skills to be competent (Sabench et al., 2013). The mission of the Surgery Department of the UNAM is to integrate theory with practice. To this end, we carried out the implementation and assessment of the practical abilities of students in the second year of medicine school registered in the course “Introduction to Surgery”.

Summary of Work: A manual of practices was created for said course, which contains 20 practices, divided in three phases, related to the theoretical contents of the subject area. In order to evaluate the performance of the students in different abilities and skills, three mandatory practical exams were designed, for which, we used simulators, checklists, and the evaluators were standardized.

Summary of Results: 3460 students were evaluated in three practical departmental exams; the average of students who approved was 82.2% with a greater percentage of approved in the third exam (90.85%).

Discussion and Conclusions: At the moment, we are in the phase of implementation and analysis of the students’ performance in diverse abilities and skills. In the opinion of the professors and a sample of students, the implementation of the manual of practices and the evaluation of said practices is considered suitable to facilitate learning of basic medical-surgical maneuvers for the medicine student, and it also contributes to the integration of the theoretical-practical contents of the subject area.

Take-home messages: We recommended the design of theoretical-practical courses which promote the integration of knowledge.

9DD12 (21409) 
Curriculum design: From longitudinal clerkships to block clerkships and back to longitudinal integrated curriculum

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Background: Research over the last decade has shown the educational advantages of Longitudinal Integrated Curriculum (LIC), with some authors considering continuity as a new organizing principle for medical education.

Summary of Work: In the nineties, adopting the curricular model of Western medical schools, at our institution we moved from longitudinal clerkships to rotational block clerkships. The recent major changes in health care delivery, the short inpatient stay and the pressure for faculty members and residents to maximize patient visits and procedures, diminished the learning opportunities for early-stage trainees and increased the degree of dissatisfaction among students and teachers. During the last two years we moved back to a longitudinal competency-based curriculum, with horizontal and vertical integration, that emphasizes patient-centered and student-driven learning. In each of the three clinical years there are five clerkships running at the same time, four compulsory and one optional.

Summary of Results: The main longitudinal themes of the curriculum are the basic sciences, clinical skills and clinical presentations / examination objectives. Students work with a preceptor in each discipline and a stable peer cohort across the year. The structure of the curriculum is provided by study guides, personal learning plans, learning portfolios, mentoring and peer review.

Discussion and Conclusions: The LIC model for curriculum increases the relationships of students with supervising clinical teachers and the ability to follow the patients from diagnosis through treatment, from inpatient to outpatient.

Take-home messages: LIC may represent a strategy for restoring some of the historical learning conditions in both inpatient and clinic-based services.
9DD13 (21454)

Button-mediated medical education: Distributed learning in a digital age

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Background: The distributed delivery of medical education is becoming increasingly common in Canada and around the world. We are therefore conducting a large-scale ethnographic study exploring how distributed medical education is experienced by educators and students at a Canadian medical school.

Summary of Work: Our study includes textual analysis, observation and interviews. Following preliminary analysis of more than 50 hours of observation data, we have identified one small, but powerful, piece of technology that has an important influence on the practice of distributed education: ‘the button.’

Summary of Results: In distributed medical education, curriculum is simultaneously delivered to various sites using state of the art videoconferencing. This means teaching and learning are extensively mediated by buttons. For example, in order to be heard and seen by colleagues at distributed sites, students press a button, activating an individual camera and microphone. The lecturer responds to questions by pressing yet another button. Potential speakers are placed in a queue based upon the order in which the button was pushed rather than relevance to the conversation. This button-mediated ordering of questions influences the flow of communication and the ability to engage in authentic discussion or debate.

Discussion and Conclusions: ‘The button’ has a significant influence on distributed medical education and constitutes a challenge to traditional educational epistemologies. Educators are required to rethink taken for granted ideas and approaches about how to engage learners, build relationships with students, and encourage discussion.

Take-home messages: Exploring distributed medical education without exploring the technologies—like buttons—that make it possible allows for, at best, partial understandings.

9DD14 (22577)

Curricular Integration in Medical Science based in Clinical Cases for Primary Health Care

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Background: Learning experiences of Y1 students in the real professional practice scenario, encouraged by the National Curricular Guidelines (DCN, Brazil 2001) can promote meaningful and integrated learning.

Summary of Work: There are two phases: in the first, interviews were conducted by phone with 108 Brazil Medical Schools coordinators and in the second, there will be focal groups formed by students and interviews with teachers and course coordinators.

Summary of Results: Course coordinators interviewed came mostly from private medical schools (73.1%). All reported to be following the National Guidelines and promoting integration with public health services as inducted by Ministry of Health (MH) projects. For 86.1% coordinators, multiprofessional team work is present, for 63.9% the curriculum is guided by prevalent diseases in the community; 71.3% totally agree that activities in the community will increase professionals social accountability. A total of 58.3% course coordinators foresee curricular integration using ‘problems’ built from real cases experienced in the primary health care. Many (70.4%) coordinators believe the use of information technology helps integrating the curriculum and 67.6% expressed that the used of these strategies are successful.

Discussion and Conclusions: “Problematization” of clinical cases within the community has been a pedagogical strategy for curricular integration in the majority of Medical Schools in Brazil. Almost half of the schools consider that the curricular contents are integrated and 58.3% use “problematization” from cases within the community.

Take-home messages: “Problematization” has been a strategy used for integration in Medical Schools in Brazil.
New competency requirements meet an old integrated curriculum

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Background: In 1996, a discipline-based six years medical curriculum at the University of Oslo was transformed into an integrated curriculum, using problem-based learning (PBL) as the main pedagogical approach. New competency requirements, with increased emphasis on primary health care, public health and teamwork, have set off a new revision of the curriculum. The purpose of this presentation is to discuss challenges with innovating and revising an integrated curriculum, based on PBL.

Summary of Work: In 2012-2013, a committee assessed evaluation reports, interviewed students and teachers and reviewed the existing teaching schedules for content, overlap and overload, aiming at identifying potentials for implementing new subjects and competencies.

Summary of Results: Both teachers and students reported that several subjects had become fragmented as they were being taught in several of the 12 semesters. The goal of integrating basic medical sciences and clinical subjects had not always been successful. Teachers’ sense of ownership and responsibility for their subject and the curriculum as a whole had deteriorated. There had been an unintended expansion of teaching activities, while the content had virtually been unchanged.

Discussion and Conclusions: A new, revised curriculum has been developed and will be implemented from 2014, with somewhat less integration, introducing elective courses, more systematic training in practical skills, and an expanded project thesis.

Take-home messages: A challenge in revising an integrated curriculum is to balance the positive learning effects of integration, while avoiding the negative effects of fragmentation. An integrated model may cause a sense of alienation among faculty. This may be met through fostering collaborative learning environment and faculty development.
The impact of curriculum alignment on the improvement of Embryology: A constructivist perspective

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Background: Nowadays higher education is learning-oriented and means that the student should be cognitively active. It also implies the professor as a teaching agent who, in part, facilitates an adequate teaching context by aligning competencies, teaching/learning activities and assessment which, in turn, will contribute to deeper learning and the development of metacognitive skills.

Summary of Work: The study consisted of the implementation of a teaching project. A likert-type questionnaire and an open-ended sentence survey were administered to a sample of 480 students in the first year.

Summary of Results: The effectiveness of the aligned program in terms of deeper learning was confirmed since 63% of the students’ responses pointed out that they could take active part in tasks related to critical thinking as well as decision-making skills compared to traditional lecture attendance. Professors’ efficacy was considered highly-valued by 78% preference due to the clarity of expected competencies.

Discussion and Conclusions: In an aligned program, students work on tasks meaningfully as a response to structured expectations allowing a convenient class atmosphere. When dealing with content to reflect, formulate hypotheses and evaluate decisions made by students, a high level of understanding and the use of peer and self-evaluation are promoted. Professors, then, play an outstanding role by choosing what needs to be done based on a purpose so that students may have the opportunity to experience academic success when realizing they have attained an expected goal.

Take-home messages: Curriculum alignment not only provides tools to facilitate academic processes but also offers a perspective oriented towards a coherent use of time and resources within an innovative course program.

The “Oral Case Presentation Training Programme” for Medical Students -- Experience of the Largest Medical Center of Taiwan

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Background: The oral case presentation is an important communication skill in patient care. A well-designed teaching programme can help students integrate patient history, physical examination, and lab exam results in assessments and well-reasoned plans. The “Oral Case Presentation Training Programme” (OCPTP) is designed for the above purposes.

Summary of Work: OCPTP contains lecture, on-line video self-learning, practice training, and midterm/final presentation assessments with real-time feedback. Medical students who completed the training programme from September, 2013 to January, 2014 were enrolled. Forms were designed to assess performance on the oral case presentation. Chi-square, paired t, independent t tests and logistic regression analysis were applied for analyzing the results.

Summary of Results: Eighty-four 5th grade medical students (39 female, 45 male) were enrolled. In the midterm assessment, the average score was 73±11 (49-100). The students performed better in the presentation of chief complaints, attitude, and time control, than in presentation of physical examination findings, assessments, and plans. The logistic regression analysis showed that the performance in organization was the predictor of the pass of the midterm assessment (p< 0.80) which had joined the final assessments. The paired t-test showed all 61 students had better performance in all fields in the final assessment than in the midterm (p<0.05).

Discussion and Conclusions: The OCPTP is useful for achieving the goals of enhancing students’ performance on oral case presentation.

Take-home messages: A well-designed training programme, including lecture, video, practice training,
midterm/final oral case presentation assessments and real-time feedback, will show the students' weak points, improve their performance, and assist their learning.

9EE3 (21733)
Training programs in hospitals affiliated to Semnan University of Medical Sciences

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Background: The aim of this study is to identify and prioritize the training need assessment of nurses working at ICU in subsidiary hospitals of Semnan University of medical sciences in order to design the in-service training program for them.

Summary of Work: Being a cross-sectional and descriptive study including two phases of identifying and prioritizing of training needs of ICU nurses, it was conducted by a close-ended questionnaire for collecting data on training needs from the viewpoint of managers and resident physicians in ICU in the first phase and a multiple-choice scientific test plus a checklist for measuring the knowledge and skill of the nurses in ICU in the second phase. Census method was used for collecting data in both phases.

Summary of Results: Results indicated that cardiac monitoring, diagnosis of dysrhythmias and taking immediate measure at the time of fetal dysrhythmias occurrence (71.11%), monitoring the parameters of ventilator with regards to patient’s respiratory status (70.80%), arterial blood gas sampling and the way it is interpreted (69%), cardiopulmonary resuscitation (CPR) for adults (66.66%), airway maintenance, oxygenation and enethetobiosis (66.66%), planning, implementing and evaluating the comprehensive skin care program (60.01%), pharmacotherapy, injection of drugs with positive in trope (Adrenalin, Atropine, Dobutamin) (57.90%), cardinal Venus pressure (CVP) and establishing a flow rate of medicines with regards to physician’s prescription (52.22%) were the high-priority training needs of the nurses successively.

Discussion and Conclusions: To improve the quality of training programs and upgrading the knowledge, skill and attitude of nurses working at ICU, the significance and the weight of each training titles should be determined according to the standards and the continues in-service training plan along with nurses' training needs and duties.

9EE4 (22175)
Analysis of significant prerequisites for effective modernization of MD programs considering European understanding of “Harmonization”

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Background: David Tvlidiani Medical University (DTMU) and Akaki Tsereteli State University (ATSU) are modernizing MD Programs in the framework of TEMPUS Project “Establishment of the Supra-Regional Network of the National Centres in Medical Education, focused on PBL and Virtual Patients”. Recent education reforms in Georgia enabled us to organize programs variously. The only “strict” requirement for MD Programs is learning outcomes (harmonized with MEDINE2 requirements). In presence of such status quo the present MD programs of two universities differed substantially.

Summary of Work: The aim was to identify the extent of specificities/differences of using the same received resources for modernization by two universities. We analyzed programs; focus, aims, relevancy of content of modernization for possibilities of realistic implementation of planned changes.

Summary of Results: Focus of modernization for DTMU is at Basic Sciences study stage, while for ATSU on entire program (6 years) “vertical”. Regarding content of modernization: DTMU personalizes (directing to particular case) study materials organized by Organ Systems, that especially helps understanding of basic/clinical sciences, and also develops professional/practical skills. Main content of modernization at ATSU considers deep understanding of professionalism and at “clinical sciences” stage, analyzing basic aspects of clinical issues.

Discussion and Conclusions: MD program modernization in DTMU and ATSU is based on the analysis of differences in prerequisites (Programs’ organization, levels of integration, experience, HR etc.); Focus, aims (targets), content and other issues of modernization is justified; “fitness for purpose”, as well as “fitness of purpose” is guaranteed.

Take-home messages: Real European understanding of “harmonization” is the best prerequisite of modernization and successful implementation of MD programs’ for medical schools.
9EE5 (21731)
A longitudinal framework for professional identity formation

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Background: Medical education literature emphasizes the development and assessment of professional identity formation (PIF), but there is no consensus about how to accomplish this. PIF has been described as the transformational process during the transition from student to physician. We developed a longitudinal framework for PIF with strategies for its promotion and assessment.

Summary of Work: Using a modified Delphi technique, an interdisciplinary group of undergraduate university and medical educators identified key aspects of PIF. Through an iterative process, the team synthesized these aspects into a framework of domains and subdomains across the premedical-medical education continuum. Teammate pairs identified literature-based strategies to support and assess each PIF subdomain at three developmental stages. After vetting with medical educators and peer review, the team converted the framework to a searchable web-based format.

Summary of Results: The framework describes 6 domains of PIF: 1) Attitudes; 2) Habits; 3) Perceptions; 4) Personal Characteristics; 5) Relationships; 6) Responsibilities. These are subdivided into 30 subdomains across 3 longitudinal stages: 1) Transition; 2) Early developing professional identity; 3) Developed professional identity. For each subdomain and stage, the framework identifies strategies for promoting (e.g., community service learning) and assessing (e.g., portfolios, reflective writing) PIF, plus resources and references.

Discussion and Conclusions: This framework describes the complex nature of physician PIF across three developmental phases representing the premedical-medical education continuum, and suggests curricular strategies to promote and assess PIF. This framework is being utilized to develop multi-institutional programs bridging premedical and medical education. Further evaluation of the framework is planned.

Take-home messages: This longitudinal framework may facilitate curriculum and program development for PIF.

9EE6 (23034)
Learning in the 21st century: Identifying the gap between the expectation and the reality

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Background: Frenk et al (2010) propose that medical graduates in the 21st century should not only be experts or professionals but also change agents. They also recommend instructional reforms into the level of transformative learning. In order to achieve these expectations, it would be wise to, firstly, conduct situational analysis of how students actually are.

Summary of Work: A qualitative inquiry was used to study the nature of pre-clinical learning. Data were saturated after 24 students were interviewed. The data acquired were transcribed verbatim and thematically coded into a huge mind-map covering what student motivations and preferences are; what factors influence their learning; and how they learn in each setting. The result from the first round was then used to design the 10-page, 98-item questionnaires – which were distributed to the 3rd year students at Chulalongkorn medical school in November 2013.

Summary of Results: 30% of the respondents were uncertain if they would like to be doctors or not. Parents seemed to have considerable influence on student’s career choice, at least one-third of them. There was substantial variation among the respondents regarding: their goals of pre-clinical learning; the content which motivates or demotivates their eagerness to learn; note-taking behaviours; learning styles used in small group learning; and how frequent they perform information search and self-revision. Based on many questions, approximately 60% of the respondents seemed to be comfortable being passive learners. Some even showed negative attitude towards active learning.

Discussion and Conclusions: Students are not homogeneous in many aspects.

Take-home messages: There is no single teaching method which will please every student. Careful instructional design is required in order to deal with this level of diversity.
10 Approaches to Academic Development (AD) for the Basic Medical Sciences: achieving quality with large classes

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Background: Since it opened in 1976, St. George’s University has placed over 13,000 M.D.s in over 50 countries around the world. Every year in January and August, St. George’s admits more than six hundred students to the M.D. program. In January 2014, 98.5% of St. George’s students who took the USMLE Step 1 for the first time passed. Despite the size of the class, both the first-time Step 1 pass rate and average score have risen steadily each year. How is this possible with a large class? Critics of the large-class approach refer to it disparagingly, yet St. George’s graduates compete favorably.

Summary of Work: We identified and critically analyzed ten academic development (AD) approaches that are used by the St. George’s School of Medicine to ensure that students are retained and engaged with the program.

Summary of Results: The approaches that were identified were:
1. Pre-med strategies.
2. Strategies for supporting under-prepared students.
3. Orientation strategies
4. Academic Advising
5. Learning strategies for the Basic Sciences
6. Early intervention strategies
7. Strategies for large-class teaching
Each of the approaches engage and empower students to take control of their own learning (Lefcourt 1976) through self management, problem solving (Norman and Schmidt 1992), reflective thinking (Flavell 1979, Johnson and Johnson 1998), and collaborative learning (Kanthan and Mills 2007).

Discussion and Conclusions: Instead of providing students with support strategies that encourage dependency, academic development at St. George’s focuses on developing students’ autonomy and resilience (Haney et al. 2011). These enable students to cope with large classes.

Take-home messages: It is possible to teach students effectively even in large classes if a school collectively adopts the goal of developing students’ learning autonomy. (Little 1995).

Implementation of an Obligatory Mobility Window in a Bachelor Program Molecular Medicine

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Background: Mobility during the study period plays a key role for the future career. Triggered by the DAAD Bachelor Plus Program, the three year Bachelor Program “Molecular Medicine” has been changed 2011 into a 4 year Bachelor Program with an Obligatory Mobility Window abroad.

Summary of Work: The Obligatory Mobility Window has been implemented in the 3rd study year. International partners for exchange have been found, a mentoring program for Incoming students and tools for recognition of qualifications have been elaborated.

Summary of Results: The mobility window can be used both for studying and for practical courses or the combination of both. The stay abroad offers students the opportunity to deepen their knowledge in areas they are interested in, including cutting-edge topics, interdisciplinary qualifications and studies outside their major. Each student chooses the subjects on his own and gets his individualised curriculum. Upon successful completion of these courses students receive 60 ECTS.

Discussion and Conclusions: Overall the change has been quite successful. We requested students’ reports from abroad that contained mostly positive experiences. The Bachelor Program of Molecular Medicine has become more attractive for applicants and their number has steadily increased. In 2013 we have got 17 % more applications compared to the application period in 2010 (2008: 269 applicants; 2012: 765 applicants).

The authors do appreciate being part of the MEDINE2 project which is the origin of this case study.

Take-home messages: Mobility is important for personal development and employability. The change from the three year Bachelor Program to the four year with the mobility window is absolutely worth it.
**9EE9 (22409)**

**Studying with SPIRiT: Student Orientation with an individualized curriculum based on student needs in Tübingen**

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**Background:** Nowadays, lots of students face different obstacles related to their social and economic background which may cause problems for their regular course of studies. The medical faculty of Tübingen (MFT) has therefore established a student-oriented service for students with those special needs: the „individualized curriculum“, an individualized schedule of compulsory courses. For this, the MFT is applying SPIRiT (Student-oriented, Practice-based, International and Research-driven study in Tübingen).

**Summary of Work:** An individualized curriculum is required by about one third of the clinical students per semester: pregnant students, students with children or other family commitments (student-oriented), tutors (practical-based), exchange students (international) or students doing research-work (research-driven). The office of student affairs plans the individualized curriculum in liaison with the affected students and offers support.

**Summary of Results:** Giving them the chance to plan their own curriculum creates a sense of responsibility and identification of students with the MFT. Scheduling the individualized curriculum is very time consuming and highly complex. Therefore, good time management and collaboration of different departments is needed, as well as additional staff specializing in this area.

**Discussion and Conclusions:** Individualized curriculum is an efficient tool to increase the mobility and to make the curriculum more family friendly. Furthermore, it enables students to combine their studies with their tutor jobs without prolongation of their study period. The authors appreciate being part of the MEDINE2 project which is the origin of this case study.

**Take-home messages:** An individualized curriculum fulfills the responsibility a university has towards its students by helping them conclude their studies to their best abilities.

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**9EE10 (22328)**

**Evaluating the student-centeredness of a programme: A new mixed-methods approach**

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**Background:** There is increasing interest in student-centred learning (SCL) for medical education courses. Existing evaluations of student-centeredness usually only consider the learner’s perspective but for staff development it is essential to also identify the teacher’s perspective. An important aspect is to identify any differences between the espoused theories of teachers and their theories in use that impact on how the programme is delivered. This requires an in-depth approach to evaluation.

**Summary of Work:** Using a case study of an integrate basic science course, we evaluated the student-centeredness by combining a student focus group and 34 hours of classroom observation (to identify the use of theories in practice) with seven individual teacher interviews (to identify espoused theories). Data was analysed using the framework of Weimer’s five characteristics of SCL.

**Summary of Results:** The 3 methods identified different elements of student centeredness. Interviews revealed that teachers were aware of the importance of engaging and motivating students and of passing responsibility on to students. Students in the focus group considered that the course had a focus on enhancing student learning. The classroom observations confirmed the teacher’s perceptions of their approach to SCL.

**Discussion and Conclusions:** There was congruence between the espoused theories of teachers and their theories in use. The mixed methods approach to evaluation was a useful technique for identifying the student centeredness of the course. Combining classroom observations and interviews (teachers and students) provides a useful and feasible in-depth evaluation of the extent of a course’s student-centeredness in undergraduate medical education.

**Take-home messages:** This new mixed-methods approach to evaluation can be of use to inform staff development and can be applied in other (medical) education institutions.
Gender based analysis of user behaviour in a web-based "Learning Opportunities, Objectives and Outcome Platform" (LOOOP)

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Fatima Yuerek, Charité, Universitätsmedizin Berlin, Department for Curriculum Management, Department for Anaesthesiology and Intensive Care Medicine CVK/CCM, Berlin, Germany
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Background: To meet the requirements of the increasing complexity and modular structures of all five undergraduate curricula, a web-based “Learning Opportunities, Objectives and Outcome platform” (LOOOP) was developed and implemented at Charité – Universitätsmedizin Berlin. This platform is used for curriculum development and curriculum mapping including communication of all timetables, outcomes, content and objectives to students and teachers. Aim of this study was to investigate usage behavior and acceptance of LOOOP by students.

Summary of Work: Anonymised registration data were analysed concerning usage of LOOOP by 1062 students, currently enrolled in our standard curriculum during winter semester 2013/14. Gender of students was considered as a factor for usage.

Summary of Results: 789 students (74% signed in voluntarily for usage of LOOOP (456 female and 333 male). 695 students of this user group (88%) enrolled in their respective degree course, (403 female and 292 male). 399 of these students (57%) extracted special information for their specific semester study group (228 female and 171 male). Thus, relation of men and women was the same in all examined groups (about 42% men) and no significant differences could be detected.

Discussion and Conclusions: Usage of LOOOP is well accepted by female and male students. This data support the theses that web-based presentation of curriculum maps is an effective tool to address the needs of students of so called generation Y. Take-home messages: “Time and effort spent developing and maintaining the curriculum map will prove to be rewarding. No good curriculum can afford to be without one.” (RM Harden, 2001, Med Teach. 23(2):123-137.)
**9EE13 (21611)**

Valuing identity: Critical discourse analysis of online participants ‘identity text’

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**Summary of Work:** An identity affirmation tool ‘Identity Text’ was introduced as part of an online module for an international health professions education fellowship program conducted by FAIMER training faculty to act as research scholars and change agents. Participants were asked to describe evolution of their identity over time as an educator. We undertook Critical Discourse Analysis using Gee’s tools to analyze the discourse.

**Summary of Results:** Participants described conscious and subconscious transformation in identity secondary to struggles with power dynamics and social demands; the impact of family, peers and country of origin.

**Discussion and Conclusions:** Letting go of the need to keep contributions ‘culture free’ makes it easier to talk (write). Encouraging learners to share their stories help others understand their circumstances and driving forces perhaps encouraging a sense of a strong community which in turn fosters a willingness to share ideas. As educators we make instructional choices that send messages to learners about the broader societal pattern of devaluation of identity. Identity text is a valuable tool to counter this trend.

**Take-home messages:** Identity validation is crucial for promotion of diversity.

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**9EE14 (22444)**

Modernization of MD Curriculum Based on Current Challenges and Needs of the Medical Education Reform In Georgia

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**Background:** This work deals with the changes held at ATSU Faculty of Health Care for the modernization of undergraduate medical education program. Modernization includes: Problem-based learning, enhancement of the integration of basic biomedical, behavioral and social sciences with clinical sciences in the medical program or new settings for and other innovations in clinical training.

**Summary of Work:** At ATSU our foreign colleagues proposed a problem-based learning (530519-TEMPUS-1-2012-1-UK-TEMPUS-IPCR- “Establishment of the Supra-Regional Network of the National Centres in Medical Education, focused on PBL and Virtual Patients”) the so-called CASE STUDIES, this is one of the best examples. The introduction of PBL Teaching Method into our curriculum of MD, is preceded by a preparatory period, such as renewal of the curriculum, teacher development, Satisfaction of material, technical base requests.

**Summary of Results:** Modernization of MD curriculum based on raising of integrity and structure of program teaching/learning/assessment of Basic Medical Sciences in clinical relevance and context; that in summary improves not only students (graduates) employability, but will have impact on patient’s safety and on improvement of quality in health care services.

**Discussion and Conclusions:** Main principles to redesign the curriculum: teacher oriented – student oriented; information oriented – integrated, course based – problem based, hospital oriented – first aid oriented; Our project “Establishment of the Supra-Regional Network of the National Centers in Medical Education, focused on PBL and Virtual Patients” as many others stimulate the team to improve the knowledge about new curricula implementation pathways and indicators of impact on development.

**Take-home messages:** For external audiences our new curriculum we use workshops/reports/conferences/ one to one format focused on medical specialties and/or medical education (ex. AMEE) and education in general (ICERI). One most important aspect of above mentioned is to use this meetings/communications for development of future relationships and collaborations on interested item/issue.
9EE15 (22697)
Webbased, interactive, simultaneous, aligned scheduling in different undergraduate medical curricula

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Background: Charité – Universitätsmedizin Berlin runs six undergraduate curricula with a total of 7000 students. Generation of all schedules pursues the aim to obtain best possible occupancy for faculty and available patients and to create an accomplishable timetable for students. Introduction of our new competency based, interdisciplinary curriculum induced a foreseeable, huge increase of planning effort.

Summary of Work: All planning processes were standardized, transferred into a custom-made software and exactly defined by the latest logework and the earliest demand during three different planning phases:
1. The initial planning phase
2. The coordinating planning phase
3. The finalizing planning phase.
Each of these three planning phases is limited by an individual time frame and comprises an intensive, webbased interaction with all 125 clinics and departments on the basis of former curriculum development in our webbased Learning Opportunities, Objectives and Outcome Platform (LOOOP).

Summary of Results: Number of planned courses increased from 28,000 in 2011 to 76,000 in 2013 with identical staffing. Total need for planning was kept constant at 14 weeks (6 weeks for phase 1 and 4 weeks for phase 2 and 3, respectively). All schedules are available online in LOOOP i.e. in I-Cal format for students and faculty.

Discussion and Conclusions: Although the number of courses increased by factor 2.7 within two years, the renewed, generalizable processes enabled the generation of well-balanced, aligned, interdisciplinary schedules for faculty and students with the same recourses and within the same time.

Take-home messages: Establishing webbased, interactive processes increase effectiveness and efficiency of timetabling.

9EE16 (21111)
The MERC at CORD Scholars’ Program in Education Research at 5 Years

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Background: There is a pressing need for professional development opportunities in education scholarship designed for the clinician educator. The MERC at CORD program was created 5 years ago to meet this need for practicing emergency medicine (EM) educators in the USA.

Summary of Work: 20-35 clinical faculty participate in a year-long program annually consisting of 6 MERC workshops (two each at three separate meetings) and a mentored, multi-institutional education research project. Breakout sessions at the MERC workshops are used to apply learned concepts directly to the research project.

Summary of Results: Over a 5 year period, MERC at CORD has enrolled 149 EM faculty. To date, 83 participants (56%) have earned MERC Diplomat status by completing all 6 workshops, 52% (43) of which completed their project becoming “Scholars”. Post survey results reveal that participants believe that their education research skills improved significantly as a result of the program. When asked about additional value derived from the program, the most common answer pertained to the ability to network within the program facilitating participants’ ability to develop relationships with potential collaborators and mentors. Projects developed at MERC at CORD have resulted in 34 abstracts presented at national meetings and 3 peer-reviewed publications to date.

Discussion and Conclusions: The MERC at CORD Scholars’ Program appears to be an effective means of improving skills and knowledge related to education scholarship. In addition, the program may facilitate further individual development in this area by fostering a community of like-minded collaborators and mentors.
9FF1 (20415)

Students’ perspectives of a novel near-peer teaching programme for first year clinical students in the UK

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Background: The General Medical Council (GMC) advocates that teaching is an integral part of the undergraduate medical curriculum in the UK. Peer Assisted Learning (PAL), a student-led near-peer teaching society, delivered a local, structured teaching programme to first-year clinical students over one academic year.

Summary of Work: Interested students were assigned into small groups of 4-5 and allocated two near-peer teachers (in year(s) above) for weekly teaching sessions in core areas of medicine and surgery, with particular emphasis on pre-identified areas of difficulty. We investigated student perceptions of near-peer teaching using semi-structured questionnaires, and via focus groups, the relevant teacher roles for near-peer teachers.

Summary of Results: Findings show the benefits of PAL on the quality of teaching received by students (83%), students’ ability to cope with the pace of learning (91%), the non-threatening learning environment (96%), and the positive impact on student learning (96%). The majority of near-peer learners identified ‘role model’ and ‘facilitator’ roles for near-peer teachers, with a significant proportion agreeing that peer tutoring should be a formal part of the undergraduate curriculum (67%).

Discussion and Conclusions: This study qualitatively demonstrates the benefits of near-peer teaching to first year clinical students, although the quantitative effects of near-peer teaching need to be established by evaluating pre and post-examination scores. It also showed that near-peers were able to create and deliver a structured teaching programme that was very well received by our student cohort.

Take-home messages: Near-peer teaching during medical school appears to be an important curricular consideration and should be actively encouraged.

9FF2 (21081)

Peer-instructed seminar attendance is positively associated with exam scores

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Background: Active engagement in education is known to improve learning outcome. To enhance active participation in seminar learning, a student-centred design was implemented and evaluated for exam scores and student’s motivation.

Summary of Work: We hypothesized that small group learning with intensive peer interaction would motivate students to prepare for and engage in seminar learning. Therefore, 30-student seminars were subdivided into 5-student buzz groups to discuss home prepared assignments followed by peer presentations and plenary discussion, moderated by an expert. After each seminar, students were asked to reflect on their perceptions and motives in electronic questionnaires. Descriptive statistics and linear regression analysis were conducted to correlate attendance with exam scores, and to unravel the underlying mechanism.

Summary of Results: Seminar attendance was positively associated with exam scores, even when corrected for previous academic achievements. Both preparation time and preparedness of peers explained variance in students’ opinion for seminars being elaborative. Preparedness of peers could also explain variance in students’ confidence in finding correct answers. ‘Elaboration of content’ and ‘confidence in correct answers’ did not predict exam scores.

Students’ motivation indicated that comparing and discussing with peers appeared to encourage students most to prepare, and ‘expected difficulties’ to demotivate students most. Active participation in seminars appeared to be supported by the opportunity to discuss with and present answers to peers. Demotivating factors for active participation could not be identified.

Discussion and Conclusions: Peer-instruction promotes preparation, causing elaboration of content and confidence in answers when peers are prepared. Additionally, attendance correlates with exam scores.

Take-home messages: Peer-instructed seminar attendance positively associates with exam scores.
**9FF3 (20837)**

**Peer Assisted Learning on Medical Clinical Placements: An observational study**

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Ben Canny, Monash University, Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia

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**Background:** Monash University medical students are oriented to Peer Assisted Learning (PAL) in their pre-clinical years. There are fewer formal PAL activities on students’ clinical placements. When surveyed, Year 3 students reported they used PAL frequently, though felt underqualified to judge their peers’ performance, and lacked skills to provide feedback. An observational study was undertaken to investigate how students engage in peer learning in the clinical setting.

**Summary of Work:** An ethnographic study focussing on PAL activities was undertaken at two clinical sites. Students were shadowed for two weeks per site. Field notes covered 75 hours of observations, and seven hours of student interaction and reflective interviews with students and tutors were recorded. The data were interrogated using Thematic Analysis.

**Summary of Results:** Students spent the majority of their day undertaking “work” activities and making decisions about which activities and sources (tutorial versus ward, consultant versus peer) held value for their learning. Key themes “Fitting in learning around the work”, “PAL is our last resort”, and “PAL changes over time” will be presented. A tension was observed between the “work” and the “learning”. PAL was perceived as “lesser”, while clinicians’ expert feedback and teaching were privileged. As time progressed, students became more comfortable with PAL, because they increasingly trusted their peers’ and their own judgements about what constitutes ‘good clinical practice’.

**Discussion and Conclusions:** To make the most of clinical learning opportunities, students require orientation to the learning environment, and to PAL in particular.

**Take-home messages:**
- PAL is used by students despite misgivings about the expertise of peers
- The value of PAL improves as students develop their understanding of standards of practice, and capacity for evaluative judgement.

**9FF4 (20050)**

**Developing teaching skills during the early years: A medical student-led organ donation awareness workshop in secondary schools**

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Chrishan Gunasekera, UCL Medical School, Medical School, London, United Kingdom

John Kinley, UCL Medical School, Medical School, London, United Kingdom

Paul McGovern, UCL Medical School, Medical School, London, United Kingdom

Katherine Woolf, UCL Medical School, Medical School, London, United Kingdom

**Background:** We aimed to instill basic teaching skills in first year medical students so that they could benefit throughout their training in terms of becoming effective educators and evaluating their own learning. We specifically chose secondary school pupils (11-16 year old) as the target audience to encourage a focus on the style of teaching.

**Summary of Work:** We recruited first year medical students, two months into medical school, to design and deliver an organ donation workshop to secondary school pupils. We provided a bespoke teaching skills course to prepare our students involving multiple professionals (psychologist, specialist nurse, patients and doctors).

**Summary of Results:** 170 pupils attended the workshops over six days and at four different sites. 93% of pupils found it acceptable to be taught by first year students, with high levels of satisfaction in terms of enjoyment and relevance. A focus group of the participating medical students revealed themes including becoming a role model, developing confidence and legitimacy as an emerging healthcare professional and having a better understanding of how to prepare and maintain a structure in their teaching.

**Discussion and Conclusions:** Developing teaching skills in medical students and providing them with a unique and challenging platform to practice them within allows us to emphasize some of the key fundamentals of medical education at a very early stage, as well as contributing to identity formation as a future doctor.

**Take-home messages:** Encouraging medical students early on to develop and refine their teaching skills with an appropriate degree of teaching responsibility has potential life-long educational benefits in their development as doctors.
**ABSTRACT BOOK: SESSION 9**

**TUESDAY 2 SEPTEMBER: 1600-1730**

**9FF5 (22932)**

Which professional competencies can be enhanced among medical student tutors due to their peer teaching activities?

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**Background:** Teaching formats using student peer tutors play an important role in medical education. Seen from the faculty perspective, student tutors chiefly provide support for the teaching staff. Student tutors themselves, on the other hand, may profit by acquiring or enhancing their own professional skills by teaching or guiding others. Considering this twofold benefit of student peer teaching against the backdrop of professional roles and the importance of competence orientation, the question is, in what way peer teaching activities can have an impact on the development of which professional skills.

**Summary of Work:** Based on previous literature research as well as interviews with the supervising lecturers in the respective departments, all student peer tutors trained between 2012 and 2013 (N=216) were surveyed twice (pre and post their tutorials; response: 98% and 47%; 5-point Likert scales) to learn about their experiences and ratings.

**Summary of Results:** Tutors reported that, in addition to the high relevance of communication, social skills and specialized knowledge in general, there is a great importance and individual gain regarding the ability to “explain”. Self-Assessment of this skill differed significantly in pre/post-tests (1.51 vs 1.23; \(t(99.172)=2.544; p<.05\)). The results also showed that the student tutors needed organizational skills with respect to themselves (“time and self-management”: 2.12 vs. 1.71; \(t(108)=2.345; p<.05\)) and others. In the post-test, participants reported a high “capacity for reflection” (1.75) of themselves, which represents a key competency.

**Discussion and Conclusions:** Preparing for and conducting tutorials help student tutors to promote their professional skills. Improving these skills appear to be useful for faculty as well as student tutors.

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**9FF6 (18492)**

Objective measurement of the value of peer assisted learning in an undergraduate medical school setting

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Róna C. Anderson, University of Glasgow, Glasgow, United Kingdom

Nigel I.J. Chan, University of Glasgow, Glasgow, United Kingdom

**Background:** Although peer-assisted learning (PAL) has been widely studied, most evidence is based on questionnaires gauging perceived educational benefit.

**Summary of Work:** This study focused on a two day peer-assisted clinical skills course for 4th year students at the University of Glasgow, School of Medicine. Ten teaching stations were delivered by nineteen final year students. To measure knowledge improvement, participants completed a multiple-choice test before and after the course. Participants were randomly divided into 2 groups: group 1 sat paper A followed by paper B; group 2 sat paper B then paper A. Participants were included in the final analysis if they attempted both papers and attended all stations. Statistical analysis was performed using Minitab 16.0 (2010). A paired sample T test was used to compare the mean test score of all tests completed before the course and all completed after.

**Summary of Results:** Tutors reported that, in addition to the high relevance of communication, social skills and specialized knowledge in general, there is a great importance and individual gain regarding the ability to “explain”. Self-Assessment of this skill differed significantly in pre/post-tests (1.51 vs 1.23; \(t(99.172)=2.544; p<.05\)). The results also showed that the student tutors needed organizational skills with respect to themselves (“time and self-management”: 2.12 vs. 1.71; \(t(108)=2.345; p<.05\)) and others. In the post-test, participants reported a high “capacity for reflection” (1.75) of themselves, which represents a key competency.

**Discussion and Conclusions:** We have shown an objective improvement in educational performance following a PAL course.

**Take-home messages:** Peer-assisted learning is a viable teaching tool which could be more widely implemented in undergraduate medical teaching.
9FF7 (19971)
Focus group evaluation of a student-produced open educational resource on obesity

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Bruce C. McKenzie*, University of Nottingham, Nottingham, United Kingdom

Background: Medical students may underrate the obesogenic environment and overrate personal responsibility, leading to victim-blaming attitudes as doctors. Learning from peers can be effective; hence a student-produced open educational resource (OER) on obesity may reduce ‘weight bias’.

Summary of Work: The OER was storyboarded then built using Xerte Online Toolkits. Six consenting Nottingham (UK) medical students completed the resource and attended an incentivised focus group. Three researchers independently coded the transcript and following coding consensus these data were analysed thematically.

Summary of Results: All participants appreciated the OER’s interactivity and ease-of-use. Participants credited included scenarios as effective in shifting attitudes away from predominant personal responsibility. Students did not see the OER as an alternative to lectures, but advocated follow-up seminars to provide further opportunities for exploration of peer perspectives and new concepts.

Discussion and Conclusions: Experience with this OER supports a role for student producers and indicates OERs created by student peers are regarded as reputable, can challenge preconceptions and induce positive attitude change. Involvement in OER creation brings tangible benefits to the producer. Evaluation of a range of student-led OERs in various medical subjects might consolidate their place in the undergraduate curriculum, as would formal faculty support and funding. Completion of an OER on obesity may improve understanding of the underlying health determinants that contribute to it. Students would value integrated feedback on change in attitude and knowledge acquisition.

Take-home messages: Using OERs influential peer teachers can challenge victim-blaming attitudes towards obese people, ultimately improving their experiences with tomorrow’s doctors.

9FF8 (22033)
Nationwide Train the Trainer program for undergraduate in the field of Disaster Medicine

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Background: In Italy, disaster medicine has not yet been included in the medical curriculum. Since 2008, SISM, the Italian Medical Students’ Association, in collaboration with CRIMEDIM, has been delivering a nationwide disaster educational project reaching over 20 Italian medical schools. As a consequence of this positive experience, they have newly designed an innovative training-of-trainers program for medical students.

Summary of Work: The program, called DisasterTEAM, is a 7-month train-the-trainer course divided in 5 modules: introduction to disaster medicine, pre-hospital disaster management, hospital disaster preparedness, national disaster response, education in disaster medicine. Combining traditional instructor-led teaching and innovative methodologies, such as e-learning, problem-based learning, table-top and computerized simulations, DisasterTEAM provides the competencies in terms of knowledge, skills and attitudes to create and deliver basic disaster medicine courses for undergraduates using the same training methods.

Summary of Results: Since February 2013, 6 students have completed the program and other 6 have recently started it. Ten basic courses have already been planned for the current year in ten different medical schools.

Discussion and Conclusions: DisasterTEAM may represent a valid example to widely implement disaster training in different institutions.

Take-home messages: The peer-education methodology is a feasible solution in disaster medicine education and similar approaches may be investigated in other medical fields.
9FF9 (20668)
‘I SIP’: Using a framework to teach presenting skills to medical students

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Background: Effective presentation skills are essential in communication between health care professionals. Doctors present on ward rounds to help formulate management plans for their patients. Similarly medical students are encouraged to present cases, and many are expected to demonstrate these skills in their exams. However, formal teaching of presenting skills is sparse and challenging.

Summary of Work: A presenting model was designed and introduced to nine final year medical students at a teaching hospital. The students completed a questionnaire exploring their previous experiences of presenting. During a bedside teaching session, the students were asked to use the model ‘I SIP’ to present their cases. Data from a follow up questionnaire gathered their experiences of using this tool to develop their presenting skills. (‘I SIP’ mnemonic: Introduction to the case, Symptoms and signs, Interpretation of information, Plan and problem list).

Summary of Results: Responses from the questionnaires were thematically analysed. Seven students had not received formal training in presenting, and identified challenges in structuring and summarising. Students reported that the ‘I SIP’ model formalised their presenting structure, increased their confidence and encouraged them to interpret their findings. Students found ‘I SIP’ difficult to apply to certain clinical examinations.

Discussion and Conclusions: Using a model such as ‘I SIP’ can help students coherently organise their presentation discourse. Encouraging students to go beyond recalling their findings, to interpreting them and formulating a plan, allows progression along Miller’s pyramid.

Take-home messages: Presenting skills are invaluable in clinical practice. A framework can be used to help develop these skills.

9FF10 (21465)
Learning by teaching: benefits to students of OER production and evaluation

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Bruce McKenzie, University of Nottingham, United Kingdom

Background: Student-selected projects afford opportunities for undergraduate involvement as peer teachers and producers of open educational resources (OERs); student involvement in evaluating pilot OERs increases learning potential.

Summary of Work: An OER on public health aspects of obesity was storyboarded then built using Xerte Online Toolkits for peer evaluation by focus group; data were analysed thematically. Contemporaneous reflection on learning by the student producer (SP) was facilitated via a blog. A modified Kirkpatrick hierarchy was used to gauge SP learning (Yu et al. 2011).

Summary of Results: We identified six categories of potential benefit to SPs of OERs: (1) Research skills e.g. literature review, qualitative analysis; (2) Creative skills e.g. understanding copyright, storyboarding process; (3) Teaching skills e.g. activating prior learning, setting objectives; (4) Domain-specific knowledge e.g. intervention ladder, wider health determinants; (5) Professional attitudes e.g. responding to feedback, valuing the doctor’s educator role and (6) Communication skills e.g. writing concisely, group facilitation. SP educational outcomes mapped to levels 1 (reaction) and 2B (modification of knowledge or skills) of the Kirkpatrick/Yu model.

Discussion and Conclusions: Educational outcomes for SPs compared to those of peer-learners (who added 2A, change in attitudes). However, such grading fails to capture the breadth of benefits indicated via SP reflection. Research into the transferability of such benefits to other subject areas is needed. Logging reflections on skills acquired throughout OER production and evaluation offers a broader measure of SP learning than assessing an OER evaluation per se.

Take-home messages: OERs benefit student peers, faculty and student producers.
“Learning for Teaching”: Preparing health professionals to be lifelong learners and facilitators of learning

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Background: Becoming lifelong learners and effective facilitators of learning are all-important learning outcomes in the education of health professionals. To address this, a one-semester elective course, “Learning for Teaching” was introduced into the university’s pre-clinical curriculum.

Summary of Work: Students enrolled in the course are introduced to the principles, processes and methods of learning through a series of didactics, discussions, group-based tasks, and individual reflections. These learning episodes are intended to develop the students’ abilities to reflect on their own learning preferences, and choose and implement optimal learning strategies for themselves and for assisting others in their learning.

Summary of Results: The first batches of students who have taken the course rated it favorably (mean Likert score 1.59 across 41 items; 1 = excellent, 5 = poor). Content analysis of student reflections towards the end of the course showed a greater understanding of how their own learning happens, as well as a richer assessment of their strengths and weaknesses in relation to learning tasks. The extent to which these insights have influenced these students’ present study strategies are currently being assessed.

Discussion and Conclusions: Providing learning experiences about learning can contribute to the development of competencies for better learning and teaching.

Peer Assisted Learning as a mandatory part of an undergraduate medical curriculum

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Background: Charité – Universitätsmedizin Berlin runs a program of simulation courses in human medicine. This simulation contains a peer assisted learning (PAL) Basic Life Support (BLS), session of 90 minutes, in which all students of the 6th Semester are teaching students of the 1st Semester. This study presents evaluation results from 1st and 6th Semester students.

Summary of Work: One 6th Semester student taught two 1st semester students in BLS under supervision of qualified staff. Resuscitation simulators, ventilation bags and semi-automatic defibrillator were available for each group. The 6th semester students were previously briefed in a mandatory seminar on teaching fundamentals. PAL was evaluated using a standardised questionnaire from the perspective of both populations. Each item could be marked on a Likert-scale from “1 = very good” to “6 = deficient”. All data are presented as median (quartiles).

Summary of Results: Floating time for BLS-sessions was evaluated with 1 (1, 1) in the 1st and 1 (1, 2) in the 6th semester. Overall impression of the session was 1.5 (1, 2) in the 1st and 2 (1, 2) in the 6th semester, satisfaction with supervision of qualified staff was 2 (1, 2).

Discussion and Conclusions: PAL was evaluated very well by students from both semesters. Further studies should analyse the influence of PAL on later exams in BLS during the 10th semester.

Take-home messages: Mandatory PAL is perceived well by both, peer tutors and peer tutees.
9FF13 (22030)  
**Wiki-based peer-assessment of learning journals**  
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**Background:** Learning journals encourage a deep, constructive, reflective approach to learning. Ideally, they should be assessed formatively, during learning. Online peer assessment enables this also with large groups of students.

**Summary of Work:** Formative peer-assessment was tested in a developmental biology course for 70 first-year veterinary students, using the Confluence wiki platform. After each lecture or exercise, the students wrote a learning journal entry. They then selected an entry written by a classmate, graded it on several criteria and provided feedback. The teacher browsed the entries, checked that all entries were acceptable and provided collective feedback. The course was graded as pass/fail.

**Summary of Results:** The formative peer-assessment supported the journaling by social learning. It was especially helpful for students with no previous experience in learning journals. The journal entries improved rapidly and contained more reflection and reasoning than previously, when the assessment was summative. The evaluations contained more genuine constructive criticism, possibly because they were regarded as more useful. Based on student feedback, the possibility to read classmates’ entries was the most important feature of the online platform. Feedback providing concrete suggestions for improvement was regarded as most valuable. The structure of the Confluence wiki allows fluent management of large groups.

**Discussion and Conclusions:** Online peer-assessment allows effective formative feedback with large groups of students, supporting the learning journal method. The Confluence wiki is a powerful platform for the implementation of the journals and peer-assessment.

**Take-home messages:** Formatively peer-assessed learning journals are recommended for any courses aiming at deep understanding of the topics, and are effectively implemented on a wiki platform.

9FF14 (22896)  
**Auditing Undergraduate Peer Teaching: Prevalence of teaching and teachers, and perceived usefulness, quality and value**  
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**Background:** The involvement in and quality of peer teaching taking place at an undergraduate level is not well known, nor are student attitudes towards it.

**Summary of Work:** An online questionnaire was circulated to all MBBS students at King’s College London School of Medicine on exposure to structured peer teaching (according to given definitions), the perceived quality and usefulness of this teaching, the prevalence of students providing peer teaching and its perceived benefit.

**Summary of Results:** Of 668 students (26% response rate), 64% stated they had attended organised peer teaching sessions. The average perceived ‘usefulness’ score (scale 1-5) for peer teaching was 4.2, and the ‘quality’ score 3.9. The high ratings for quality and usefulness are reflected in the desire for more peer teaching, and this is congruent with the free text comments. Additional OSCE practice opportunities were the most common theme (43%). 82% stated that they would be ‘very likely’ or ‘quite likely’ to attend structured peer teaching if more were offered.

33% of students stated they had provided structured peer teaching, with 81% stating it was useful for their own understanding. Comments from peer teachers were that it helps to reinforce, consolidate and check their own understanding. 78% state they make use of informal peer teaching ‘very often’ or ‘quite often’.

**Discussion and Conclusions:** Peer teaching is common, desired and valued by students, and perceived to be educationally beneficial to those who teach.

**Take-home messages:** Students value receiving and providing peer teaching, encouraging and supporting it is likely to improve the student experience, while potentially improving their education.
9FF15 (20731)  
**Student-led optional abdominal ultrasound course at Philipps-University (Marburg, Germany)**

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**Background:** Ultrasound is a simple, accessible and non-invasive imaging technique widely used for differential diagnosis in German hospitals, often performed by junior doctors. However, students identified the lack of opportunity to learn basic sonography in the undergraduate curriculum.

**Summary of Work:** Collaboration between senior students, the Department of Internal Medicine and the Clinical Skills Centre of the university led to development of a foundation course. Peer tutors were trained over four weeks in ultrasound practice, which informed planning of the tutorial. Students in the clinical phase of training were offered an eight-hour weekend tutorial structured in three parts: (A) Introduction to the physics of ultrasound and standard terminology for accurately describing images; (B) Supervised practice scanning the abdominal organs of peers; (C) Application of new knowledge and skills to the description and identification of pathologic ultrasound images.

**Summary of Results:** Most course dates were over-subscribed, confirming the high level of interest. Participants appreciated the ‘hands-on’ approach and revealed an interest in follow-on training.

**Discussion and Conclusions:** Students led the implementation of this innovative course, gaining leadership skills and experience arranging extra-curricular training, establishing participant prior knowledge and professional development needs, and setting appropriate learning outcomes. Formal evaluation by and certification for participants needs exploration. Peer teaching of sonography enables students to become familiar with a cross-specialty instrument used in routine clinical practice.

**Take-home messages:** Enthusiastic peer teachers can fill gaps in curricula and students are motivated to engage with extra-curricular work regarded as beneficial for their future professional practice.

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9FF16 (21234)  
**Students’ Perceptions toward Peer Assisted Learning Seminars**

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**Background:** In the Dental Programme at the International Medical University (IMU), peer-assisted learning (PAL) seminars were introduced for dental material sciences. The seminars were led by fourth year dental students (peer tutors) for second year students (peer tutees) to enhance critical thinking and communication skills.

**Summary of Work:** The objective was to evaluate students’ perceptions of the benefits of PAL dental material sciences seminars between fourth and second year dental students at IMU.

**Methodology:** Peer tutors were provided with the learning outcomes of subject and main relevant reading materials. The peer tutors are required to appraise the reading materials and present in PowerPoint presentation during the seminars. The peer tutors were also required to design 2 One Best Answer (OBA) questions for each learning outcome to assess the understanding of peer tutees. Both peer tutors and peer tutees’ perceptions regarding this mode of learning was obtained via questionnaire designed for each role i.e. as peer tutor/ peer tutee using a 5-point Likert scale.

**Summary of Results:** 95% of peer tutors agreed that taking peer teacher’s role enhances understanding for the subject matter. 89% of peer tutors viewed peer teaching seminars as an opportunity to improve communication skills. 93% of peer tutees were comfortable posting questions to peer tutors during the seminars and 74% viewed the peer tutors were well versed with the subject matter.

**Discussion and Conclusions:** PAL seminars for dental material sciences were well received by both senior and junior students.

**Take-home messages:** PAL seminars is an useful learning tool to enhance critical thinking and communication skills.
9FF17 (21458)
Student acceptance of clinical skills teaching by senior students compared with faculty led teaching

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Background: Peer assisted learning is increasingly being used increasingly in medical school education.

Summary of Work: We compared the acceptability of trained 2nd year students teaching blood pressure and peripheral pulse assessment to first semester students, with teaching by clinical faculty, by means of an online questionnaire to the second year (preclinical) students and the 3rd and 4th year students in clinical rotations.

Summary of Results: There was no difference in acceptability of peer teaching compared with faculty teaching. However the clinical students rated their first semester experience significantly higher than preclinical students.

Discussion and Conclusions: Teaching basic clinical skills by student peers is acceptable to students. Clinical students appreciate their clinical skills training while in basic sciences more that students still in the preclinical curriculum.

Take-home messages: Peer assisted clinical skills teaching is as acceptable to students as being taught by faculty, but clinical students seem to appreciate what they learnt more than students still in the basic sciences.

9FF18 (19173)
Role of providing core objectives and monitoring in Peer Assisted Learning Initiatives in Medical Education: a 2 year study

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Background: There has been an increased popularity in peer assisted learning schemes. The aim of this study was to compare student feedback data from peer assisted learning sessions from two consecutive years to see whether the increased input in providing objectives and increased supervision improved feedback outcomes.

Summary of Work: Three sessions were delivered to third year medical students at Glasgow University in 2012 and four sessions in 2013 to third year medical students. 2013 sessions covered Respiratory, Immunology, Neurology and Gastroenterology. 2012 sessions covered Embryology, Immunology and Respiratory. A total of 90 feedback forms were collected in 2012 and 87 in 2013. Questionnaire-based data was collected on overall rating, knowledge covered, visual material, enthusiasm, interactivity, communication and structure. Students were asked to rate the teacher on the above categories from 1-5 (5 being the best and 1 being poorest). Mean scores were calculated for each session as well as for each year. The only difference between the two years was the introduction of objectives and increased supervision and ‘vetting’ peer teacher presentations.

Summary of Results: Mean overall rating for sessions was 4.63 and 4.51 for 2012 and 2013 respectively. There was no annual improvement in any of the parameters measured except for ‘structure of sessions’ (4.4 in 2012, 4.6 in 2013). The highest rated individual session was neurology with 4.94 overall and lowest rated session was respiratory 4.3 in 2013.

Discussion and Conclusions: Giving peer tutors objectives and pre-informing them of increased monitoring of feedback does not improve perceived quality of sessions delivered based on student feedback.

Take-home messages: Allowing peer tutors the freedom and flexibility in teaching and delivering presentations does not compromise student satisfaction.
9FF19 (23184)

NICE Student Champions: A Paradigm for Peer to Peer Teaching in Evidence Based Medicine

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Background: The UK’s National Institute of Health and Care Excellence (NICE) champions Evidence Based Medicine (EBM), producing guidelines on a wide range of healthcare interventions, treatments and policies. NICE has produced a free, quality assured web resource, ‘NICE Evidence Search’, to promote access to accredited EBM resources. NICE runs a certificated peer-to-peer teaching scheme, ‘NICE Student Champions’, that trains student ‘Champions’ to cascade their knowledge.

Summary of Work: 12 Student Champions across 3 year groups attended a NICE training day about Evidence Search and effective teaching techniques. They then delivered 5 sessions to 56 students in total, mostly in their 4th year of study.

Summary of Results: Both attendees and Champions reported the scheme as being useful, resulting in increased confidence levels finding evidence. Champions reported that they gained transferable teaching skills. These techniques are now being implemented in other aspects of their course.

Discussion and Conclusions: The Student Champions scheme furnished all involved students with increased confidence and knowledge about EBM and gave the Champions as well as core skills in effective teaching. Thus, the scheme provides a paradigm for medical school curricula to teach transferable skills that will improve education delivery and receipt within the medical profession in future.

Take-home messages: EBM can be effectively taught in a peer-to-peer format and this aids learning as well as enabling students to become more effective teachers.
**9GG1 (19684)**

**Evaluation of a revised interdisciplinary PBL tutor training**

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**Background:** The Charité modular curriculum of medicine (MSM) requires 80 more PBL tutors every year. During our reformed curriculum (10 PBL groups per year), clinical teachers were preferred as PBL tutors. For MSM, every scientific assistant attends a two-day-PBL Tutor Training (PTT). The new PTT of 2013 includes interactive teaching elements and handling critical situations. Comparing the old (2012) with the new PTT concept (2013), we assessed whether the new concept would be more convenient to qualify PBL tutors.

**Summary of Work:** The new PTT concept in 2013 reduced theoretical inputs. Medical and non-medical teachers were trained together. Every participant was handed a questionnaire after PTT for evaluating PTT on a 6-step Likert scale (6= very good, 1= very poor).

**Summary of Results:** 101 of 235 participants in 2012 and 167 of 187 in 2013 evaluated the PTT. The professional background of participants (68% medical versus 32% non-medical) was constant. 87.1% had teaching experience in 2012, 78.4% in 2013. Comparing the two concepts, the following aspects improved between 2012 and 2013: Understanding PBL principle (5.5 vs. 5.8) and recognising PBL tutor tasks (5.3 vs. 5.6). The individual motivation for PBL increased with the new PTT (5.5 vs. 5.0). Average marks for the PTT were 5.1 in 2012 and 5.8 in 2013.

**Discussion and Conclusions:** The new interdisciplinary PTT with a higher degree of interactivity succeeded in qualifying and motivating PBL tutors more than the old concept. The participants understood the principle of PBL and their tasks better in 2013.

**Take-home messages:** The new interdisciplinary PTT concept will be continued.

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**9GG2 (22338)**

**Where do you want to carry your students? Driving learning with summative assessment in Problem Based Learning (PBL) tutorial**

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**Background:** There are international concerns that the pedagogy of PBL is being eroded with students behaving ritualistically and failing to engage in authentic inquiry. Medical Faculty of Islamic University of Indonesia applied tutor-led summative assessment in order to re-engage students in PBL tutorial. Tutors assessed students’ performance in each tutorial session using specific assessment form with the grade contributing 20 percents to the Block grade. In this study, we explored students’ perceptions about the impact of summative assessment on their motivation to engage in PBL tutorial.

**Summary of Work:** In-depth interviews with purposively sampled students with over one year’s experience of PBL were analysed using the theoretical lens of self-determination theory. The data saturation has been reached with 10 students. Framework analysis developed a thematic framework describing the key findings.

**Summary of Results:** Two main themes emerged: (i) Grade-oriented focus students were directed by external motivation. They applied several strategies to achieve a high grade including unprofessional ones such becoming dominant person to achieve good mark. They perceived that they learned as a controlled setting designed by faculty. Consequently they felt little support to become autonomous learners (ii) Learning-oriented focus students, although mindful of the importance of grades, were motivated by internal motivation. They experienced a sense of cognitive dissonance in having to hold the two positions of being grade-focused and learning-focused at the same time.

**Discussion and Conclusions:** Summative assessment in PBL tutorial is not the best way to encourage students to become autonomous learners.

**Take-home messages:** We need to design other methods that could enhance students’ learning in PBL tutorial.
The role of the tutor in Problem Based Learning (PBL)

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Background: Problem Based Learning (PBL) has been used for many years in medical education. Most undergraduate students who are studying as doctors, at some stages of their studies have experienced the PBL approach to education.

Summary of Work: It has been said that in the PBL setting, the teacher becomes the facilitator. Tutor helps own students to find the right way, he doesn't show them what they have to study, but he helps them to answer the main question of the every medical students – how I have to study?? By what way??? The tutor's role seriously differs from the traditional role of providing information. There will be a greater emphasis on questioning as a means of drawing out what students already know and helping them identify what they still need to learn. This role is not easy at first, but does develop with experience.

Summary of Results: In a traditional curriculum, teachers generally do most of the talking during the learning process. In general, PBL tutors serve the three primary roles of facilitator, resource, and evaluator. Thoughtful and reflective observation and patience are core skills needed for effective tutoring.

1. expert tutors need to have subject matter knowledge but also subject specific pedagogical knowledge to deal with difficulties students experience with learning subject matter and tutors need more general pedagogical knowledge;
2. tutors convey high expectations in a very indirect but understanding manner.

Discussion and Conclusions: The results indicate that being a tutor is a balancing act and that the tutor need continuous support and input from different sources.

Take-home messages: The role of the tutor in the PBL format, which emphasizes small-group learning, proved critical.

Development of a revalidation programme for facilitators to improve the student experience of problem-based learning (PBL)

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Background: Problem-based learning (PBL) has been part of the MBChB curriculum in Glasgow since 1996. Glasgow PBL facilitators must attend initial training but subsequent staff development sessions have traditionally been optional. Feedback from staff and students however, suggests that there is a considerable amount of variation in facilitation practice.

Summary of Work: It has been proposed that the provision of ongoing professional training can improve and maintain quality in PBL. To address inconsistencies in PBL facilitation, an advanced professional development programme has been implemented. Facilitators must take part in a peer observation process and attend a workshop once every 2 years in order to achieve revalidation. The workshop reinforces basic principles and gives practical advice using short talks and video material. Evaluation of the programme included qualitative and quantitative data collection.

Summary of Results: The peer observation process was found to be useful and reassuring to facilitators. Participants evaluated the workshop as helpful and relevant. Facilitators identified areas for their own future improvement which included establishing ground rules and following the PBL process more closely. Video material showcasing appropriate interventions was also highly rated. The evaluation from our revalidation programme suggests that the training workshop and peer observation reinforced PBL guidelines and facilitators were receptive to examples of good practice.

Discussion and Conclusions: PBL revalidation improved academic confidence, gave reassurance and provided a mechanism to enhance quality.

Take-home messages: A mandatory PBL facilitator revalidation programme was useful in reinforcing good facilitation practice which should lead to a more consistent PBL experience for medical students.
9GG5 (21431)
A qualitative assessment of the use of social media as an adjunct to Problem-Based Learning for medical students at a District General Hospital

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Background: Social media based medical education is a growing concept. Research has highlighted Twitter as an emerging method for integrating social media into medical education. It uniquely features a 140-character limit facilitating succinct dialogue. However, evaluation of Twitter as a teaching adjunct is lacking in the literature. Our aim was to evaluate Twitter as a teaching adjunct, specifically to PBL.

Summary of Work: The sample population comprised of third year medical students at a District General Hospital. An online Twitter account was set up to augment pre-existing PBL sessions. The researchers acted as tutors and used the Twitter account to distribute appropriate learning materials and answer questions outside of scheduled sessions. Twitter feeds were then integrated into the subsequent tutorials. A focus group was held at the end of term and the data analysed using the framework analysis model.

Summary of Results: The general consensus amongst participants was that Twitter enhanced the overall learning experience. Key themes that surfaced were: (a) improved student-teacher relationships, (b) increased efficiency and quality of classroom sessions, (c) awareness of maintaining professionalism and confidentiality in the public domain, (d) time cost of familiarisation with the Twitter interface.

Discussion and Conclusions: Twitter has been demonstrated as an effective adjunct to PBL by enhancing classroom based sessions. The student-teacher relationship benefited from the accessible and informal nature of Twitter. Students welcome the use of social media as a teaching adjunct, however concerns regarding the public nature of Twitter would need to be addressed.

Take-home messages: Twitter has potential for integration as an adjunct to PBLs and further medical education.

9GG6 (20880)
Better Cognitive Outcomes in Problem-Based Learning: A Twenty-Years Experience of a Medical School in Japan

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Background: There is a continuing debate about the merits of problem-based learning (PBL) compared with conventional medical education. This study investigates the cognitive outcomes, expressed by the academic achievement scores of basic and clinical sciences and national licensing examination results of graduates from a PBL school in Japan over a twenty-year period.

Summary of Work: As an indicator of cognitive outcomes, we compared the academic achievement scores in basic and clinical science and national medical licensing examination pass rates, during each 10 years before (1990-1999) and after (2000-2009) implementation of PBL in Gifu University School of Medicine, a PBL medical school in Japan.

Summary of Results: The academic achievement scores of basic sciences, the scores of clinical sciences, and the pass rates of national licensing examination after the introduction of PBL, were significantly higher than those before PBL. The scores of clinical science were significantly higher in both male and female students after the implementation of the PBL program. Before PBL, the test scores for female student were higher than that of male students, whereas no difference between male and female students was observed after implementation of the PBL program. No differences were observed for graduation, holdover or attrition rates between PBL and non-PBL generations.

Discussion and Conclusions: These long-term results suggest that, in terms of acquisition of cognitive ability, the PBL method was equal to or better than traditional methods of undergraduate medical education. In particular, a superior pace of knowledge acquisition by male students after PBL was observed.

Take-home messages: PBL is a suitable education model for acquisition of knowledge in Asian countries.
Auditing Demographics in Problem Based Learning and Consultation Skills Cases in the Undergraduate Medical Curriculum in a UK Medical School

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Background: Problem based learning (PBL) and consultation skills training are used widely across UK undergraduate medical curriculums. These utilise clinical cases to aid learning, but have been criticised for focus upon biomedical concepts and lack social factors. The General Medical Council expects students to communicate competently with patients from a range of social, cultural and ethnic backgrounds, but studies suggest students find this difficult. Including an appropriate range of demographics within cases can facilitate discussion and understanding.

Summary of Work: An initial audit of the case demographics used in PBL and Consultation skills was completed in 2010/11 at a PBL based UK medical school. This compared the case demographics with varied population statistics (UK/Local, General Practice attending and hospital attending) and generated recommendations of demographic coverage for consideration when amending the cases. Re-audit following change is in progress.

Summary of Results: The initial audit demonstrated that marital status, sexual orientation, religion and occupational status were poorly represented compared to the population statistics. Some minority groups, single patients and sexual minorities were under-represented and certain age groups over-represented. Overall age and ethnic groups broadly followed the population trend.

Discussion and Conclusions: Recommendations for change in case demographics based on the initial audit findings were disseminated to those responsible for case content. The emergent re-audit analysis will assess whether these have been enacted in the current demographic diversity. Take-home messages: We recommend auditing the range of cases presented in PBL or other case material as an important way of ensuring appropriate representation in teaching of the diversity of UK’s population.

The relation of students’ self-rated proficiency and long-term gains in academic achievement: A comparison between a problem-based learning and a traditional curriculum

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Background: Good linguistic proficiency is a prerequisite to successfully complete ones studies. Indeed, several studies show that being a non-native speaker is associated with lower scores on, for example, national licensing exams. In this study we addressed the question how students’ self-rated proficiency was related to long-term gains in academic achievement. Importantly, we investigated whether this relation was dependent on the educational environment. In particular, we compared a problem-based-learning curriculum (PBL) and a traditional curriculum.

Summary of Work: Overall N=1197 students (traditional curriculum) and N=153 students (PBL) in the semesters 6 to 10 participated in the longitudinal study. The language proficiency was recorded by self-ratings whereas the achievements were assessed by progress tests. The data was analyzed using structural equation models.

Summary of Results: Self-rated linguistic proficiency was related to gains in academic performance. This relation, however was only found in the traditional track (r= .25; p <.001). In contrast, there was no such relation in the PBL curriculum.

Discussion and Conclusions: Although our study allows no clear-cut conclusion on the underlying mechanisms, a PBL-curriculum might be beneficial for non-native learners. For instance, the regular and intense communication opportunities may improve their language competence and thus result in greater confidence in their own abilities and consequently might affect their achievement. Take-home messages: Disadvantages of non-native speakers only occur in traditional learning environments. PBL-curricula might be able to enhance language proficiency of non-native speakers.
9GG9 (20781)
Assessment in Problem-Based tutorials: Difficulties and possible solutions

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Background: Students’ self and peer-assessment seems not to be an accurate measure of the Problem Based Learning (PBL) tutorial process and is usually greater than tutorial scores.

Summary of Work: Objective: to create specific descriptors in order to avoid a great variation in the tutorial evaluation method. Methods: 15 detailed descriptors were introduced in the tutorial process when opening the problem and other 15 descriptors in the closing sections.

Summary of Results: We compared the results in three different grades, during 18 months and three different modules each semester. There were no difference between scores in the grades and in the modules, even considering that the tutors were not the same.

Discussion and Conclusions: Detailed descriptors are very helpful to avoid differences between students and tutors and are of great use as assessment in PBL tutorials.

Take-home messages: Assessment with detailed descriptors are very important.

9GG10 (19851)
A longitudinal evaluation of changes in attitudes and perceptions of an evolving RUSM hybrid PBL program in a cohort of former RUSM students now acting as program facilitators

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Background: Ross University School of Medicine (RUSM) has recently modified its Problem Based Learning (PBL) platform and rebranded the program Small Group Learning (SGL). RUSM also employs graduates as instructors in PBL/SGL. We had the opportunity to evaluate a cohort of 16 physicians who first experienced PBL as students and later facilitated both PBL and SGL at RUSM.

Summary of Work: The physicians were surveyed in three questionnaires. The first explored their attitudes and opinions of PBL as medical students, the second as PBL facilitators, and the final as facilitators of SGL in its new format. The facilitators attended a focus group to discuss their perceptions of this learning platform.

Summary of Results: Preference for an MD vs. PhD as a facilitator was very high in this cohort. Some members of the cohort who had very poor PBL student experiences AND had poor acceptance of the platform rated the success of their students’ learning and experiential benefit equally low. Other members with poor student experiences in PBL but STRONG acceptance of the platform rated the value of the PBL/SGL experience of their own students quite high, demonstrating these facilitators’ reflection and deliberate practice in this small group platform. SGL format changes were very well received.

Discussion and Conclusions: The longitudinal evaluation of this cohort of individuals provides some insight into the maturation of the PBL/SGL facilitator, and the impact of clinical experience amongst facilitators.

Take-home messages: Acceptance of the PBL/SGL platform as valuable is of critical importance in the success of this learning tool and appears to be greater with clinical experience.
Did iPads ruin our PBL?

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Background: All the first year medical students received iPads in 2013 at the University of Helsinki. Many teachers expressed fears, that the use of iPads with direct access to on-line resources and social media may disturb and disrupt the much-liked and effective PBL experience.

Summary of Work: The aim has been to get all students and PBL-tutors involved in the iPad initiative. Tutors had 12 training sessions during the year 2013, 6 of them prior the semester. Students were offered help materials, eight Q&A-sessions and two training sessions. We studied with mixed methods (Cresswell & Plano Clark 2007) how and why students and teachers use iPads and what are their attitudes towards these devices. Data was gathered from web surveys, group interviews and direct observations.

Summary of Results: Most tutors and all the students adopted iPads in PBL-sessions. The tutors and students together experimented and developed new ways of using iPads and various apps to enhance collaboration and teamwork with interactive whiteboard, quick access to study materials as well as instant messaging. Only in a few instances distributive use of iPads was reported.

Discussion and Conclusions: The use of iPads has not changed the essence of PBL process. On the contrary, brand new ways to handle different aspects of PBL-session have been developed and experimented by teachers, students, support persons and library personnel in collaboration.

Take-home messages: iPads bring a welcome addition to PBL sessions, and can enhance collaboration, interaction and teamwork when properly integrated.

Challenges for teachers when constructing teaching cases

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Christina Gummeson, Lund University, Faculty of Medicine, Centre for Teaching and Learning, Lund, Sweden

Background: Despite a long tradition of the use of cases in medicine, a recent and increasing awareness of the intention of the use of cases and its implications for case authoring has emerged. The quality of a case is a determinant for students’ active participation and learning and for their indulgence in discussions, e.g. in problem-based learning.

Summary of Work: During workshops on case authoring we have used and analyzed cases constructed by teachers. This also included peer feedback and student perceptions. In a separate study we explored what students perceive as important for cases to promote meaningful learning.

Summary of Results: Different aspects in the writing were found important, relating to a) meaningful learning, b) professional development and c) topic or stakeholder perspective. When cases are used to stimulate a discussion aimed at deepening and widening knowledge something in the case should be unclear or mysterious, depicting authentic dilemmas or several problems. A complex narrative story may trigger meaningful learning when there are no simple answers. When cases are used to stimulate professional decision-making they have to be open-ended, narrative and add a professional perspective as well as being patient-centered. Students consider multiple professional perspectives even more stimulating. If patient narratives are used, it is important to be clear about the intended outcome and how it differs from a narrative from a professional perspective. Furthermore, peer and student feedback is very important during the process of constructing cases for teaching.

Discussion and Conclusions: Guidelines and workshops may facilitate case construction.
9HH POSTERS: Simulation

9HH1 (22571)
Effectiveness of Simulation for Cerebral Angiography Training

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Roy Eagleson*, Western University, Electrical and Computer Engineering, London, Canada
Mel Boulton, Western University, Clinical Neurological Sciences, London, Canada
Sandrine de Ribaupierre, Western University, Clinical Neurological Sciences, London, Canada

Background: Computer simulation has been used in a variety of training programs, ranging from anesthesiology to general surgery. The purpose of this study was to assess the effectiveness of simulation for cerebral angiography (CA) training.

Summary of Work: Twelve physicians (6 residents, 2 fellows, 4 consultants) in Neurosurgery, Radiology, and Neurology at the London Health Science Centre completed simulated CA training on the ANGIO Mentor. After didactic instruction regarding CA and the use of the simulator, each participant performed 2 simulated cases – a ‘practice’ left-side CA and a right-side CA. The procedural time, fluoroscopy time, catheter errors, contrast volume and roadmaps utilized when performing the right-side CA were recorded. Upon completion of the 2 cases, consultants were asked to rate, on a 5-point Likert scale, the realism and usefulness of the simulated content, while trainees returned and completed the same set of procedures 4 additional times.

Summary of Results: Consultants reported that the simulator provided realistic simulation of CA, and is useful as a teaching and training tool. Compared to trainees, consultants completed the CA faster while committing fewer errors, and utilizing less fluoroscopy, contrast, and roadmaps. Over subsequent trials, all trainees were able to make significant improvements in their performance.

Discussion and Conclusions: Preliminary results suggest that simulation was effective for training CA, providing support the incorporation of simulation into intervention training programs.

Take-home messages: The implementation of simulation for interventional training would provide a no-risk environment for rehearsal of relevant technical skills, while optimizing patient safety by reducing trainee-patient exposure.

9HH2 (21985)
Identifying best practice in the teaching of large classes in a simulation laboratory

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A Naude, NWU, School of Pharmacy, Pharmacy Practice, Potchefstroom, South Africa
G Reitsma*, NWU, Health Science Education, Faculty of Health Sciences, Potchefstroom, South Africa

Background: The use of simulation laboratories as learning environments is a common approach in health professions training. The Faculty of Health Sciences at the North-West University in South Africa has recently opened up a simulation laboratory for the training of pharmacy students. The challenge was to find an effective way to train the large number of pharmacy students (n=260) in the simulation laboratory with limited capacity (15 workstations) in a limited time period (1 hour per week for 8 weeks). In this study, three different teaching approaches were implemented and the effect on learning over time was measured.

Summary of Work: The study involved an initial survey to determine students’ previous experience with Information Technology Systems used in pharmacy practice. This was followed up with a practical pre-test done to determine their skills level with the Pharmacy Information Technology system. The students were then randomly divided into 3 groups, each group receiving a different teaching approach (lecturer guided; peer-teaching; self-study) during the course. A post-test to determine their skills level were administered after 4 weeks of training. Practical assessments were conducted after each practical training session to measure their improvement of knowledge and skills. over time. Student and lecturer reflections on the process and how it impacted on their teaching and learning were also included in the date.

Summary of Results: This research study is still in progress and will only be completed by the end of May when results will be available.

Discussion and Conclusions: The findings from this research will inform academic departments responsible for training health professionals such as pharmacy students on best practice regarding the use of simulations laboratories with large classes.

Take-home messages: Simulation enhance pharmacy students employability and workplace readiness in a country with a shortage of qualified pharmacists.
9HH3 (21949)
Fillings In The Gaps, a simulation-based training approach to emergency preparedness in primary care dental surgeries

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Nick Gosling, St George’s Healthcare NHS Trust, London, United Kingdom
Greg McAnulty, St George’s Healthcare NHS Trust, London, United Kingdom

Background: By preparing for medical emergencies with the correct equipment, team response training and protocols, primary care dental practices can greatly decrease the risk of an unfavourable outcome. Patient simulators are useful tools to develop communication and teamwork training for clinical and non-clinical staff.

Summary of Work: We conducted a pilot programme to establish the extent to which primary care dental practices were ready and equipped to treat common acute care emergencies, and to strengthen their ‘preparedness’. We delivered a mobile medium-fidelity simulation-training programme over a 6-month period in three phases:
1. Needs Analysis: Site visits and questionnaire
2. Medium-fidelity simulation team Training and System-Testing
3. Evaluation of Outcomes (including report & recommendations)

We drew on socio-material models of organisational change to evaluate the impact of training.

Summary of Results: Our pilot programme covered 4 dental practice surgeries in SW London serving a combined population of 8,000 patients. Areas for strengthening emergency preparedness were identified at individual, team and system levels. Reiterative SMART plans with dental teams were negotiated for in-house development training at each phase of the study. Results showed changes in system organization, and improved perceptions of communication, teamwork and safety climate.

Discussion and Conclusions: Needs analysis, through a combination of self-reporting questionnaires and high-fidelity simulations exercises in situ, can raise awareness of communication, teamwork and system areas for improvement in dental practices.

Take-home messages: A programme of reiterative full-immersion simulation exercises involving dental practice response teams can increase confidence of clinical and non-clinical staff and reduce anxiety to perform life-saving care in rare emergencies.

9HH4 (21130)
Simulation based team training of endoscopy staff may improve patients' perception of colonoscopy

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Edel Ribergaard, Vendsyssel Hospital, NordSim, Centre for Skills Training and Simulation, Hjoerring, Denmark
Trine Christensen, Aalborg University Hospital, Surgery, Aalborg, Denmark, Christen Højlund, Vendsyssel Hospital, Statistics, Hjoerring, Denmark
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Karen Lindorf-Larsen*, Aalborg University Hospital, NordSim, Center for Skills Training and Simulation, Aalborg, Denmark

Background: Patient satisfaction is an important aspect of colonoscopy, a potentially unpleasant procedure usually carried out under minimal sedation. A well functioning endoscopy team able to take care of unexpected adverse events forms the basis for the patient’s perception of the procedure as safe and professional. This study aimed to see if simulation based team training of endoscopy staff could improve patient satisfaction with colonoscopy.

Summary of Work: The study was carried out in a surgical department, where colonoscopies were performed on an out-patient basis under minimal sedation. All endoscopy nurses and doctors participated. The course consisted of three short lectures followed by simulation training. The lectures dealt with technical aspects of colonoscopy, usage of medication and management of unexpected emergency events during the procedure, and finally with interprofessional teamwork and team communication. The lectures were followed by in situ simulation in an endoscopy room. A questionnaire based survey among patients and staff was carried out before and after the course.

Summary of Results: On a VAS scale from 1-10 (1 is best) patients described a median pain score of 4.3 before and 3.7after the intervention (p= 0.028). Doctors and nurses scored team-cooperation significantly better after the intervention (p=0.002 nurses, p=0.045 doctors). Poor evaluation of team-cooperation correlated with patients willingness to undergo a repeat colonoscopy (p=0.003).

Discussion and Conclusions: Simulation based team training of endoscopy staff may improve patients perception of colonoscopy. This may be due to improved teamwork.

Take-home messages: Patients’ perception of colonoscopy is influenced by the quality of teamwork in the endoscopy room. This may be improved by training.
Comparison of pig’s rib and mannequin on sensation of chest drain insertion

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**Background:** According to the World Health Organization report, in 2010 accidents in Thailand ranked the third in the world. One of the causes for first-hour death is chest injury. Teaching of insertion of chest drain is able to decrease the death rate. Mannequin is normally used for teaching of insertion chest drain. However, the mannequin is relatively expensive for economies like Thailand. Using pig’s rib in place of mannequin will help solving this problem. The objective of this study was to compare realistic sensation of insertion of chest drain between pig’s rib and mannequin.

**Summary of Work:** We enrolled sixth year medical students to learn chest drain insertion. We used visual analog scale to determine human similarity in anatomy, interest, sense of insertion confidence and value between pig’s rib and mannequin.

**Summary of Results:** 14 medical students were enrolled. Mean age was 23.5 years. Male was 42.86 percent. Median of sensation in pig’s rib was 9(9-10) vs 5.5(5-7) in mannequin, P=0.00. Median of interest in pig’s rib was 10(9.75-10) vs 7(5-8.5), P=0.00. Median of anatomy similarity was 9(7.75-10) in pig’s rib vs in mannequin was 6(5.8-25), P=0.02. Median confidence in pig’s rib was slightly more than mannequin 9(8.1-10) vs 7(5.75-8.25), P=0.02. Pig’s rib showed higher value than mannequin, 10(10-10) vs 8.5(5.75-10), P=0.04.

**Discussion and Conclusions:** Pig’s rib gave better human sensation of chest drain insertion, anatomy, value, and confidence when compared with mannequin.

**Take-home messages:** Pig’s rib was new choice for teaching of insertion of chest drain.

Teaching team resource management using in situ high-fidelity medical simulation

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**Background:** Medical simulation has been proposed as a technique to teach team resource management (TRM). In situ simulation offers a diagnostic method to review and reinforce the teamwork skills.

**Summary of Work:** TeamSTEPPS is an evidence-based TRM training system focusing on four competency areas: leadership, situation monitoring, mutual support, and communication. TeamSTEPPS is commonly used to deliver teamwork training for patient safety. We conducted in situ medical simulations after introducing the concepts of TeamSTEPPS by didactic lectures at medical wards. A resuscitation scenario was used to allow participants (residents, nurses, respiratory therapists) to demonstrate their teamwork skills and Mayo high performance teamwork scale was used for evaluation.

**Summary of Results:** Total 203 participants of 13 training sessions joined the activities. 98% of participants satisfied or very satisfied the training activities. The total scores of Mayo high performance teamwork scale increased significantly after training.

**Discussion and Conclusions:** Using in situ high-fidelity medical simulation after introducing the concepts of TeamSTEPPS by didactic lecture, TRM can be effectively taught to multidisciplinary team in a resuscitation scenario.

**Take-home messages:** In situ high-fidelity medical simulation is a powerful tool to teach TRM.
ABSTRACT BOOK: SESSION 9
TUESDAY 2 SEPTEMBER: 1600-1730

9HH7 (20404)
Identifying driving and restraining forces in introducing simulation training in a Swiss pediatric emergency department

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Johanna McChurch, University of Zurich, Chiropractic Center, Zurich, Switzerland
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Ara Tekian, University of Illinois, College of Medicine, Chicago, United States

Background: High-fidelity simulation plays an important role in training pediatric emergency medicine (PEM) fellows in the United States and Canada, but not yet in European Countries. Some of the unique factors in Europe include educational environment, and the competence and leadership skills of decision makers. The current study explores these concerns in order to introduce simulation training at the University Children's Hospital (UCH) in Bern, Switzerland.

Summary of Work: The situation at UCH was analyzed with the Force Field Analysis (FFA) model. Through focus groups, various driving and restraining forces were identified, with the objective of minimizing or neutralizing the restraining forces.

Summary of Results: The major driving forces included improvement of team work, availability of Simulation Center, and better patient outcomes. The restraining forces included convincing the Department Head, time, cost, available resources, and fear of criticism. The pre-requisite steps for the pilot phase focused on convincing the Department Head, and examining the true cost for introducing simulation training and its sustainability.

Discussion and Conclusions: Introducing change in a traditional environment is challenging. Using the FFA model we were able to clearly identify the restraining forces, conduct an in-depth discussion about strategies for overcoming these restraining forces, and plan an implementation strategy acceptable by the majority of the PEM faculty and fellows. Success of such a process depends on the willingness of the faculty to accept and introduce change.

Take-home messages: The FFA Model can be a useful technique in mining potential barriers for introducing and implementing change.

9HH8 (19235)
Clinical significance after training with virtual laparoscopic training box

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Somboon Subwongjaroen, Rajavithi Hospital, Surgery, Bangkok, Thailand

Background: To define the ability of a training box simulator to reflect clinical skill in surgical residents, we compared clinical laparoscopic performance in staff of department of surgery in Rajavithi hospital.

Summary of Work: Six postgraduate year residents were assessed on a laparoscopic training box. Operative performance data were collected at the conclusion of procedures by Microsoft lifecam. During this period, all residents undertook iterative laparoscopic training box data (mean time) were tested by Wilcoxon sign Rank test and compared with training box data of staff in Rajavithi Hospital by Mann-Whitney U Test.

Summary of Results: There was significant improvement in surgical skill performance after (post-test) training box programs. The statistical analysis showed reduction in all mean times (10.151,3.245,3.241) in three Training box stations and significance (p=0.028,0.028,0.028) in all stations after (post-test) Training box programs. We compared six post-graduate year residents with staff of Rajavithi hospital The statistic analysis showed no significant difference (p=0.33,0.42, 0.150) after (post-test) training box programs.

Discussion and Conclusions: These data indicate that laparoscopic Training box simulator can improve surgical skill performance of six postgraduate year residents.
9HH9 (22196)
An intercollegiate inter-professional hybrid manikin-based simulation

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Brenda Bray, Washington State University, Spokane, United States
Judith Knuth, Washington State University, United States
Kevin Stevens, Washington State University, United States
Barbara Richardson, Washington State University, United States
Megan Willson, Washington State University, United States

Background: Riverpoint campus in Spokane, Washington houses three state universities and multiple healthcare disciplines. The hybrid simulation exercise was designed for students from two universities and four healthcare disciplines to use knowledge of their own roles to assess and address the needs of the patient as well as communicate with other health team members.

Summary of Work: In April of 2013, thirty-four students including physician assistant (PA), nutrition and exercise physiology (NEP), nursing and pharmacy participated in an inter-professional clinical hybrid simulation involving a standardized patient (SP) and a high fidelity manikin (SimMan®). The scenario evolved from a SP with chest pain to a “cardiac event” involving SimMan®, Ventricular fibrillation was identified and using Advance Cardiac Life Support algorithm, the patient was stabilized.

Summary of Results: A 30-minute debriefing followed each of the 15-minute scenarios. Faculty members from all disciplines using the “plus delta” technique and a review of the scenario objectives facilitated each debriefing. At the end of the exercise the TEAMSTEPPS Teamwork Attitude questionnaire was administered to all 34 students. All students agreed or strongly agreed on the value of interprofessional training, learning environments and learning and performance. Additionally, a common theme emerged centering on lack of familiarity with each other’s roles.

Discussion and Conclusions: All students had a positive experience, were introduced to working as a team, and became more familiar with each other’s roles and responsibilities.

Take-home messages: Healthcare teams are the future of patient care. Teaching in teams reinforces working in teams.

9HH10 (22660)
Validation of a canine fundoscopic eye model from the perspective of veterinary educators and students

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Mary Mauldin Pereira, Ross University School of Veterinary Medicine, Biomedical Sciences, Basseterre, Saint Kitts and Nevis
Julie Williamson, Ross University School of Veterinary Medicine, Clinical Sciences, Basseterre, Saint Kitts and Nevis

Background: A validated teaching model for canine fundoscopic examination was sought to improve day one fundoscopy skills at the same time as reducing use of teaching dogs. This novel eye model was based on a hollow plastic ball with a cut out for the pupil, a suspended 20 diopter lens and paint / paper simulation of relevant eye structures. The eye was mounted on a simulated dog head stand.

Summary of Work: Veterinary educators performed fundoscopy using this model and afterwards completed a survey regarding validity. Subsequently, veterinary students were randomly assigned to pre-laboratory training with or without the use of this teaching model. After completion of an ophthalmology laboratory on teaching dogs, student outcome was assessed using a survey regarding their experience and ability to see a symbol inserted on the simulated retina in this model.

Summary of Results: Overall, veterinary educators agreed that this eye model was well constructed and useful in teaching good fundoscopic technique. In addition, the students that received pre-laboratory model training were more confident, knowledgeable and skilled.

Discussion and Conclusions: This novel eye model is validated by veterinary educators and students as a useful tool to teach and assess fundoscopic techniques.

Take-home messages: Canine fundoscopy can be taught using a valid fundoscopic model.
9HH11 (22782)
Faculty development. Advanced Simulator Instructor Course

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Background: It is essential to have a continued program of faculty development to recruit high-quality simulator instructors. In the Central Region of Denmark, SkejSim Medical Simulation and Skills Training has educated approximately 200 simulation instructors. In a survey performed in 2012, the instructors were requested to define their needs. They reported reluctance to incorporate simulation-based team training in the clinical encounter and a need for developing debriefing skills as well as facilitator and instructor skills. The aim of this advanced simulator instructor course is to support the development and implementation of simulation-based initiatives on the participants' home institutions.

Summary of Work:
Design: Teaching methods are predominantly interactive including case discussions, lectures, hands-on with feedback. To allow for cumulative learning, practice skills and knowledge retention, this program spans six months. The program is a coherent framework that is structured into four phases.

Phase 1: Participants are requested to design a simulation scenario for team training. Faculty will provide written feedback.

Phase 2: Focus is on the difficult debriefing. To practice strategies to manage challenging debriefings we use the TeamGAINS tool (1).

Phase 3: All participants undertake an independent learning project; i.e. produce a video to be used for feedback.

Summary of Results: The evaluation of this course is process-oriented. We plan to develop a type of knowledge test, i.e. a situational judgment test, in a pre-post design with a follow up.

Discussion and Conclusions: This study holds promise for advanced simulator instructor courses.


9HH12 (23063)
SimDonkey: Manikin Based Innovation For Veterinary Education

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Eric B. Bauman, Devry Institute for Research and Clinical Strategy, Center for Excellence in Simulation Education, Madison, United States
Justin Field, Devry Institute for Research and Clinical Strategy, Center for Excellence in Simulation Education, Pontiac, United States
David Pederson*, Devry Institute for Research and Clinical Strategy, Center for Excellence in Simulation Education, Boise, United States

Background: Teaching veterinary students the practice of anesthesia is fraught with many of the same concerns associated with teaching medical students, CRNA, and anesthesia residents. There are also ethical, financial, and legal issues associated with keeping live animals for training purposes. The SimDonkey project seeks to develop a high-fidelity anesthesia simulator for our affiliated veterinary school to reduce cost and mitigate ethical implications related to teaching anesthesia on live animals.

Summary of Work: The SimDonkey manikin was built by heavily modifying a second generation Laerdal SimMan and re purposing of a life sized donkey toy. The stuffed donkey was stripped down to a steel frame and the SimMan and was stripped down to component electronic and pneumatic modules (circuit boards, pneumatic distribution block, speakers, breathing, pulse and airway modules). The components were mounted in such a way that they retain their function but with new anatomical positioning. The simulator is currently undergoing beta testing at the veterinary school.

Summary of Results: The SimDonkey was deployed at the veterinary school and received positive qualitative analysis from faculty members. Although, only beta-version the simulator has met expectations from faculty and is currently undergoing planning for the next version.

Discussion and Conclusions: Innovative repurposing of a human simulator into large animal veterinary anesthesia is viable and produced positive results. Future work will include additional modifications to better reflect procedural fidelity.

Take-home messages: If they don’t have it build it. Using existing resources to develop tools for new applications when there is a need can be beneficial. Repurposing human simulators for veterinary education can be done with positive results.
9HH13 (22545)
Augmented Reality: A tool for teaching Health Science students

Raul Caraballo Guevara*, UVM, Health Science, Mexico City, Mexico
Saby Camacho Lopez, UVM, Health Sciences, Mexico City, Mexico

Background: Traditional medical education relies on the patient as the primary source of teaching, this is unethical, places the patient in an unnecessary risk and influences negatively patients and students. True learning is experiential, humans learn better by doing, involving all their senses in learning, generating a more powerful learning environment by the introduction of technology. Our students are now called “Digital Natives, nowadays a first term student has spent less than 5,000 hours reading, over 10,000 hours playing videogames, more than 20,000 hours watching TV, has seen over 500,000 commercials and has sent over 200,000 emails.

Summary of Work: Our objective was to use an AR commercially available software to create an interactive and immersive environment for our Health Science Students providing different learning experiences, promoting engagement, self-study and objective learning. This technology will be used in the following undergraduate programs: Human Medicine, Veterinary Medicine, Nutritionists, Psychology, Physical Therapy and dentistry. We will be using human and animal anatomical models and simulators.

Summary of Results: The name of the Software that was use is Aurasma This software was used to create auras on human and animal anatomical models and simulators, 3D images, videos and animations were utilised.

Discussion and Conclusions: AR increases educational value by generating engagement, creates interactivity, increases retention, data dissemination and generates meaningful learning (Active, Constructive, Intentional, Authentic and Cooperative) It allows the students to immerse themselves and become involved in their own learning process.

Take-home messages: AR offers value to the learning experiences of the students. It also offers self paced learning it is a motivational and memorable experience.

9HH14 (21127)
Experience of high-fidelity whole ward simulation

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Patrick Harris, Queen's Hospital, Midlands Training and Simulation Centre, Burton-upon-Trent, United Kingdom
Sharon Kilkie, Queen's Hospital, Midlands Training and Simulation Centre, Burton-upon-Trent, United Kingdom
Darren Middleton, Queen's Hospital, Midlands Training and Simulation Centre, Burton-upon-Trent, United Kingdom

Background: The use of simulated environments for training is well grounded in educational theory. It offers experiential and group learning and allows reflection and repetition. It allows predictable exposure to situations that are rarely accessible in clinical practice, whilst maintaining a ‘safe’, flexible environment and without compromising patient safety. High-fidelity simulations are those intended as a substitute for the ‘real thing’ and so help the student accept it as a replacement for the real situation. It has been suggested that the higher the level of fidelity then the more transposable the performance to real life. It aids translation of theory into practice and offers permission to fail in a safe environment. We aimed to create a super high-fidelity, immersive simulation for medical undergraduates.

Summary of Work: We converted a disused hospital ward into a high-fidelity whole ward, ‘real-time’ simulation with actors and facilitators playing patients and staff. Patient scenarios were scripted in detail and students performed clinical skills on prosthetics. For two hours students followed their patients from admission and clerking, to investigation and initiation of treatment to the post-take ward round where they presented to a consultant physician.

Summary of Results: Feedback from students was overwhelmingly positive.

Discussion and Conclusions: At no other point during training do students have opportunity to so comprehensively manage a patient in a safe, supported environment.

Take-home messages: High-fidelity simulation can help prepare undergraduates for qualification and can highlight issues with patient safety, infection control and soft-skills. We can see future development opportunities for teaching multi-professional team working.
9HH15 (19356)
Clinical pharmacist simulation training in Japan

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Hideki Nawa, Okayama University, Pharmaceutical, Okayama, Japan
Atsumi Nishikori, Okayama University, Pharmaceutical, Okayama, Japan
Yoshimi Kouzai, Okayama University, Simulation center, Okayama, Japan
Toshiaki Sendou, Okayama University, Pharmaceutical, Okayama, Japan

Background: Clinical pharmacist training in Japan is undergoing a major change from traditional lecture-type clinical training to simulation training. We think that improvement of clinical skills connect directly with bedside problem-solving ability. We proposed a new clinical pharmacists training course (Clinical Pharmacist Okayama Simulation Training (CPOST)), and studied how clinical pharmacist training was able to change.

Summary of Work: 62 clinical pharmacists were in our hospital. We performed 4 times CPOST in 2013. Evaluation was enforcement of pre- and post self check test, and we conducted a questionnaire.

Summary of Results: Participation rate is 18-48 %, and continued participation rate of more than once is 37 %. Those training were able to recognize the significant difference between the pre- post self check tests. By realizing other co-worker working, attending pharmacists were able to understand the real time pharmacokinetics in the clinical situation and other co-workers working (i.e. physician, nurses).

Discussion and Conclusions: Clinical pharmacist simulation training was very effective. Furthermore, CPOST has a possibility of creating a new position of clinical pharmacists at the bedside.

Take-home messages: We may create new position for clinical pharmacist in Japan.

9HH16 (18511)
Transdisciplinary small group simulation exercises for disaster management and post-disaster Infectious control

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Chia-Kwung Fan, Taipei Medical University, Department of Parasitology, School of Medicine, Taipei City, Taiwan
Yuarn-Jang Lee, Taipei Medical University, Taipei Medical University Hospital, Department of Internal Medicine, Taipei City, Taiwan
Show-Yu Lin, Aletheia University, Department of Natural Sciences, Center for General Education, New Taipei City, Taiwan

Background: Disaster management and post-disaster Infectious control education is rarely reported by using transdisciplinary small group simulation exercises model.

Summary of Work: Totally 125 students from various schools and different grades experienced a multidisciplinary elective course, to establish the general concept of disaster management and post-disaster disease prevention. We use 2 lectures, 4 case discussions and 10 simulation small group exercises to build the knowledge and skill for students. We used same questionnaire, totally 13 questions, before and after the course.

Summary of Results: Satisfaction questionnaire: total, expectation achievement, multidisciplinary, simulation exercise, and clinical practice were all > 4.8. Learning effect questionnaire: overall knowledge/skill, overall knowledge, understanding the importance of team communication/interaction, understanding individual role in team, understand transdisciplinary interaction importance, law knowledge much improved (P < 0.01). Transdisciplinary interaction skill, team mutuality, interaction ability, patient protect ability improved (P < 0.05). Overall skill, communication ability, self protect ability showed improved but did not reach statistical significance.

Discussion and Conclusions: This teaching model demonstrated improvement on all items of questionnaire. Some items did not get significant improvement. This means clinical exposure is important.

Take-home messages: We suggest introducing this model to students. Longitudinal study is suggested for evaluating the long term effects.
9HH17 (18428)  
**Palpation of the neck, Assessment of a novel high fidelity simulator**

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Gord Campbell, National Research Council of Canada, Department of Medical Biophysics, London, Canada  
Kevin Fung, Western University, Department of Otolaryngology -Head and Neck Surgery, London, Canada

**Background**: Training simulators provide a high-fidelity environment for trainees to develop new skills, while improving patient safety. We designed a cost-effective, high-fidelity neck simulator to improve the acquisition of technical skills related to the assessment of lymphadenopathy. This prospective randomised study evaluates the simulator as a tool for learning the procedure, while comparing it to the traditional standardized patient method.

**Summary of Work**: First year medical students with no prior procedure training will be randomized to receive training either using standardized patients, or the simulator. Examiners blinded to the intervention will evaluate the subjects in both groups before and after training. Performance will be measured using validated instruments- a global rating scale, and task-specific checklist. Learner confidence will be measured using pre-and post- questionnaires.

**Summary of Results**: We expect the simulator to be associated with positive educational outcomes, and that students working with the simulator will report greater confidence in physically examining the neck, as compared to the standardized patient group. At the time of abstract submission, subject enrolment is complete (n=60), data acquisition has begun, and results are pending.

**Discussion and Conclusions**: A palpable neck model allows insertion of pathology, reduced costs, and improved long-term access and standardization across distributed campuses. The global rating scale and task-based checklist are useful metrics for providing formative feedback, and longitudinally evaluating competency at stages of professional training.

**Take-home messages**: This is the first prospective randomized study of a high-fidelity lymphadenopathy simulator, evaluated with task-specific assessment tools. This simulator can be incorporated into undergraduate medical curricula, facilitating medical students' training for assessment of lymphadenopathy in the neck.
9II1 (21988)

VP-CbDs: The blend of virtual and real patients for conducting case-based discussions and giving feedback to medical students

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Background: Virtual patients (VPs) are one method on a continuum of instructional modalities resources for teaching clinical reasoning (CR) (Cook, 2009). A systematic review of studies on VPs demonstrates their efficacy for improving CR outcomes among novices (Cook, 2010). Despite the potential of VPs to be used alongside other methods, examples of VPs used in a blended way with face-to-face teaching or feedback are lacking. The aim of this study was to explore the effectiveness of VP case-based discussions (VP-CbDs) with medical students.

Summary of Work: Two cohorts of students in the final year at Leicester Medical School were invited to participate in the study. Participants were given access to a VP software (Virtual Ward) and VPs designed to support learning of acute and emergency medicine. The first cohort was invited to complete CbDs with clinical teachers and use the VPs in addition to their usual learning resources. The second cohort undertook CbDs and completed at least one VP alongside a clinical teacher. CbD scores were compared between the two cohorts and correlations were performed with participants’ performance in the end-of-rotation OSCE assessment.

Summary of Results: The data from the CbDs and VPs will be available by the time of the conference.

Discussion and Conclusions: VP-CbDs can enhance the learning experience of students learning acute or emergency medicine when appropriately blended into the curriculum. VPs and CbDs can generate greater feedback than case discussions alone, therefore enabling clinical teachers to personalize feedback to the needs of individuals and give more targeted remediation if necessary.

9II2 (20759)

Students as producers of virtual patients: Exposing the expert knowledge through a virtual patient blueprint

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Background: In order to engage final year medical students in production of virtual-patients, using the primary care virtual-patient model described by Salminen et al (2013), there was a need to expose the expert thinking through a virtual-patient blueprint (VP-blueprint), to anticipate ambiguities and to ensure the quality and authenticity of the virtual-patient cases. The objective of the study was to enable final semester medical students’ virtual-patient authorship, by use of a VP-blueprint.

Summary of Work: A five-page VP-blueprint with predetermined headings and fill-in sections, in alignment with a patient encounter, was produced. Case-specific learning objectives, medical information, pre-formulated feedback, in-depth knowledge hyperlinks and a video-filmed patient encounter were to be provided by the students. Four groups of students (n=16) produced virtual-patient cases by use of the VP-blueprint. The cases were evaluated by an experienced clinical teacher (GP) regarding medical knowledge, clinical skills, clinical reasoning and professional attitudes. The final virtual-patient cases were performed in a group seminar. Students’ experiences of the VP-blueprint were collected in a semi-structured group discussion and by written evaluation.

Summary of Results: The virtual-patient cases produced by the students demonstrated an adequate level regarding authenticity, knowledge, attitudes and skills in the performed patient encounters, and in the medical content throughout the cases. The students described the VP-blueprint as easy applicable in structure, content and pedagogical approach. They provided minor suggestions in order to further simplify the VP-blueprint.

Discussion and Conclusions: By applying a VP-blueprint, final year medical students can author a virtual-patient case on an expert level.

9II3 (21997)
The “activity” component as an educational principle: Implementation of virtual patients

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Background: The FAIR principles of effective learning contain four strategies to improve learning outcomes in medical education. One component is the “activity” element. Activity can be achieved by small group teaching, the use of learning technologies and learner’s roles in an clinical context. Aim of the presentation is to show the positive effects of “activity” as an important part in the cardiovascular module of our curriculum.

Summary of Work: The implementation of virtual patients of a diagnostic simulation program, the Inmedea™ simulator, changed the activity level of the students. Key symptoms, e.g. back pain, are presented in a virtual scene using graphic, sound files and video material. In a blended learning scenario small groups of students (8-10) and one teacher activity is implemented by
1. The size of the group which makes interactive learning possible
2. The teacher acting as an observer in the background and as a moderator of the discussion while
3. The students adopt responsible roles in the prepared clinical setting
4. The possibility to give a timely and frequent feedback

Summary of Results: The “activity” tool in our cardiovascular module and seminars showed positive effects regarding the evaluation of the course and among the questions asked within the end of year assessment.

Discussion and Conclusions: The “activity” component seems to be an effective learning principle in our cardiovascular module that can be objective of further interventional studies in the future.

9II4 (21459)
Virtual Patients, how close to reality are they?

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Background: Virtual Patients (VPs) are nowadays an important component of medical curricula, primarily aiming to teach clinical reasoning skills as training for real patient encounters. These VPs are often well designed in terms of didactical, technical and content-related aspects. Attention is also paid on making the VPs as realistic and interactive as possible, e.g. by including videos and questions. However, a different aspect emerges when looking at the VPs integrated into a curriculum from a healthcare system or “real life” perspective. Then questions arise whether these virtual patients represent a realistic stratification of average patient encounters e.g. in terms of age, gender, prevalence of diseases or type and setting of consultation.

Summary of Work: To answer these questions we created a matrix to analyse the VPs integrated into the medical curriculum at the Ludwig Maximilians University (LMU) and compared the results with data of the German healthcare system.

Summary of Results: The results of this study are currently evaluated and will be presented at the conference.
9115 (21301)
Virtual Cases in Internal Medicine Education
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Background: Organization of practical training in medical schools faces specific problems (limited spectrum of patients). Simulation of clinical cases using information technologies is an excellent option how to overcome it.

Summary of Work: The project E-CASES is an interactive problem-based learning system, generating a set of virtual patients. The spectrum of diagnoses, number of patients and criteria for passing the course can be predefined. Personal data, medical history symptoms, etc. are pseudorandomly generated for each patient. Student must suggest an optimal diagnostic algorithm and determine correct diagnosis. Clinical findings and results of diagnostic tests are presented in multimedial manner.

Summary of Results: The evaluation of students’ performance is based on correct sequence of suggested diagnostic steps and assessment of the financial costs of each test. The program is used in the undergraduate curriculum at the Medical Faculty in Hradec Králové. The users’ hands-on experience was evaluated through anonymous questionnaires. The most appreciated attribute of the system is the game-like involvement and multimedia-supporting environment (for students) and possibility of detailed analysis of each student’s performance and clear identification of weakest areas (for tutors).

Discussion and Conclusions: The project represents a useful tool for undergraduate medical education with positive feedback from both students and teachers. The advantages are flexibility, potential for expansion into other clinical disciplines and no restrictions regarding particular disease, clinical specialty, diagnostic procedure, etc.

Take-home messages: Virtual cases allow to overcome limitations of practical education in medicine and arouse a positive response by users.

9116 (21622)
Augmented Reality E-Learning for Medical Education
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Background: Study of anatomical specimens is inherently a part of medical education. The Gordon Museum of Pathology at King’s College London (KCL) is the largest medical museum in the UK with over 8,000 specimens. This study investigated the impact on learning of medical students using augmented reality (AR) enhanced specimens.

Summary of Work: Twenty KCL medical students were block randomised to either an intervention or control group. The intervention group used AR-enhanced specimens, created with Layar (Layar B.V., the Netherlands) and delivered via a tablet device. The control group used specimens with text-only descriptions as normally provided by the Museum. All participants completed objective assessments of learning outcomes before and after two timed sessions. There were three specimens in each session with the first concerning myocardial infarction (MI) and the other cerebrovascular accidents (CVA).

Feedback was used for subjective assessment.

Summary of Results: AR was shown to improve objective assessment results in both anatomy (MI +13.3%, p=0.045; CVA +23.8%, p=0.001) and pathology (MI +9.2%, p=0.033; CVA +20%, p=0.0075). Subjective assessment showed that students preferred AR (68% positive comments) to the control (85% negative comments) and that AR was better in the following subjective parameters: time efficient (p=0.0375), engaging (p=0.0175), motivating (p=0.001), and useful for recognising anatomy (p<0.001).

Discussion and Conclusions: The results of this pilot study show that AR was superior to traditional text descriptions when learning using anatomical specimens. Furthermore, students preferred the AR experience to traditional methods.

Take-home messages: AR is a powerful visual tool and may have an important role in enhancing learning for medical students.
**9117 (20508)**
**Medical teachers' attitude towards group chat program for modern medical education**

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**Background:** In 21st century, social network programs have been used globally. Group chat programs are also increasingly used in Thailand, especially in medical students. And these programs have been extending to medical education.

**Summary of Work:** The objective of this study is to evaluate medical teachers' attitude toward group chat programs for medical education. Our target group is orthopaedic medical teachers that usually use the group chat programs in routine practice for consultation and photo sharing. We conducted interviews with 20 orthopaedic medical teachers from 3 medical schools in Thailand.

**Summary of Results:** Mean age of participants is 39 (32-52) year-old. All participants agreed that group chat programs provide comfort and convenient about student-teacher communication by file/photo sharing and also the questionnaires. About 16 (80%) teachers agreed to use group chat programs instead of phone call for consultation in term of privacy. Three quarters (75%) of participants said that group chat programs could share online documents instead of old-fashioned papers. But 17 (85%) felt that group chat programs cannot do feedbacks for medical education.

**Discussion and Conclusions:** Group chat programs involve modern medical education increasingly. Group chat program can compensate old-fashioned documents and also consultations. But they still cannot use to replace some interpersonal activity such as feedback. Mostly orthopaedic medical teachers accepted that group chat programs provide benefits in medical education but cannot replace interpersonal activity.

**Take-home messages:** Group chat programs provide benefits in modern medical education about document sharing and consultation. But they are not suit for interpersonal activity.

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**9118 (21412)**
**Using social networks to augment current teaching in medical education**

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**Background:** Although social media is becoming an ever more established part of students’ lives, its potential as a tool for enhancing communication between faculty and student remains underutilised. Despite high interest, previous attempts to integrate social media have reported low uptake, and deployment using a particular strategy is necessary. Although attempts have been made, there is little reporting on its effectiveness.

**Summary of Work:** 3rd year medical students were given a questionnaire to ascertain their attitude towards using social media. A new online profile was then created and discussions between the students and clinical faculty were started, based on the weekly PBL scenarios already part of the established curriculum. The same questionnaire was reapplied one month later to determine whether attitudes had changed. A focus group was assembled to investigate issues around uptake and usefulness. The results were subjected to quantitative and qualitative analysis.

**Summary of Results:** The students selected Facebook as the preferred platform within which to hold discussions. There was varying opinion on the usefulness of the exercise.

**Discussion and Conclusions:** Although there were productive discussions originating out of a structured social media interaction, some students did not engage with the process. This was due to it not being perceived a useful or necessary addition and also that it was an unfamiliar adjunct to experienced students.

**Take-home messages:** Using social media can enhance communication but must be done in a way to highlight its usefulness. Early integration of such systems would be of benefit, so that students were accustomed to interacting with the faculty in such a manner.
Snippets: Paediatric Blogging as an educational tool

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Background: This abstract demonstrates how departments can address the educational limitations posed by the European Working Time Directive (EWTD). The resultant shift based patterns have eroded team-based structures within the NHS, demonstrably impacting on trainees’ access to educational meetings including journal clubs. It has reduced the opportunities for professional dialogue between clinicians. Knowledge can be gained from access to educational resources alongside face-to-face contact. The Internet is an obvious avenue to exploit as an educational forum in today’s technology-driven world.

Summary of Work: We established ‘Snippets’, a paediatric blog in February 2012 to respond to this educational gap using open-access software at http://www.wordpress.com. Trust librarians manage this virtual journal club enabling direct links to ascribed journal articles, websites, guidelines and presentations. ‘Snippets’ has tags linking similar postings, highlighting those of particular relevance.

Summary of Results: ‘Snippets’ has received 71 postings in 24-months, with monthly viewing of the blog increasing from 2012 to 2013. However, viewing figures are skewed downwards as participants can opt to receive a direct email link to blog-postings. 24 different contributors have posted on ‘Snippets’ and additionally participants have commented on postings.

Discussion and Conclusions: ‘Snippets’ demonstrates how the Internet can enable a network of multi-professionals to participate in collaborative learning. This virtual learning club has bridged the gap of distance and restricted working hours benefitting a community of practitioners.

Take-home messages: The Internet is a vast resource which is easily available and can be utilised for the medical education of trainees and consultants alike. Development of online journal clubs demonstrates a viable avenue for improvement of medical education.

“Facebook” makes students “Face each other”- A new concepts of creating effective learning - social groups

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Background: Recently, social media becomes a trend and a tool in health care and medical education. However, for most educators, social media was only thought to spread and share the information virtually. Therefore, it would be a big challenge to utilize social media to increase students’ interest and motivation at the bedside for clinical practices.

Summary of Work: We chose the major topic about knowledge and skill practices of emergency ultrasound to create a private group in Facebook. It encourages medical students (clereks/interns) to learn voluntarily after duty.

Summary of Results: During 2 years, about five hundred students joined this learning group. The lecture course was arranged between 19:00-21:00 on Tuesday each week (attendance: 60-80 persons/every class). Besides, the workshop was always full with participants (8 persons/every class).

Discussion and Conclusions: Surfing in this learning group of Facebook not only has advantages of spreading information in network, but also creates learning trends between peers. This social-learning group will produce many issues in network and encourage sonographic practices and discussion in reality, not only virtually. Besides, it also contacts educators with students without limitation and gets better feedback.

Take-home messages: 1. Utilizing social network creates an effective Social and learning group in medical education.
2. This educational network decreases knowledge gap virtually, and increases the motivation for learning.
9II11 (20525)
The use of Facebook and YouTube as a resource for teaching human anatomy

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Background: In October 2011, a Facebook profile was created to enable students contact anatomy teacher, exchange information, obtain and share extra material, rapidly, always, anywhere. To make studying the subject more stimulating and immediate a YouTube channel, containing filmed dissections and computerised 3D animation arranged by topic, was also created.

Summary of Work: In January 2014, a Facebook event was posted with a questionnaire for all his student “friends” (589) regarding the usefulness of Facebook to teaching/learning anatomy. 221 accepted, 170 returned the completed form. The data were arranged by course (medicine: 76; health-care professions: 94) and analysed statistically.

Summary of Results: 83.33% of the students visited the site: 45% seeking explanations on issues treated in class, 26.7% requesting extra material, 15% with exam queries, 13% informing the teacher of learning difficulties and requesting help. 81.9% stated that all teachers should use similar platforms for student communications. 66.6% believed student-teacher Facebook contact reduced exam stress. 88.88% consulted the YouTube channel. 97% claimed that availability of teacher-approved web material permitted them to study anywhere; 91.6% that viewing the dissection and/or animation footage was stimulating, 88.8% that seeing these boosted memorization.

Discussion and Conclusions: These high student-appreciation rates show that social-platform contact can usefully complement face-to-face tuition. Direct, informal interaction and availability of teacher-approved materials, permits students to address topics in a more stimulating, less stressful manner.

Take-home messages: Facebook and YouTube can improve student-teacher relations and impact positively on teaching/Learning.

9II12 (21986)
Academic Blogging: two goals, two results?

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Background: I have written a monthly blog for The Conversation, an independent website designed to improve public discourse and rebuild trust in journalism, since May 2013. The primary purpose of my blog is to critically analyse a range of medical ethics issues in a manner that is easily accessible to the general public. The editors ensure that this primary function is fulfilled. The secondary purpose is to create a useful learning resource for healthcare students and professionals.

Summary of Work: Since September 2013 I have included a link to my blogs in my lectures. In June 2014 I will submit a questionnaire to medical students who have attended my lectures this academic year to discover whether the blogs effectively fulfil their secondary function and how they could be improved.

Summary of Results: Each blog is read by and average of ~2000 people worldwide. Anecdotal evidence suggests that many of these readers are students who attended my lectures. Questionnaire data will be collected in June 2014 and analysed in July 2014.

Discussion and Conclusions: The goal of my research is to determine whether my blogs fulfil their secondary function. Conclusions cannot be drawn until the results are collected and analysed.

Take-home messages: Academic blogging is becoming increasingly mainstream. Creating blogs that are simultaneously accessible to the general public and useful to students as a learning resource would represent an efficient use of an academics’ time, but it is not year clear whether these dual aims can be achieved in practice.
Social Networks Used (Facebook and Line) for Improving Learning Environment and Communication between Medical Students and Department Staff in the Department of Military and Community Medicine

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Background: Department of Military and Community Medicine is responsible for medical students of Phramongkutklao College of Medicine in lectures and fieldwork sessions in both community and military medicine courses. The department’s tasks range from directing, providing study materials and monitoring students. The student groups are various from small groups of 2 to 3 students to a whole class of about 100 medical students. With the limited human and other resources the social networks, Facebook and Line, have been introduced and used as mass medias to keep our staff real-time connecting with our students since 2011.

Summary of Work: The social networks have been utilized in terms of: 1) preparation and orientation the students prior to their rotation in our department, 2) provision of material and guidance to students while they are in their rotation and 3) connection with the students after finished the modules.

Summary of Results: After using this strategy with several cohorts, there were high response rates from the students and decreased communication mismatches.

Discussion and Conclusions: The usages of these internet-based social networks have not only improved the learning environments in the aspects mentioned but also reduced the department lecturers workloads and staff-student communication gaps.

“Phil Muchbetter”: A Facebook character to increase medical students’ participation on a Moodle based “e-mergency” medicine course

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Background: Facebook is one of the most visited sites worldwide. Almost every medical student has an account, accessed by tablets and smartphones. Therefore, it could be a useful adjuvant tool to provide relevant medical information to undergraduate students.

Summary of Work: Throughout 2013, 110 sixth-year medical students participated in a Clinical Emergencies course based on the Moodle platform. In the second semester, the students received daily messages through Facebook, with links to updated activities on our platform. We created the character “Jacinto Bemelhor” (“Phil Muchbetter” in English), to send the messages and interact with the students. We tried to avoid using an excessively formal language, to match the kind of language that students use in Social Media.

Summary of Results: There were 209 thousand pageviews throughout the year. After the introduction of Facebook messages in our course, there was a 55% increase in the total number of pageviews and a 24% increase in the daily number of students participating in the platform. There was an average of 231 hits per month in Facebook links, and 75% of the accesses to the Moodle platform were performed directly via Facebook. In a survey at the end of the course, 60% of students reported greater motivation to participate in the course after the introduction of Facebook messages.

Discussion and Conclusions: Using messages in Social Media seems to be an effective way of encouraging students’ participation in educational activities, and allowing the integration among several learning environments.

Take-home messages: Social Medias may be a fun and modern way to engage students on educational activities.
@MedFinalsRev, Using Twitter to Study for Exams

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Background: Social media is increasingly being used in medical education by students and tutors. The focus is often on sharing resources and allowing collaborative projects to take place. So far there has been limited use of Twitter as a tool to collate resources for students and tutors during examination preparation.

Summary of Work: A Twitter account (https://twitter.com/medfinalsrev) was set up by two senior undergraduate medical students. The twitter account focuses on study aids and resources for medical exams. Tweets are quality controlled by clinician ‘followers’ of the account. The account often also serves as a discussion board on medical topics for students and tutors alike.

Summary of Results: Within 5 months of setting up the Twitter account, more than 700 tweets have been made, that share study aids and resources. More than 1,100 ‘followers’ follow the @MedFinalsRev Twitter account, and this number is continuing to grow. Many followers appear to be UK-based, although the number of US and Canada-based students is significant. The majority of followers are students, although clinicians of various grades often also contribute. Feedback sent to the Twitter account has been overwhelmingly positive.

Discussion and Conclusions: Social media can be used productively in medical education. Our experience indicates that students will embrace novel exam study techniques.

Take-home messages: Twitter can be used productively in a medical education setting, by providing a central resource for students and tutors to share information.
9JJ1 (20393)
Widening Participation in Medicine: Has students' perception changed?

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Background: According to the British Medical Association policy the socio-economic background of prospective doctors should be broadened to reflect more closely the diversity of the population. Thus, a range of widening participation schemes started up in 1997. Despite this, students from social class one are around a hundred times more likely to gain a place at medical school than those from classes four and five. A review of the policy in 2004 found that students from a lower socio-economic background continued to hold a stereotyped perception of medical students and they saw medical school as geared towards “posh” students. This study in 2014 explored if students’ perception of Medicine had changed and if the widening participation scheme needs to be improved.

Summary of Work: Focus groups were conducted on sixth form students in two schools involved in the widening participation scheme. The focus groups were transcribed and analysed thematically.

Summary of Results: Students in the widening participation scheme feel they are provided with fewer opportunities than private school students – for example they feel disadvantaged with the personal statement aspect of the UCAS application. However, with the same opportunities the students feel they could compete with other students. The students want the widening participation scheme to provide more opportunities for them, such as direct work experience links.

Discussion and Conclusions: There is still room for the widening participation scheme to be improved thereby providing more opportunities for a wider range of students.

9JJ2 (21808)
Comparison of academic achievement between graduate-entry and non-graduate entry medical students in Seoul National University College of Medicine, Korea

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Background: The graduate-entry program has been introduced in our medical school, and equal numbers of graduate-entry (GE) and undergraduate-entry (UE) students have been admitted every year since 2009. This study compared the academic achievements of GE and UE students.

Summary of Work: We analyzed the marks of the three cohorts (classes 2009-2012; GE = 275, UE = 305); that is, four-year marks for class 2009, three-year marks for class 2010, two-year marks for class 2011, and one year marks for class 2012.

Summary of Results: UE students showed higher annual average marks. Furthermore, the difference of the average marks diverged as year went for the classes 2009 and 2010. From a standpoint of each subject, UE students overtook GE students constantly and most remarkably in Anatomy. Meanwhile, GE students showed better marks than GE students did in Patient-Doctor-Society II, III, IV, V, and VI which are held through the school years 1 to 4, dealing with contents other than biomedical sciences such as informatics, interviewing, medical ethics, patient behavior and care, etc.

Discussion and Conclusions: The overall lower performance of GE students shown in this study is contradictory to those previously reported in Australia and England. This contradiction might come from the differences of social environments among the countries.

Take-home messages: Curriculum that reflects the difference of two groups should be developed.
**9JJ3 (21186)**

**A comparison of stated reasons for widening participation in UK medical schools**

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**Background:** Widening participation (WP) has been influential in governing approaches to medical school admissions in the UK. Two key rationales are; the pursuit of social justice and the drive to have a workforce that reflects the composition of the population (i.e. a more instrumental approach).

**Summary of Work:** This paper tracks WP by using a systematic literature review of WP within UK medical schools to explore which, if either, approach is favoured and what rationales are offered.

**Summary of Results:** It was found that instrumental reasons were preferred over social justice reasons.

**Discussion and Conclusions:** The case for WP has been attached to notions of ‘the distinctive goods’ central to medicine; the provision of doctors for society and the advancement of knowledge and understanding. An alternative is the rationale that WP itself should reflect a ‘public good agenda’. The literature often shows that in actual practice the reasons are instrumental rather than based on principles of social justice. This reflects the purpose of a medical school as a place of excellence rather than an engine of social justice. WP to medical school is primarily justified by the use of instrumental reasons.

**Take-home messages:** The rationale for WP is rooted in the purpose of the medical school, to provide better doctors to serve the society.

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**9JJ4 (22816)**

**Growing Future Medical Students: A Strategy for Providing Work Experience to Non-Traditional Applicants**

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**Annalisa Alexander, Imperial College, Outreach Office, London, United Kingdom**

**Presenter: Susan F Smith*, Imperial College, National Heart and Lung Institute, London, United Kingdom**

**Background:** Applicants to medical school are normally expected to have obtained relevant work experience. Such experience is often very difficult for non-traditional pupils to obtain, since they lack relevant personal contacts, and often attend schools with no history or experience of preparing pupils for medical school. Lack of relevant work experience reduces the chances of these students of securing a place to study medicine [1].

**Summary of Work:** We have created partnerships between specific general practices which undertake to offer work experience placements to pupils (aged 16-18yr) from particular schools in areas of socio-economic deprivation. Pupils are selected by their teachers on the basis of their academic ability.

**Summary of Results:** To date 11 partnerships have been created, resulting in over 20 work experience placements. Participants’ feedback is proving invaluable in helping us to prepare future students more fully for their work experience. Positive feedback has encouraged us to expand the programme to include placements in hospitals. This is part of a long term project [2]; we are currently tracking whether participation in the scheme is associated with an increase number of successful applications to medical school.

**Discussion and Conclusions:** Establishing partnerships between specific schools and general practices can provide a sustainable way of providing relevant work experience to potential medical students from non-traditional backgrounds.

**Take-home messages:** Supported work placements can contribute a valuable element to programmes aimed at widening access to medicine to non-traditional applicants.

9JJ5 (22539)

What were students’ overall experiences of the Widening Participation in Medicine (Newham Doc Route) Scheme from 2008 – 2013?

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Background: Students from disadvantaged backgrounds and areas with high levels of deprivation are under-represented in medical schools. Widening participation (WP) schemes seek to mitigate able students’ disadvantages. Research into the experiences of WP scheme participants is limited.

Summary of Work: This qualitative interview study, in the interpretivist paradigm, focused on participants’ experiences of WP scheme, ‘Newham Doc’, between 2008 and 2013. Participants include students of medicine and other healthcare professions at different stages of their academic programmes in UK universities. Audio-recorded semi-structured interviews and focus groups address completers’ perceptions of the WP scheme and their transitions to health professional programmes. The study aims to use increased understanding of WP students’ experiences to inform future WP scheme developments. Recordings are transcribed and transcripts subjected to Framework Analysis (Ritchie & Lewis, 2003). The study, which forms part of an intercalated degree in Medical Education (BS-A), will be completed at the end of April.

Summary of Results: Early themes include: widespread appreciation of the WP scheme which increased as participants progressed through their HE programme; positive perceptions about learning important clinical skills (e.g. basic life support), work placements with multidisciplinary teams; concerns about the value and purposes of the WP scheme’s assessments; struggles in transitioning to higher education (HE).

Discussion and Conclusions: Although this is a case study of one WP scheme the findings may resonate elsewhere and help improve approaches to WP. BS-A is a former participant of this WP scheme therefore this study required particular attention to reflexivity.

Take-home messages: Gathering former participants’ perceptions, particularly through long-term follow-up, deepens understanding of educational programmes.

9JJ6 (22029)

Perceptional changes on graduate entry medical education in Japan: A case study on a series of symposiums towards national consensus

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Background: Japanese medical education provides six-year undergraduate programs. To accept individuals with more diverse backgrounds and social maturity, graduate entry programs (GEP) in medical education could be one of the solutions. There have been very few occasions among major stakeholders including medical professionals, general public, and policy makers to meet together to discuss this in Japan. A series of symposiums on introduction of GEP have been held since 2012. This study aimed to investigate any changes of perceptions or opinions about GEP.

Summary of Work: Paper-based surveys were administered after each symposium on the participants’ changes of understanding of and opinions about GEP before and after the symposium. We also examined the influence of background such as medical professionals, non-medical individuals, and students in general by cross tables.

Summary of Results: A total of 97 responded to the surveys. Among 89, 36 had previous knowledge about GEP, uninfluenced by background. Out of 87, 65 reported their understanding of GEP changed, of whom 34 (52%) were non-medical individuals while 19 (29%) were medical professionals (p=0.0068). In addition, 32 (54%) of 59 changed their opinion about introduction of GEP after the symposium, influenced by background (p<0.001). As post-symposium opinions, non-medical individuals chose creating new schools with GEP, while most of medical professionals preferred creating GEPs in existing schools.

Discussion and Conclusions: The series of symposiums had impact on the participants’ perceptions on GEP. With the symposium, those of non-medical individuals changed positively.

Take-home messages: Vigorous efforts are needed to provide information and occasions for discussion among stakeholders on GEP in Japan towards national consensus.
9JJ7 (19201)
Preliminary success of the Preston Widening Access Programme (PWAP)

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Jacqueline Higham, Lancashire Teaching Hospitals Trust, Workforce and Education Directorate, Preston, United Kingdom
Mark Pugh, Lancashire Teaching Hospitals Trust, Undergraduate Medical Education, Preston, United Kingdom
Karen Swindley, Lancashire Teaching Hospitals Trust, Undergraduate Medical Education, Preston, United Kingdom
Patterson Adam, Cardinal Newman College, Medicine, Preston, United Kingdom
Tony Freemont, University of Manchester, Manchester, United Kingdom

Background: The Royal Preston Hospital (RPH) provides undergraduate education to hundreds of students from Manchester Medical School (MMS). Despite this, there are few initiatives in Lancashire that encourage the engagement of low participation groups in medical education, including those from low socioeconomic backgrounds. Thus, in 2013 PWAP was created to help address this; a partnership between MMS and RPH that was piloted this year.

Summary of Work: Over nine months, aspiring medical students completed activities fortnightly at RPH, including: simulation, ethical debates and a written assignment. These aimed to give: help and support with the medical school application process; experience in a hospital setting; and the opportunity to regularly interact with medical students. In return they receive benefits including a guaranteed interview at MMS. Semi-structured interviews were conducted with the students at the end of the programme and analysed thematically; to evaluate the scheme and its effectiveness. Questionnaires were used following each activity to assess their content.

Summary of Results: 9 students took part in PWAP and all met MMS widening participation criteria. They could easily relate to the medical students delivering the sessions, who enjoyed gaining teaching experience. Overall, they enjoyed PWAP and had learnt useful skills needed at medical school; improving their confidence and thus the likelihood of gaining admission to medical school.

Discussion and Conclusions: The pilot was successful and will now expand to include more students and colleges from Lancashire.

Take-home messages: Having medical students delivering teaching sessions in widening participation programmes is effective and beneficial for both the medical and college students involved.

9JJ8 (22056)
The gap between first impression and multiple mini-interview performance ratings: A comparison between different rater groups

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Background: To reduce interviewer bias in Multiple Mini-Interviews (MMI) a lot of preparatory effort is put into the development of standardized rating scales and rater trainings. Additionally scores can be adjusted for rater severity. Our study aimed to analyze whether MMI performance ratings differ from first impressions formed by raters of different profession and gender during the first seconds of the encounter with candidates.

Summary of Work: Eighty-four raters evaluated 192 candidates in the 2012 MMI for admission to medical school at Hamburg University. Each candidate received an average of 21.2 first impression and 21.5 MMI performance ratings, both given on a 5-point scale. The effects of rating type (first impression, MMI performance), rater characteristics (gender, profession) and candidate characteristics (gender, age) on performance ratings were analyzed in a linear mixed model.

Summary of Results: Mean ratings significantly dropped from first impression to MMI performance ratings. The change in ratings was influenced by rater but not by candidate characteristics. The mean difference varied between rater groups with male psychologists showing the largest gap of 0.3 points between ratings.

Discussion and Conclusions: On average, most rater groups are more severe in performance ratings as compared to first impression ratings. This might reflect a positive attitude of raters which is modified with regard to the standardized rating scales. However, levels of severity and adjustment vary between rater groups.

Take-home messages: Observed differences between ratings and rater groups support the use of standardized rating scales, rater training, adjustment of scores and further measures to reduce interviewer bias.
9JJ9 (21843)
**MMI is a better way to select students**

*Kalyanee Asanasak*, Songkhla Hospital Medical Education Center, Pediatric, Songkhla, Thailand

**Background:** Princess of Naradhiwas University and Songkhla Hospital Medical Center are responsible for medical education in the southern part of Thailand. Out of 24 students each year, we detect about 1-3 students who have a poor performance and social skill. So MMI (multiple mini interviews) was introduced for student selection. The correlation and accuracy of both type of interviews, MMI and conventional interview (CI) were performed.

**Summary of Work:** All the 42 candidate medical students who passed the MCQ knowledge exam had undergone 9 stations MMI and also CI exam. Scores of MMI and CI were grouped as excellent, favorable and unfavorable. Then the correlation and accuracy were compared.

**Summary of Results:** The MMI detected 4 unfavorable students. The CI detected 3 unfavorable students. Among 4 MMI unfavorable group (4/24 : 9.5%), 2 were also found unfavorable in CI (2/45:4.7%), 1 was found favorable in CI (1/42 : 2.35) but 1 was found excellent in CI (1/42 : 2.35). None of the unfavorable MMI had the excellent score in CI. The excellent and favorable MMI scores have a good correlation with the CI score.

**Discussion and Conclusions:** MMI and CI show a correlation in detecting good and poor performing students. MMI seems to be more effective in distinguishing among the poor performing students than CI.

**Take-home messages:** The MMI is a better way to detect the proper future medical student than CI. Even though it is time-consuming, complex and needs more medical staff, it is worth performing.

9JJ10 (19021)
**A Randomized Sequence Study of a Traditional Interview versus Multiple-Mini Interview (MMI) Approach to Assess Candidates for Suitability for Acceptance into Medical School at Memorial University**

*Wanda Parsons*, Memorial University of Newfoundland, Admissions Office, Faculty of Medicine, St. John's, Canada

*Janet McHugh*, Memorial University of Newfoundland, Admissions Office, Faculty of Medicine, St. John's, Canada

*James Rourke*, Memorial University of Newfoundland, Primary Healthcare Research Unit, Faculty of Medicine, St. John's, Canada

*Marshall Godwin*, Memorial University of Newfoundland, Primary Healthcare Research Unit, Faculty of Medicine, St. John's, Canada

**Background:** Memorial University, located in eastern Canada, has a Faculty of Medicine dedicated to a holistic approach to admissions and three priority areas: Aboriginal Peoples of Newfoundland and Labrador, students from rural and remote areas, and economically disadvantaged students. While most medical schools have replaced the panel interview with the multiple mini-interview (MMI), Memorial has retained the traditional two person panel interview and is considering whether to change to the MMI.

**Summary of Work:** For the 2013-2014 medical school admissions cycle, Memorial University used a hybrid of both traditional (semi-structured) and MMI (structured) interviews-TaMMI (Traditional and MMI). All interviewed students participated in eight (ten minute) MMI stations with one assessor at each station, and a 30 minute two person panel traditional interview. After the interviews were completed, all the data was de-identified and linked to postal codes at birth and during high school and whether the student self-reported as being Aboriginal. The postal codes were classified as to socioeconomic region.

**Summary of Results:** Results will be presented on whether:
1. Students who participate in the medical school interview process at Memorial University perform differently on the MMIs compared to the traditional interview process.
2. Whether performance on either of the two interview processes differ based on age, sex, roots(urban or rural), Aboriginal status, or socioeconomic status.

**Discussion and Conclusions:** The results of this study will help guide us as to whether to continue the traditional interview, adopt the MMI completely, or continue with TaMMI in the future in order to fulfill our social responsibility.

**Take-home messages:** Does performance on traditional interview versus MMI differ for medical school applicants based on age, sex, roots(urban or rural), Aboriginal status, or socioeconomic status.
Bilingual Multiple Mini-Interviews: Equivalent performance of English vs. French and urban vs. non-urban candidates

Andrea Kessous*, McGill University, Faculty of Medicine, Montreal, Canada
Saleem Razack, McGill University, Faculty of Medicine, Montreal, Canada

Background: Bilingual Multiple Mini-Interviews (MMI) are used by McGill University to evaluate candidates for admission to medical school. Given many studies indicating difficulties of access for non-urban students to medical school, and our unique bilingual assessment environment, we compared interview performance between candidates from urban vs. non-urban regions, and those interviewing in English vs. French.

Summary of Work: 97/111 interviewed candidates resided in urban areas and 14/111 in non-urban areas. All candidates had pre-interview scores on academic performance, personal statement and curriculum vitae, as well as a total weighted pre-interview score. MMI performance scores were an equally weighted average of ten individual stations. We used un-paired t-tests to compare pre-interview selection criteria, MMI scores between urban and non-urban groups, and MMI performance scores between English (n=40) and in French (n=67) candidates.

Summary of Results: There is no statistically significant difference in independent academic performance (p=0.72), personal statement (p=0.09) and curriculum vitae (p=0.88) pre-interview scores in urban vs. non-urban candidates invited to interview. However, there exists a significant difference in total weighted pre-interview scores between these candidates. (p=0.01) There is no disparity in MMI performance between urban and non-urban candidates invited for interview, (p=0.51) and candidates choosing to interview in English perform similarly to candidates interviewing in French. (p=0.23)

Discussion and Conclusions: Our MMI shows no predilection for urban versus non-urban candidates invited for interview.

Take-home messages: An equivalent bilingual MMI without urban bias is possible. Further research exploring applicant demographics at the screening stage is necessary to evaluate potential barriers to applicant access in the first screen of the admissions process.

Development of national recruitment to dental foundation training in England, Wales and N Ireland

Karen Elley*, Postgraduate Dental Department, Health Education West Midlands, Birmingham, United Kingdom
Connie Wiskin, University of Birmingham, Interactive Studies Unit, Birmingham, United Kingdom
John Duffy, University of Birmingham, Birmingham, United Kingdom

Background: There is a system of national recruitment to Dental Foundation training posts in parts of the UK. These posts form a programme of vocational training in National Health Service Dental Practice during the first year post qualification. Developments have taken place between the recruitment rounds for 2013 and 2014 posts.

Summary of Work: Psychometrics of assessment data have been analysed for different stations, for role player and clinical assessors and by assessment centre.

Summary of Results: Changes to the process resulted in increased consistency between assessors. There was variation by assessment centre. There was consistency between assessors when they were measuring the same attributes, but role players (lay) and clinical assessors rating different elements of clinical communication skills gave different perspectives to the process. For the management and leadership station improvement was made between year 1 and 2 to consistency by providing model answers to standardise expectations of good and poor answers. The variation by assessment centre is likely to be due to the variation in the quality of the candidates. Each section of the assessment measured different things and none was predictive of performance in another section, consequently the current sections of the assessment should continue.

Discussion and Conclusions: Multiple assessment techniques using multiple assessors are likely to result in the most robust recruitment to Dental Foundation training posts. Fine tuning of the process can result in improvement in the quality of the process.

Take-home messages: Improvements can be made to the process of recruitment by changing the process in the light of outcomes.
SESSION 10
Wednesday 3 September: 0830-1015

10A SYMPOSIUM: From Professionalism to Professional Identity Formation: A Journey, Not a Destination
Location: Gold Plenary, Level +2, Mico

Panel: Yvonne Steinert, Centre for Medical Education, McGill University, Canada
Richard Cruess, Sylvia Cruess, Donald Boudreau, Linda Snell, McGill University, Canada
Frederic Hafferty, Mayo Clinic, USA

Although there is a growing consensus that professionalism is fundamental to the practice of medicine and that it must be taught, learned, and evaluated throughout the continuum of medical education, medical educators have paid much less attention to professional identity and its formation. We also know that a central function of a medical school is to provide the learner with “a professional identity so that he can come to think, act, and feel like a physician” (Merton, 1957). The goals of this symposium are to: link the notion of professionalism to professional identity formation; discuss the role of socialization in medical identity formation; and provide an example of how one educational program supports students in their journey from layperson to professional. Principles of fostering professional identity formation will also be explored as will educational strategies that can help us move from teaching professionalism to supporting professional identity formation.

10B SYMPOSIUM: The Educational Culture in Medical Schools
Location: Auditorium, Level +3, Mico

Panel: Stijntje Dijk, IFMSA Standing Committee Director on Medical Education
Agostinho Moreira de Sousa, IFMSA Liaison Officer for Medical Education issues
David Gordon, WFME President Elect
Otmar Klober, World Medical Association (WMA) Secretary General and Partners in organizations related to medical education and health

The goal is to open the discussion on the culture of education in medical schools. It is important to debate the actual situation and create a holistic overview by promoting an interactive discussion with the main speakers that includes the students’ perspective. Topics to be addressed include: innovative teaching methods that are being practiced at present; medical students’ and young doctors’ health; the environment of learning, and the presence or absence of the culture of bullying and reporting in medical schools; inter-professional education and collaboration; students’ integration in the first year of medical school; students’ adaptation for the job market; other sources and educational tools that students are using to enrich their education. With this debate, participants will have a global overview of what the culture of education of medical schools is nowadays, what it should be and what are the expectations and challenges for the future.
10C SHORT COMMUNICATIONS: Rural / Distributed Learning
Location: Brown 3, Level +2, MiCo

10C1 (21744)
The best of both worlds: Validating the power of combining distributed medical environments with tertiary training for general pediatrics

Maureen Topps*, University of Calgary, Calgary, Canada
Tara Baron, Northern Ontario School of Medicine, Sudbury, Canada
Alison Peek, Northern Ontario School of Medicine, Sudbury, Canada
Rachel Ellaway, Northern Ontario School of Medicine, Sudbury, Canada

Background: The Northern Ontario School of Medicine (NOSM), in Canada, functions as an entirely distributed medical educational model. However, to meet accreditation standards for pediatric training, a collaborative partnership was required with a tertiary centre – the Children’s Hospital of Eastern Ontario (CHEO) in Ottawa. With the accreditation of this novel model for pediatric training, a 2-year mixed methodology case study was implemented to track and compare the clinical encounters of pediatric residents spending 50% of their training in a highly tertiary centre and 50% in distributed regional locations.

Summary of Work: The study was designed to explore similarities and differences in residents’ clinical encounters and learning experiences between the two types of environments. Electronic clinical and procedural encounter logs maintained by residents were supplemented by regular interviews and focus groups for the duration of the study.

Summary of Results: Multiple differences were found between the two distinct types of training environment from the type of patient seen; length of clinical encounter; continuity of care; procedural opportunity and structure of patient interactions.

Discussion and Conclusions: The study highlighted how the strengths of both types of environment are truly complementary. The manner in which care is managed in each setting and the learning opportunities presented, from a resident perspective, are diverse. The model contributed to a more holistic approach to overall residency training. While further study is required, the opportunities for collaborative immersion in significantly different models of pediatric care may present an important new approach to competency-based education for future training programs.

Take-home messages: New models build on strengths found in community settings.

10C2 (21174)
Medical Education in a Digital Age: Connectivity and Comparability between Two Sites

Cathy Fournier*, Dalhousie University, Division of Medical Education, Halifax, Canada
Anna MacLeod, Dalhousie University, Division of Medical Education, Halifax, Canada
Olga Kits, Capital Health Research Centre for Clinical Research, Research Methods Unit, Halifax, Canada

Background: The every day experience of medical education at Dalhousie University has become increasingly digitized. This is particularly evident with regards to the simultaneous delivery of its undergraduate medical education program to campuses 400 kilometres apart. The existence of this distributed medical education program has led to the co-existence of virtual and physical learning spaces managed and mediated by human and non-human factors (technology, technicians, faculty and students).

Summary of Work: We are conducting an ethnographic study, involving observations, interviews and textual analyses, exploring the experiences of faculty, staff and students during this time of intense technological renewal.

Summary of Results: Through our observation data we are learning that a distributed medical education program, despite the goal of complete comparability between two sites, is constrained by the very technologies meant to unite them. For example, boundaries between sites are demarcated by technological constraints, such as the absence of usual classroom sounds in the distributed site, and the (in)ability for students to spontaneously communicate between sites.

Discussion and Conclusions: Distributed medical education is enmeshed in a network of influential factors, both human and non-human. Optimizing distributed medical education requires an understanding of the network of technological influences and restrictions, and how they may influence learners’ experiences.

Take-home messages: While the importance of social considerations in medical education has been acknowledged, material conditions, like the virtual and physical spaces in which learning takes place, have been largely ignored. Much preparation went into creating a seamless environment and learning experience between both locations, yet boundaries still exist. Some of these boundaries are created by constraints of the technology meant to unite them.
ABSTRACT BOOK: SESSION 10
WEDNESDAY 3 SEPTEMBER: 0830-1015

10C3 (20894)
How well can a rural longitudinal integrated clerkship prepare a medical student for internship?

Jane Barker*, University Centre for Rural Health, General Practice, Lismore, NSW, Australia
Hudson Birden, University Centre for Rural Health, Medical Education Research, Lismore, NSW, Australia

Background: Long term integrated clerkships (LICs) have become a favoured method of delivering medical education in the clinical years of a training program. LICs provide opportunity for a medical student to ‘act up’ near to the role of a doctor, and so may contribute an ability to ease the stress of the student/intern transition.

Summary of Work: Interviews were conducted with 12 participants. Interviews continued until data saturation. The aim was to find which aspects of participants’ rural LIC training contributed towards developing intern competencies, and whether skills gained differed from those gained in a metropolitan hospital based program.

Summary of Results: Aspects of the LIC that interviewees identified as useful included:
• Learning as a team of peers together with close relationship with preceptors, consultants, and registrars
• Autonomy in taking history, examining patient, developing a management plan as they would when qualified. This was particularly evident in their General Practice and Emergency Department experiences.
• Experiencing modes of care provision that would be specialties in a metropolitan setting
• Practice in communication, documentation and practical skills at an advanced level

Discussion and Conclusions: These findings mirror those of earlier studies in finding advantage in rural LICs as a mode of medical education delivery. While students engage in the same activities in a rural LIC as they would in a short term metropolitan clerkship, the longitudinal, in depth, community-focused nature of the rural LIC appears to produce more confident interns.

Take-home messages: Experience in a rural LIC as a student boosts confidence of interns.

10C4 (22737)
Addressing the Australian rural and regional workforce shortage through sustainable postgraduate training programs

Judi Walker*, Monash University, School of Rural Health, Melbourne, Australia
Brendan Crotty, Deakin University, Faculty of Health, Geelong, Australia

Background: The medical schools in Victoria have developed a proposal to pilot a regional postgraduate medical training program which leverages Australian Government investment in Rural Clinical Schools to provide a cost-effective and sustainable solution to the rural and regional medical workforce shortage.

Summary of Work: There is a continuing mal-distribution of doctors in Australia despite a major expansion of Australian medical student training. Between 2008 and 2012 there was a 16.4% increase of in the number of medical practitioners but almost no improvement in the rural workforce shortage. All three medical schools in Victoria have rural clinical schools and there is convincing evidence that a high proportion of their graduates choose rural and regional careers. An expansion of regional general practice training and establishment of regional specialty training programs is urgently required to keep rural and regional graduates in rural and regional Australia.

Summary of Results: The proposal is based on a hub and spoke model centred on existing Rural Clinical School facilities. Working in partnership with government, health services and medical colleges, they will provide regional graduates with opportunities to complete most or all of their general practice and generalist specialist training in regional settings and will ensure that they develop and maintain the generalist skills needed for rural practice.

Discussion and Conclusions: This cost-effective and sustainable proposal takes advantage of previous Australian and state government investments in Rural Clinical Schools.

Take-home messages: The current Australian rural workforce shortage cannot be solved without regional postgraduate training programs developed in partnership with universities, local health services and the medical colleges.
10C5 (22528)
Curriculum for generalist medicine: More than the sum of the (body) parts?

Richard Murray*, Australian College of Rural and Remote Medicine / James Cook University, Townsville, Australia
David Campbell, Australian College of Rural and Remote Medicine, Lakes Entrance, Australia
Lynn Saul, Australian College of Rural and Remote Medicine, Brisbane, Australia

Background: Medical education, like medical care, has suffered from a decline of clinical generalism versus subspecialty medicine. Given growing international calls to redress this imbalance (as a strategy to improve workforce outcomes) the practical issue of how to structure, author, teach and assess curriculum that covers the expansive breadth and scope of generalist medicine arises. ‘Rural Generalist Medicine’ (RGM) is an extreme example and illustrates the issues. The term is used to describe a scope of medical clinical care for General Practitioners/Family Physicians that encompasses primary care, hospital medicine, emergency care, population health and extended skills in one or more discrete areas as required to sustain services in rural communities. In other words, from a conventional medical discipline perspective, Rural Generalist Medicine steps on everyone’s toes!

Summary of Work: The Australian College of Rural and Remote Medicine (ACRRM) embarked on a major revision of curriculum covering the full scope of RGM, engaging rural clinicians and curriculum experts, accommodating rural context, international application as well as clinical content. Accompanying standards for education and training set out complementary roles for generalist and specialists as teachers and supervisors.

Summary of Results: The strategic considerations, process and curriculum product are described in the clinical practice, political and policy context.

Discussion and Conclusions: Clinical curriculum within a generalist framework helps overcome the problems inherent in the traditional ‘curriculum by specialty rotation’, thereby broadening settings in which clinical learning can occur, promoting generalist roles in teaching and in facilitating generalist health career choices.
10D1 (18639)
Exploring and comparing conceptualisations of mentoring across education and medical education

Jennifer Cleland*, University of Aberdeen, Division of Medical and Dental Education, Aberdeen, United Kingdom
Mandy Moffat, University of Aberdeen, Division of Medical and Dental Education, Aberdeen, United Kingdom
Navta Massand, University of Aberdeen, Division of Medical and Dental Education, Aberdeen, United Kingdom
Lynne Shiach, University of Aberdeen, School of Education, Aberdeen, United Kingdom
Do Coyle, University of Aberdeen, School of Education, Aberdeen, United Kingdom

Introduction: Research into mentoring in medical education has tended to focus on programme description and evaluation (e.g., Frei, et al., 2011), or in identifying barriers to mentoring (Sambunjak et al., 2006). In contrast, in education, where formal mentoring processes are have been long established as part of training (e.g., O’Donnell, 2008), the literature looks more at the act of mentoring, how mentoring can best support quality professional learning. In both education and medical education, however, clarity about what mentoring is, who takes on mentoring roles and how these develop within a context is scarce (Lai, 2005; Hall et al., 2008). Given the majority of research into mentoring has explored outcomes from the point of view of the protégé or mentee only, what is the perspective of the mentor on the process of mentoring (Allan, 2007)? The aim of this study is to explore how the construct of mentoring is conceptualised by workplace mentors from medical and teacher education.

Methods: The proposed study sits within the interpretive paradigm, which is epistemologically grounded in social constructionism (Crotty, 2009). A phenomenological approach (e.g., Schutz, 1970) was taken to establish what being a mentor means to participants and their “lived experience” of mentoring. Individual semi-structured interviews were recorded and then transcribed. Analysis was data-driven.

Results: Ten mentors participated in this study: five from medicine and five from medical education, four women and six men, working across junior and senior schools, family and hospital medicine. The data highlighted four main themes: the process of becoming a mentor; the experience and expectations of being a mentor (including organisational structure and contexts); characteristics of a mentor (e.g., attitude, motivation); and challenges (e.g., training);

Discussion and Conclusions: This study identified that context and organisational culture were as influential as individual factors in shaping the process of mentoring. There seemed to be most parallels between primary education and family medicine. Our data highlighted the importance of going beyond individual and dyadic factors in mentoring to discern the organizational forces that shape the mentoring phenomenon. Engaging in cross-discipline research enabled clearer understanding of the multi-level forces, ontogenic, relational and systems, that enable, constrain, and shape mentoring in teaching and medicine.

10D2 (18838)
Ad hoc supervisory encounters between GP-supervisors and GP-registrars: Enhancing quality and effectiveness

Tim Clement*, Southern GP Training, Warrnambool, Australia
Jane Morrison, Southern GP Training, Warrnambool, Australia
James Brown, Southern GP Training, Churchill, Australia
Debra Nestel, Monash University, Churchill, Australia

Introduction: Training future general practitioners in Australia is based on an apprenticeship model, where GP-registrars are attached to GP-supervisors in general practice settings. The supervisor typically uses two modes of supervision: ‘dedicated’ and ‘ad hoc supervision’. In the latter, registrars generate immediate learning needs, arising from a consultation with a patient, which requires an appropriate response from the supervisor. As well as being important for patient safety, ad hoc supervision is an important arena for learning and teaching. A recent review (1) found little empirical evidence about supervision of registrars in general practice settings. The dearth of empirical research has meant that ideas about supervision have been taken from other professions. This literature details the desired attributes of supervisors and describes what supervisors should do. Despite this, the quality of supervision received by GP-registrars remains variable. The absence of empirical data about ad hoc supervisory encounters makes it a significant area for research. The purpose of this study was to explore the process of ad hoc supervision in general practice training, guided by the overarching central question: What happens during ad hoc supervision of GP-registrars?

Methods: The research design was an exploratory multiple-case study: five pairs of supervisors and registrars, using qualitative methods. The core data was “real-time” audio-recordings of ad hoc encounters between registrars and supervisors, which captured what actually took place, rather than what people say happened. This data was supplemented by post-encounter reflections and semi-structured interviews. Analysis was both within- and cross-case. The ‘real time’ and reflexive data was analysed using an inductive approach, and the interviews were analysed using template analysis (2).
Results: The overall character of the data was congruent with theories of ‘situated learning’. This contrasts with much of the reviewed policy and practice literature, which has a focus on an individual, idealised supervisor. The findings give an authentic account of what general practice ‘apprenticeship’ looks like. For example, ad hoc encounters were understood as instances of registrars accessing a knowledge source, where supervisors modelled skills and attitudes and registrars’ reflections provided an appraisal of what they had learnt and experienced. The findings highlight the importance of the practice environment and illustrate the learning was often unstructured and opportunistic, occurring through social interactions between supervisors, registrars, and patients.

Discussion and Conclusions: Although we drew out strategies and tactics that supervisors and registrars might employ in their own supervisory relationships, the exploratory nature of this research meant that we are cautious about our knowledge claims. Exploratory case study research requires follow-up studies, so the findings help set an agenda for future research on registrar training. Theories of learning with a socio-cultural bias and using real-time data are promising ways of understanding the real ‘work’ of supervising, and the teaching and learning needs of GP-registrars. Future research could focus on the longer trajectory of GP-registrar training and the larger ‘community of practice’.


1D3 (18897)
“Playing the Game” – How do surgical trainees seek feedback in the context of Workplace Based Assessments (WPBA)?

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V Rusius, West Midlands Research Collaborative, Coventry, United Kingdom
S Mylvaganam, West Midlands Research Collaborative, United Kingdom
A Patel, West Midlands Research Collaborative, United Kingdom
D.H Markham, Warwick Medical School, United Kingdom
T Pavlikowska, Royal College of Surgeons of Ireland, Ireland

Introduction: Systematic reviews report that feedback is an important influence on subsequent clinical performance (Veloski 2006). There is evidence that trainees’ and trainers’ find feedback beneficial, but difficulties have been reported with giving and receiving feedback. Research to date has focused on trainers’ provision of feedback to trainees. Factors affecting trainees’ receptivity to feedback has been explored, but there is little work exploring what drives trainees to seek feedback in a clinical setting (Teunissen 2007). This study explores how WPBA may help and/or hinder surgical trainees’ feedback-seeking and feedback interactions with their trainers. This is in the context of WPBA, as it represents a tangible opportunity for trainees to seek feedback from their trainers in the clinical workplace. This study is situated in the UK where WPBA has a dual purpose, formative (to help trainees learn) and summative (to assess trainees to allow them to progress) (GMC).

Methods: We undertook focus groups until data saturation achieved (8 groups). This was a maximum variance sample of surgical trainees (CT1, ST8) (postgraduate trainees in 3rd to 10th year). Groups were recorded via MP3 player, transcribed verbatim and analysed using NVivo 10. Thematic analysis of the transcripts was undertaken using an iterative approach, researchers read, re-read and reviewed the manuscripts, agreed major themes and resolved disagreements by consensus. Member checking was carried out. A phenomenological approach to data analysis was adopted followed by an interpretative phase. Conceptual links were made to Activity Theory and Sociocultural Learning Theory.

Results: Major themes identified were: 1) purpose of WPBA, for learning, a test or confusion over its function. 2) Trainees’ relationship with their trainer informed when trainees chose to seek feedback through WPBA. 3) Choosing when to do a WPBA depended upon whether trainees’ perceived WPBA as a test or a chance to learn. Perceiving WPBA as a test led trainees to 3i) “play the game”, seek positive feedback and avoiding negative feedback through WPBA. 3) Choosing when to do a WPBA in order to look/feel good. Alternatively 3ii) Seeing WPBA as a chance to learn led trainees to seek negative feedback through WPBA in specific situations. 3iii) Trainees actively sought positive and negative feedback outside of WPBA. 4) Change in practice. 4i) negative feedback is important for change. 4ii) positive feedback enabled trainees to look good, but was less important for change in practice. 5) Time feedback sought in relation when the WPBA observation or discussion took place: 5i) immediate feedback was good for learning, but 5ii) delayed feedback was sought in the context of WPBA.

Discussion and Conclusions: Trainees’ perceptions of the purpose of WPBA and their relationship with their trainer informed when trainees choose to seek feedback through WPBA. Trainees who perceived WPBA as a test leads them to “play the game” and avoid seeking negative feedback. Outside of WPBA trainees actively seek negative feedback which they perceive is most important for change in practice. The trainee – trainer relationship is fundamental when trainees choose to seek feedback in or outside of WPBA.

10D4 (18836)
Pre-specifying CanMEDS roles to authentic situations: Stimulating supervisors to give feedback outside the role of Medical Expert

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Introduction: High quality feedback is a powerful learning tool during postgraduate training. Feedback can provide residents with insight in how to improve their performance towards the intended outcomes. In the CanMEDS framework, intended outcomes of many postgraduate training programs are defined by 7 roles. However, educators still struggle with incorporating other roles than Medical Expert into training practice(1). CanMEDS roles can be practiced in a range of different situations. Feedback is most effective after direct observation of performance. Our main question was whether asking for feedback on pre-specified CanMEDS roles in different authentic situations stimulates supervisors to frequently give feedback on roles other than Medical Expert. Additionally, we assessed the quality of the feedback per CanMEDS role.

Methods: We developed a formative feedback method where CanMEDS roles were assigned to five authentic situations; Patient Encounter, Morning Report, Shift, CAT and Oral Presentation. Supervisors (n=126) in internal medicine departments of seven hospitals observed residents (n=120) and gave them feedback with our method. We analyzed the frequency and quality of written comments per CanMEDS role. Quality of feedback was assessed by specificity, using the Pelgrim method (2012)(2) and inclusion of positive and improvement points. Differences in specificity of feedback between CanMEDS roles were assessed using Bonferroni corrected Mann-Whitney U tests (a=0.003).

Results: We analyzed 591 forms: Patient Encounter (269), Oral presentation (92), Handover (81), Critical Appraisal of Literature (79) and Shift (70). Supervisors regularly gave feedback on all CanMEDS roles on the forms, most often on Scholar (78%) and Communicator (71%), and least often on Manager (47%) and Collaborator (56%). In total, the forms contained 3150 comments, which were more often specific than non-specific, except for Reflective Professional. Comments on Scholar were significantly more often specific than comments on all other roles (p<0.003). Comments on Reflective Professional were less specific than on Communicator, Collaborator and Scholar (p<0.003). Positive comments (78%) were provided more often than improvement points (52%), for all CanMEDS roles, in all situations. Feedback on the roles of Collaborator, Manager and Reflective Professional lacked improvement points in over 60% of the cases.

Discussion and Conclusions: Our feedback method with pre-specified CanMEDS roles for different situations stimulated regular feedback on the intended roles. Additionally, the quality of the feedback was relatively high. Feedback was more often specific than non-specific, and supervisors often made positive comments. However, feedback on Collaborator, Manager and Reflective Professional often lacked specificity, especially improvement points. It seems that supervisors know how to give high quality feedback, but find it difficult to provide feedback on these three roles. This might be due to an unclear definition of these roles. We only assessed differences in written feedback and, therefore, the relation between the quality of written feedback and the quality of narrative remains unclear. However, as Collaborator, Manager and Reflective Professional are relatively new and abstract roles, our findings may also be true for narrative feedback. Further research could investigate whether the quality of feedback on these three roles improves when supervisors become more acquainted with them.

References:

10D5 (18813)
Student perceptions of feedback in formative MCQ assessment

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Introduction: A major challenge in medical education is the provision of specific and timely student feedback. When using MCQ items in assessment, academics and clinical teachers often need to balance competing interests, such as the security of question
banks against the pedagogical considerations underlying appropriate feedback. In addition, paper-based examination formats and dispersed clinical placement sites are frequently considered incompatible with expedient feedback. This paper reports on a research project aimed at understanding how medical students perceive and respond to different forms of feedback in the context of formative MCQ exams.

**Methods:** Volunteer participants were sought from a cohort of second year students spread across 9 different hospital sites in a graduate-entry medicine program. Students were offered formative, paper-based MCQ tests of clinical knowledge and reasoning on various occasions throughout 2013. Test items were coded by domain and purpose-built software applications were used to email feedback to students within 24 hours of receipt of answer sheets. Participants were randomised into one of three feedback groups: comparative data; correct and incorrect answers related to core presentations; or core presentations related to student perceptions of their own certainty. Student perceptions of feedback were measured by a student questionnaire adapted from a version developed for evaluation of progress testing (Wade et al, 2012). Individual semi-structured interviews were audio recorded and transcribed for thematic analysis. Four researchers working independently each coded 4 transcripts and jointly developed the coding framework which was applied to the remaining interviews.

**Results:** 306 of a cohort of 332 medical students agreed to participate in the study. 210 students (68.6%) completed an online questionnaire. Analysis of the data revealed that students in the three feedback groups had significantly different responses relating to the stressfulness of the testing experience, the ease of interpretation of the feedback information, and the usefulness of the feedback in determining how they were progressing in the course. 20 individual interviews were conducted with students from a variety of clinical schools, feedback groups, rotation orders and genders. Thematic network analysis revealed a number of key issues. Whilst test questions with correct answers were considered the ideal form of feedback by most students, many did appreciate the practicalities of item bank security and were open to alternatives which helped direct their study. Many felt comparative feedback was not useful and most avoided discussion of results with other students. Interviewees perceived a gap between the knowledge and skills developed by study for examinations and the realities of clinical practice and being a “good doctor”.

**Discussion and Conclusions:** The study affirms that students value formative MCQ assessments and directive feedback. Students find comparative data easier to interpret but feedback including comparative data & certainty information was associated with more stress. Whilst many students would prefer to receive test questions with correct answers after testing, they do appreciate the level of guidance which can be provided through test item coding. It also highlights that there must be careful consideration of the effect of different types of feedback on students.


**10D6 (18747)**

**From cheerleader to coach: The developmental progression of bedside teachers in giving feedback to early learners**

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**Introduction:** Feedback is the cornerstone of effective clinical teaching. While teacher characteristics associated with proficiency in feedback skills have been studied (1) and guidelines exist, little is known about the skill progression of teachers in giving feedback to medical students. Few medical teachers are trained for their teaching roles.(2) This qualitative study examined what distinguishes novice from more experienced teachers in providing feedback to early learners at the bedside.

**Methods:** A longitudinal, qualitative study was conducted at one large American medical school of faculty who provide dedicated bedside teaching for early clinical learners. The goal was to understand how clinician-teachers approach teaching. One-on-one interviews were conducted three times with 31 teachers over the first five years of a new bedside teaching program and included questions about challenges and changes in teaching. Audiotaped interviews were transcribed. Based on key themes identified in initial comprehensive data coding, the progression of teachers in giving feedback to learners was further examined. Content analyses of interview transcripts related to feedback were performed by three investigators and themes elicited.

**Results:** Significant changes were seen over time in teachers’ approaches to giving feedback. Bedside teachers moved from initial discomfort giving feedback and assuming “cheerleader” roles to becoming more accomplished guides and coaches. While creating a safe, respectful environment in which students could learn clinical skills remained important, teachers focused increasingly on creating environments that were safe yet challenged students. Global, non-specific, delayed and primarily positive feedback...
described by early teachers progressed to more specific, directive, immediate and honest feedback. Early concerns about harming students' egos advanced to understanding students' resilience and preference for receiving critical feedback as a means to advance. Over time, teachers aimed their feedback to match and advance students' developmental trajectories. They more quickly and actively corrected problems and utilized feedback from patients and peer students.

Discussion and Conclusions: Discussion: This study provides guidance for bedside teachers in giving feedback, including the need for teachers to be specific, honest, and immediate in feedback to early learners while creating a safe environment. The balance of establishing “safety” and providing challenge for students is essential. These data point to the need for faculty development for novice teachers, perhaps from experienced teachers, in providing explicit constructive feedback that will best help students advance while maintaining a safe learning environment. The data also suggest that ongoing bedside teaching may improve teaching skills better than sporadic teaching.

Conclusion: The challenge of giving appropriate, targeted, critical feedback to early learners progresses with time and experience to comfort and competence for teachers who teach continuously at the bedside. Faculty development in the area of giving constructive, immediate, honest feedback to junior medical students may be high yield for novice teachers, and may result in more effective coaching for students as they prepare for bedside clinical care.

Transformation in Medical Education (TIME): A new model for US pre-doctoral medical education

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Background: The American model of medical education has been the same for over 100 years, has failed to evolve with changes in health care delivery, and takes students one-third longer than international models.

Summary of Work: Eleven universities in the University of Texas System collaboratively developed a new model of pre-doctoral (“premedical” + “undergraduate medical”) physician education which features competency-based education, professional identity formation, and other changes. Based on ACGME and CanMEDS, a competency framework was developed with “transition milestones” that students must demonstrate before moving to the medical campus. A model of professional identity formation with resources and assessments was developed and published (http://ar.utmb.edu/TIMEPIF/home), specifying six domains and three phases of training. The baccalaureate (premedical) phase was reduced to 3 years, and most medical schools will have a 3-year option.

Summary of Results: The first cohorts enrolled in 2012 and 2013. Students have demonstrated competence in clinical skills and early professional identity development in their first year. The large collective faculty of eleven schools is undertaking many innovations that would be prohibitive at one school. Long-range goals include sharing best practices, expanding cohorts, and generalizing across universities.

Discussion and Conclusions: A multi-institutional effort to reform American medical education is feasible and provides abundant opportunities to evaluate the effectiveness and generalizability of a variety of innovations.

Take-home messages: A new model of pre-doctoral physician education addressing many of the gaps between education and American medical practice is being implemented collaboratively among eleven schools in Texas, with the first cohorts graduating in 2019.

The hidden curriculum of medical education and how it affects teacher identity

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Background: A strong teacher identity is important in maintaining commitment to teaching. However, if faculty members receive countervailing messages that teaching is relatively undervalued, it would be hard to develop a strong identity as a teacher.

Summary of Work: We did a study to investigate which processes in the hidden curriculum of the working environment are involved in supporting or hindering teacher identity. 23 Dutch medical teachers were involved; they kept a weekly logfile for 7 months and 2 semi-structured interviews were held with them. Pattern analysis was performed on the relations between the working environment and the teachers’ identity.

Summary of Results: The informal culture of the departments was more influential in supporting teacher identity than the formal organization of the work, e.g. whether positively talking about teaching was a taboo or not. The leaders of the department proved to play an important role in enhancing a teaching culture through their display of vision and acting as a role model.

Discussion and Conclusions: Findings show that teacher identities only blossom in those working environments where the importance of teaching is valued and enacted by the department leader. Apparently, faculty need a platform where they can enact and develop an identity as someone who likes teaching.

Take-home messages: The informal culture of departments is more influential in supporting teacher identity than the formal organization of the work. It is worthwhile to support department leaders in being explicitly appreciative of teaching.
10E3 (20503)
Clinical Honours: A collaborative approach to enhance graduate health professionals clinical competence and professional development

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Background: Competence of the health care workforce and ability to retain new graduates are strongly influenced by the transition to practice experience. Partnership between academic institutions and health care industry during this time enhances the experience and supports professional development.

Summary of Work: This paper presents the world first Clinical Honours Program offered by the University of Tasmania. This award course in collaboration with health industry enhances the transition period for newly graduated nurses by providing a strong theoretical framework on which to critically analyse their work experiences and consolidate clinical performance. Graduates complete a variety of innovative collaborative assessments. Service Learning Agreements allow contribution to practice, application of national regulatory standards and clinical development in key areas of the Australian Commission. Participants must demonstrate autonomy, professional judgment, adaptability and responsibility consistent with the professional practice framework of the Registered Nurse in Australia. Transition is important in the development and maintenance of a competent workforce, a process intimately linked with retention and patient outcomes.

Summary of Results: This course incorporates industry based new graduate programs into a university award course recognised by the national qualification framework at honours level.

Discussion and Conclusions: This course recognises the magnitude of the learning and development done by new graduate nurses. Perceived impact highlights the strong theoretical framework that benefits workplaces and graduates.

Take-home messages: Clinical competence, supported through a theoretically informed clinically focused award course conducted in collaboration between university and health care industry is one key to the success of the program.

10E4 (21904)
Possibilities of transformation of MD program into two-cycle qualification system: Georgian experience in frames of TEMPUS ePBLnet project

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Background: Two-cycle system in medical education (ME) usually causes contradictory views. The most common argument of openers is that it will harm progress, which was achieved by medical schools using integrated curricula. Although many authorities working in ME consider that fully integrated curriculum in 2-cycle system is possible, in students’ opinion it gives opportunity for mobility and ability to form the special profiles and educational experience.

Summary of Work: The aim of the study was to analyze the possibility of transformation of D. Tvildiani Medical University existed one-cycle curriculum into 2-cycled in frames of “Establishment of Supra-Regional Network of the National Centers in Medical Education, focused on PBL and Virtual Patients”. The group of curriculum development has compared/analyzed the new learning program, considering 2-cycle ME opportunities in Georgia. Nowadays, ME in Georgia is one-cycle MD program (360 ECTS, 6 year, equalized to master degree).

Summary of Results: Our study results showed: program modernization increased the quality of program and degree of integration; structural organization, new forms of learning/teaching assessment, which is adequate to modern medical education; readiness of program’s “Basic and Clinical Medical Science” course, and its full concordance with medical bachelor learning outcomes (defined in leader countries implementing the 2-cycle system).

Discussion and Conclusions: Existed one-cycle MD program modernization and increasing integration is not interrupting (in our case it’s assisting) the readiness to transform into 2-cycle system.

Take-home messages: 2-cycle system cannot harm the MD program progress in terms of integration. The other type of argumentation may be considered for unacceptability and indifference of countries and medical schools.
A Qualitative Assessment of a Patient-Centered Curriculum about Persons with Disabilities

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**Background:** Patient centeredness and patient-provider communication can be influenced by disability status. Teaching competent care for persons with disabilities (PWD) has to include their viewpoints and perspectives. Understanding some of their core values, beliefs, and experiences is essential to providing patient-centered care for persons with disabilities.

**Summary of Work:** A patient-centered module focused on PWD helps students understand some of the realities and complexities of living with a disability, and increases their knowledge about issues that are relevant and important to PWD. The authentic representation of patients' experiences in conjunction with the Pair and Share method of active learning results in a curriculum that evokes reflections about attitudes, empathy, and the role of advocacy for health care professionals.

**Summary of Results:** Seventy students participated. They were asked how the module changed their understanding, awareness or perception of individuals with disabilities. Their written responses were qualitatively assessed using a semi-grounded approach, which identified the following themes: (a) the daily life of individuals with disabilities; (b) changing notions of normalcy, as PWD consider themselves normal; (c) the impact of discrimination against PWD; (d) disability is not only an issue of the physical body.

**Discussion and Conclusions:** Students gained an understanding of the experiences of PWD, recognizing the impact impairments, activity limitations and participation restrictions have on individuals and their families. They gained perspective about having a disability and developed informed empathy.

**Take-home messages:** Persons with disabilities are effective educators. Informed empathy for individuals with disabilities can be taught. A patient-centered curriculum is a valuable teaching tool.

How we used honeycomb technique for curriculum mapping

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**Background:** Curriculum mapping is a powerful tool for curriculum management, but it was not addressed sufficiently in literature of health professions education.

**Summary of Work:** We designed an innovative user-friendly honeycomb technique for curriculum mapping, which was piloted in a number of specialized courses in curriculum development in two universities over the past two years. Faculty members of health professions colleges were guided to developed their course maps through four steps: (1) Allocation of honeycomb units, (2) Assembly of units to develop the honeycomb structure, (3) Labeling using four indicators, and (4) Elaboration on four key windows. They found the honeycomb technique helpful to visualize relationship among their course units at a glance. There are many ways to decide relationships among course units, based on prerequisite learning, relevance of content, differential diagnosis, learning situations and anatomical orientation. Courses are expected to have different honeycomb structures based on the number of units and their pattern of assembly.

**Summary of Results:** Each honeycomb unit further includes four indicators and four windows. Indicators are signposts for the volume of theory (cognitive load), difficulty of concepts, impact on patient care and frequency in clinical practice of each course unit. Four key windows were prioritized in each unit to elaborate on content, outcomes, learning opportunities and assessment. Medical schools may select other windows, based on their needs and purpose of mapping.

**Discussion and Conclusions:** The honeycomb technique for curriculum mapping suggests various teaching pathways and assists the development of a master plan for instruction and assessment at the course level.

**Take-home messages:** Different benefits for using the honeycomb technique were reported for curriculum planners, students and educational researchers.
10E7 (22357)
Stem to Stern 2.0: CBlue has set sail

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Background: Memorial University (MUN), Faculty of Medicine, developed a curriculum blueprinting system to manage the complex relationships between learning outcomes and content. The system, called CBlue, supports a spiral curriculum model for the Medical Doctor (MD) program. It works with the learning management system (LMS or VLE) and a question bank system to produce comprehensive blueprints and accreditation reports.

Summary of Work: Implement a new curriculum blueprinting system to work with a university LMS and a secure question bank system that also enables learners to receive performance feedback on their formative and summative exams.

• CanMEDS Competencies focus
• MD program built within CBlue and delivered to LMS
• Enables an embedded spiral curriculum model within the system
• Produces blueprints that provide evidence of how objectives at different levels are linked to each other and content.
• A numerical reference model used to tag formative and summative questions to learning objectives which enables students to receive coaching reports tied to content
• Enables relationships to various national learning competencies
• Tags sessions and objectives to accreditation standards

Summary of Results: CBlue successfully launched on September 3, 2013. Linking and metadata tagging of the content, objectives and questions in assessments have produced the desired results. Further development remains on new features such as a more robust faculty views.

Discussion and Conclusions: Implementing a comprehensive curriculum blueprinting system requires all stakeholders to participate at all levels of design, implementation and evaluation.

Take-home messages: Spend time planning the curriculum with a focus on having rich data entered into a system that enables curriculum blueprints and program management.
10F1 (19441)
The practical application of EPAs to assess competency in a post-graduate residency program

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Background: Entrustable Professional Activities (EPAs) are recognized as a theoretical innovative approach to competency-based assessment (CBA). Less well represented is the practical application of EPAs within a CBA system.

Summary of Work: We developed 31 Family Medicine EPAs (FM EPAs) to lay the foundation for assessing competency in our residents. We chose a framework to describe the EPAs which is intuitive and acceptable to our preceptors, incorporating levels of performance and phases of the clinical encounter. The 31 EPAs are assessed using electronic EPA Field Notes (EPA FN) which are also coded for other frameworks (e.g. CanMEDS FM). One EPA FN is expected per clinical half day per resident. Field Notes are collated and reviewed every four months by Academic Advisors. This has resulted in both a formative tool to structure day-to-day assessment and feedback by our preceptors and a summative tool to ground competency declarations by our Academic Advisors.

Summary of Results: Our EPA FN system, in place since July 2013, is promoting residents being observed and assessed across the breadth of activities felt to be important for their development into competent Family Physicians. Our electronic platform is proving to be intuitive and easy to use. The storage, collation and resorting ability of the program is facilitating our Academic Advisor’s declarations of competency attainment in our residents.

Discussion and Conclusions: Developing FM EPAs and EPA FNs that can be used over time by multiple assessors in different settings has created a valid, reliable, acceptable, educational and cost effective competency assessment tool.

Take-home messages: EPAs can be practically applied supporting the tenets of CBA.

10F2 (21499)
Narrative Anchors for Progress through EPAs in Neonatalology

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Background: Entrustable Professional Activities categorize learning activities and contexts into categories that facilitate assessment. Nevertheless, individual faculty may vary considerably in concepts of what constitutes satisfactory progress within an EPA. We propose that narrative anchors associated with three progressive levels of supervision will facilitate faculty and fellow agreement as to progress.

Summary of Work: We have been using 17 EPAs to assist in formative and summative assessment of fellows progressing through four levels of supervision within a large Neonatal-Perinatal Medicine training program (9-10 fellows and 26 faculty) for the past two years. Reception by faculty and fellows has been positive, but faculty assessments of the same fellow varies considerably among faculty. We have therefore developed narrative anchors describing progress through three levels of supervision from direct supervision to practice without supervision.

Summary of Results: The process of developing narrative anchors was itself instructive. It proved impossible to compose generally agreed upon narratives describing activity over four levels of supervision. The three levels are: execution with direct supervision, execution with supervision on request and/or post hoc and execution without supervision. We furthermore discovered within EPAs resulting in a final number of 14. We are in the process of instituting the revised list of EPAs with narrative anchors to determine whether faculty and fellows feel they are practical and useful for assessment.

Discussion and Conclusions: In our training program in Neonatal-Perinatal Medicine, use of EPAs alone has not resulted in substantial improvement in assessment. We have added narrative anchors to describe developmental progression toward unsupervised practice and are evaluating performance.

Take-home messages: Within a large training program, individual faculty and fellows are likely to have divergent opinions about developmental progress toward unsupervised practice within an EPA. Narrative descriptions of stages of progress may help.
**10F3 (23102)**

**Using Nominal Group Technique to Develop Entrustable Professional Activities for Family Medicine**

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**Background:** Entrustable Professional Activities represent an intuitive approach to organizing outcomes for a competency-based curriculum. As part of the transition towards the College of Family Physician of Canada’s Triple C Competency-based Curriculum, the family medicine residency program at Western University began a process of defining the EPAs.

**Summary of Work:** After a review of various competency-based frameworks, the Residency Training Committee defined the domains of clinical care where graduating residents must achieve competence: Scholarship, Hospital Care, Ambulatory Care, Residential Care, Procedures, and Leadership. The first nominal group technique session was held in early 2014 focusing on the competence area of Ambulatory Care with 12 family medicine faculty representing different geographic areas, teaching experience and practice scopes.

**Summary of Results:** The top ten EPAs are:

1. Diagnose and manage common acute (urgent & non-urgent) presentations and diseases across the life cycle
2. Diagnose and manage common subacute and chronic presentations and diseases across the life cycle
3. Provide wellness and preventive care across the life cycle
4. Diagnose and manage common mental health presentations and diseases across the life cycle
5. Diagnose and manage undifferentiated patient presentations across the life cycle
6. Perform common office procedures
7. Diagnose and manage multimorbidity
8. Provide care for marginalized populations
9. Diagnose and manage pregnancy-related conditions
10. Provide palliative and end-of-life care

**Discussion and Conclusions:** The top ten EPAs succinctly summarized key areas of focus for curriculum design and assessment in family medicine ambulatory care. They have strong concordance with EPAs developed in the same area by another Canadian family medicine residency program.

**Take-home messages:** The nominal group technique was an enjoyable, efficient and effective method of developing EPAs.

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**10F4 (20320)**

**To trust or not to trust: Development of Entrustable Professional Activities (EPAs) in Emergency Medicine for Australian medical graduates at the transition to professional practice**

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**Background:** EPAs are increasingly being used in clinical postgraduate assessment. To date, no EPAs have been developed for the Emergency Medicine (EM) context, nor has a rigorous methodology for developing EPAs been documented. This study aimed to develop a methodology for designing highly relevant EPAs contextualized for medical graduates at the transition to independent practice in Australian emergency settings.

**Summary of Work:** An action research methodology, using focus group and interview data collected from 12 panel members experienced in supervising recent medical graduates in specific emergency settings, was used to develop EPAs for two common ED presentations.

**Summary of Results:** Iterative collections of data from the panel were used to develop the final EPA content. Unexpectedly, data also showed that supervisors have very low expectations of new graduate abilities in EM during their first year of practice. As a result previously published levels of entrustment could not be applied in this context. A new model for entrustment was identified based on three stages of supervision which progress from direct, active supervision to indirect, passive supervision.

**Discussion and Conclusions:** A 5 stage process using an action research methodology produced two EPAs and a model of entrustment relevant to medical graduates at the transition to independent practice in Australian emergency settings.

**Take-home messages:** Using a rigorous methodology to engage clinical teachers in EPA development is more likely to result in EPAs that will be relevant to specific supervision contexts.
10F5 (20801)
Heuristic maps can mediate assessment of entrustable professional activities

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Background: ACME 2013 recently introduced ‘milestones’ for individual progression, a ‘less to more’ trajectory where progress varies in terms of time and achievement. When training varies in length educators must innovate ways to capture individual progression. This paper illustrates development of skills, knowledge and attitudes in entrustment activities of 20 residents.

Summary of Work: Residents’ created and analysed clinical activities and outcomes within personal heuristics maps where theory and know-how interpolate. These engagements characterised advanced clinical moments of routine working and entrusted activities. Maps capture the chronology of episodes and render them “inspectable”. Significant clinical accomplishments can be hard to ‘fix’ and analyse, fading as other tasks compete for attention. Knowledge maps mediate learning and fix what might be tacit/explicit with a degree of economy once familiar. Maps facilitate progression whilst increasing reflection: they are liminal texts.

Summary of Results: Twenty maps can be discussed in relation to forms of achievement, progression, emotional self control, senior supervision (or lack of it) and team working. Time pressure escalates the novice through competing episodes without time to record, reflect or analysis. Data from heuristic maps captures evidence and mediates it visually inviting further self-narration.

Discussion and Conclusions: A knowledge map is an economic and representative format for analysis of any dimension of practice – easily interfacing with mobile technologies and capable of illustrating entrustable professional activities – within reside arrays of competencies.

Take-home messages: Knowledge maps fix key learning episodes and can be illustrated reliably on one page.

10F6 (19661)
Entrustable professional activities for the assessment of early medical students

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Background: Despite emphasis on early clinical experiences, preceptors face challenges integrating and assessing pre-clerkship medical students in their practices. Entrustable professional activities (EPAs), which frame competencies within clinical workplace activities, may provide explicit guidance for students’ clinical roles and for how preceptors assess performance. This study describes the development and appraisal of content validity evidence for EPAs for end of pre-clerkship students.

Summary of Work: Using student focus groups, preceptor interviews, pre-clerkship course objectives, graduation competencies, and resident-level EPAs, we identified five EPAs for pre-clerkship students: information gathering, information integration for differential diagnosis, healthcare team communication, information sharing, and resource identification. Each EPA detailed the constructs and content domains, limitations and expected supervision level for these activities. We verified the content and expected supervision level of each EPA via local workshops with pre-clerkship and clerkship course directors. After incorporating feedback, we conducted further content validation of each EPA with medical education leaders, faculty, and students at regional United States and international conferences.

Summary of Results: Workshop participants accepted the constructs and associated content for four of the five EPAs; resource identification generated greatest controversy. Participants agreed on a single supervision level associated with each EPA for readiness for clerkship, and tailored content to fit this level.

Discussion and Conclusions: We have detailed descriptions of four EPAs and their associated supervision level for end of pre-clerkship students. This indicates support for usefulness of EPAs in setting a standard for pre-clerkship clinical experiences.

Take-home messages: We have defined EPAs for student readiness for beginning clerkships.
Identifying EPAs for undergraduate medical education

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Background: The concept of “Entrustable Professional Activities” (EPAs) is increasingly applied in postgraduate medical education. Approaches to identify and integrate EPAs in undergraduate medical education are so far rare.

Summary of Work: The Charité, Universitätsmedizin Berlin decided to identify relevant EPAs for main outcomes of undergraduate medical education. As a reference point, the aim was to ascertain those EPAs which residents are expected to perform in their first days in clinic without direct supervision of a supervisor, irrespective of the medical specialty. A two-step Delphi study was conducted among physicians of varying medical specialties at the Charité.

Summary of Results: Along the Delphi process physicians agreed on a set of overarching EPAs which residents should carry out on their first days in clinic without direct supervision. The range and nature of the overarching EPAs and the level of consensus between physicians will be reported.

Discussion and Conclusions: Physicians of various medical specialties agreed on a list of overarching EPAs which residents are expected to perform on their first days as medical doctors. These EPAs can serve as main outcome objectives for undergraduate medical education and connect to the EPA application in postgraduate training.

Take-home messages: Specialty-independent, general EPAs for residents in their first days in clinic help to define meaningful outcomes for undergraduate, competency-based medical education.
**10G1 (20499)**

Simulation-based certification for cataract surgery

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**Background:** The EyeSi™ simulator is widely used for cataract surgery resident training worldwide, and several studies have looked at validity evidence of single modules. The aim of this study was to design a cataract surgical performance test with: a) evidence regarding content validity, b) evidence regarding construct validity, c) a credible pass/fail standard, and d) evidence regarding consequences of the established standard.

**Summary of Work:** Content evidence was found in 13 of 14 modules using a test blueprint. Difficulty levels of the modules were defined evaluating previous validation studies on the EyeSi simulator. We included 26 residents in ophthalmology (no cataract surgical experience) and 11 experienced surgeons (> 4000 cataract operations). All subjects completed all 13 modules twice.

**Summary of Results:** Total module score on 8 out of 13 modules showed significant discriminative ability, and a reliability coefficient of 0.773 (p<0.001). A pass/fail standard was defined using the Contrasting Groups Method. As a consequence, 10 of 11 experienced surgeons (91%) and 4 of 26 novices (15%) passed the test. Competency level has to be reached in two consecutive tests to ensure a sufficient reliability. Performance curves on two novices showed that 10 repetitions were needed before reaching the defined competency level in two consecutive tests.

**Discussion and Conclusions:** We have developed an evidence-based and reliable performance test in cataract surgery on the EyeSi simulator.

**Take-home messages:** Several aspects of validity evidence should be considered and standard setting is necessary when designing tests for summative assessment.

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**10G2 (20356)**

Is there a need to distinguish between “hawks” and “doves” crucial in the learning journey of developing Physiotherapists?

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**Background:** Studies had examined physiotherapists (PTs) assuming dual roles as mentor and assessor and how it affects the teaching-learning relationship. The chance of senior PT mentors assessing other mentees is high in a dynamic clinical setting. However, little attention had been paid to how the lack of calibration between PT assessors may impact the assessment results. As such, a junior PT who is nurtured under the wings of a “dove” mentor may suffer later from a “hawk” assessor during assessment.

**Summary of Work:** To investigate the agreement between PT assessors, we conducted patient management audits (PMA) on junior PTs from 4 different disciplines in inpatient setting. The PT juniors were graded with the same discipline-specific PMA forms by the different assessors within the same clinical session. Pearson correlation coefficients and Bland-Altman plots were used to evaluate the agreements between scores from different assessors.

**Summary of Results:** The intra-class correlation coefficients were all above 0.93 [p<0.001] except for a pair of assessors in the geriatric team [ICC 0.8751, p<0.001]. There were 4 assessors each from the cardiopulmonary and neurology teams; 3 assessors each from the orthopedic-palliative-infectious disease and the geriatric teams. Good agreement between intra-class scores were demonstrated in Bland-Altman plots.

**Discussion and Conclusions:** While senior PTs may have different personalities and teaching styles, raising the concerns of junior PTs over who is the “hawk” or “dove” senior PT assessing them during a PMA, both Pearson correlation coefficients and Bland-Altman plots above indicate that the PT mentors do maintain their objectivity during their assessment.

**Take-home messages:** With a standardised PMA form for assessing junior PTs on their clinical competency, PT mentors have demonstrated ability to maintain their objectivity as validated by the good intra-class correlation coefficient scores.
10G3 (20448)
Smoothing resistant-lines to improve OSCE pass-scores results

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Background: The OSCE is a commonly used objective measure of clinical competency. When OSCEs are part of an evaluation process, determining valid pass-scores is critical.

Summary of Work: Several methods of standard setting have been applied to OSCEs. Although the Borderline Regression method is becoming the standard, results have been inconclusive. This method relies on key assumptions, which if not met jeopardize results. Fitting a resistant-line is a non-parametric method of curve fitting that can be used to set pass-scores. Smoothing the resistant-line is intended to achieve better results by adjusting the model to include the data set’s mid-point. This study compares pass-scores based on smoothed resistant-lines to those set by unsmoothed resistant lines and by the borderline regression method. An eight-station OSCE was administered to the 134 graduating medical students at the University of Alberta. Pass-scores were determined for each station.

Summary of Results: Different approaches to standard setting result in differing pass-scores. When the regression assumptions are satisfied, pass-scores are similar. When the data have outliers pass-scores are less similar suggesting that those determined by the resistant-line method may be more reliable. Smoothing has a minimal impact.

Discussion and Conclusions: The use of smoothed resistant-lines has promise but requires further investigation.

Take-home messages: Further study is required to determine the best method of setting pass-scores for OSCEs.

10G4 (22899)
Utilizing the Borderline Regression Method to Enhance Clinical Skills Feedback to First Year Medical Students

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Background: Assessing clinical skills of first year medical students is a challenge for medical educators. Students require meaningful feedback on clinical performance to ensure that competency levels are met. Traditional assessment designs may not facilitate specific feedback to medical students on early clinical assessments. Students struggling with clinical skills may go undetected in a culture of 'failure to fail.' Assessors may be unclear on the expected competency level of students, making it difficult for them to provide sufficient constructive feedback.

Summary of Work: The Borderline Regression (BLR) Method of standard setting was used on a first-year observed history and physical assessment (N= 259). Regression analysis combines global ratings and checklist totals to identify appropriate passmarks.

Summary of Results: 259 first year medical students were assessed on a clinical encounter. Competent/Not yet competent (C/NYC) decisions were made for history taking, physical examination and communication skills. Written examiner comments were communicated to students along with C/NYC results. Those identified as NYC were asked to compose and discuss reflections with the course lead (N=25). Some were referred for further remediation (N=15).

Discussion and Conclusions: Previous standard setting methods failed to identify struggling students. However, with the shift to competency-based education, it is crucial that struggling students are identified and early feedback is provided to guide student improvement. The BLR method represents a valid standard setting method which identifies appropriate levels of competence based upon all student-examiner encounters and facilitates meaningful feedback for clinical assessments.

Take-home messages: BLR standard setting method can ease the transition from time-based to competency-based models of medical education.
10G5 (21728)

A validity study of standard setting methods for pass/fail decisions on high stakes objective structured clinical examinations

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Background: The purpose of the study is to investigate the validity of standard setting methods on high-stakes objective structured clinical examinations (OSCEs) by comparing the commonly used methods with each other and with cluster analysis as an empirical, objective method.

Summary of Work: The thirty OSCE stations administered at least twice in the years 2010-12 to a total of 393 medical students in Years 2 and 3 at Aga Khan University Medical College are included. The psychometric properties of the scores are determined. The cutoff-scores and pass/fail decisions of the Wijnen, Cohen, mean-1.5SD, mean-1SD, Angoff, borderline group (BL-G) and borderline regression (BL-R) methods are compared with each other and with three variants of cluster analysis using repeated measures ANOVA and Cohen’s kappa.

Summary of Results: The mean values of psychometric indices on the thirty OSCE stations are: reliability coefficient, 0.76 (SD=0.12); standard error of measurement, 5.66 (SD=1.38); coefficient of determination, 0.47 (SD=0.19); and intergrade discrimination, 7.19 (SD=1.89). The Cohen’s kappa values range from 0.32 between M–1.5SD and three cluster regression, to 0.85 between BL-G and BL-R methods.

Discussion and Conclusions: The BL-R and Wijnen methods show highest convergent validity evidence among other methods on the defined criteria. Angoff and Mean-1.5SD demonstrated least convergent validity evidence. The three cluster variants showed substantial convergent validity with borderline methods.

Take-home messages: The Wijnen method lacks theoretical strength to be used for competency-based assessments. The BL-R is found to be the preferred standard setting method for OSCEs. The three cluster mean method can be used for quality assurance of the cutoff-scores set by borderline methods.

10G6 (22777)

Evaluating the comparability of the Hofstee and Borderline methods of standard-setting in the MRCPsych CASC

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Background: With a view to enhancing the psychometric robustness of the Clinical Assessment of Skills and Competencies (CASC) the Royal College of Psychiatrists took part in a large-scale exercise investigating the comparability of new and existing standard-setting methods.

Summary of Work: Data collection occurred during CASC examinations in 2012-2013 involving the scores of 1242 candidates. Examinees were required to pass twelve of sixteen CASC stations based on the results of the existing Hofstee method of standard-setting. Examiners were asked to complete two separate score sheets simultaneously for each candidate per station: (1) the ‘standard’ sheet with one six-point global score and (2) an equivalent ‘pilot’ sheet with between three to five five-point global domain scores and one six-point global score. Results gained from the Hofstee method were compared to the Borderline Groups (BG) and Borderline Regression (BR) standard-setting methods.

Summary of Results: Cronbach’s alpha reliabilities were higher for pilot domain-total scores (.76 to .87) compared to standard global scores (.71 to .82). 95% confidence intervals around the cut scores were consistently lower for the BR method (.07 to .09) compared to BG (.11 to .14). Medium Pearson’s correlations were observed between the pass-fail results of the borderline and Hofstee methods, rising to large coefficients after setting the passing standard to the borderline methods’ cut scores plus an additional criteria of twelve or more stations passed.

Discussion and Conclusions: Results suggest new methods of scoring and standard-setting can be implemented with comparable pass-fail standards, high levels of reliability and accuracy.

Take-home messages: Examination boards should carefully evaluate new pass-mark setting procedures before implementation.
10H1 (20319)
Pilot of a matrix module to engage GP registrars in managing multimorbidity in practice

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Background: Managing increasing multimorbidity in patients is of concern in the medical literature and for health systems. Little has been written regarding teaching these skills to General Practice (GP) registrars. GP training relies on clinical exposure and GP registrars tend to manage fewer patients with multimorbidities than do established GPs. Registrars anecdotally express concerns that they find these patients too difficult and are therefore less likely to engage with them.

Summary of Work: This project, in an Australian Regional Training Provider, pilots a different approach to conceptualising and teaching this topic which aims to increase registrars’ engagement with patients. A brief online electronic educational module was developed in the form of an interactive matrix with a specifically patient-centred focus to be viewed prior to a workshop session for each Term 1 group. Registrars are being surveyed pre and post intervention. Feedback from a Term 3 focus group will also be utilised to inform future registrar education on this topic.

Summary of Results: Results will be presented on the evaluation to date of this approach including its utility, acceptability and feasibility.

Discussion and Conclusions: The literature highlights the difficulties of managing multimorbidity in practice (time and continuity issues, use of multiple guidelines). If general practitioners are to manage these patients effectively then the conceptual framework should be considered in addition to systems of care. This complex topic can be introduced in a constructive way during training.

Take-home messages: Training needs to respond to learners’ needs and to the context of clinical practice in this emerging area of multimorbidity.
**10H3 (18488)**
Increasing family medicine residents' preparedness for procedural skills using an iPad application

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**Background:** Surgical skills are one of the many competencies required for Family Medicine residency. The current gold standard is "See one, do one, teach one". However, most residents feel they need more exposure to procedures to increase their confidence. We looked for a way to enhance their educational experience without increasing the amount of direct exposure. To that end, we developed a mobile educational app for procedures to enhance our residents' exposure.

**Summary of Work:** A pilot study of 14 residents using a randomized prospective design allocated them to either intervention or control. The intervention was the use of the app; which demonstrates animated procedures combined with written instructions for indications, step-by-step guide, equipment and risks of procedure. The control group received standard teaching from the staff. Residents completed pre and post questionnaires regarding perceived level of skill and preparedness to perform the procedure.

**Summary of Results:** Prior to using the app, residents rated their level of preparedness at an average of 4.9/10, and 100% indicated they believed technology could improve their skills. Post clinic experience, 100% of the intervention group indicated the app improved their preparedness for performing a medical procedure. Please note almost all residents (13/14) felt that simply being able to perform the procedure made them feel more confident. As well, all participants asked for more procedural skills training during their residency.

**Discussion and Conclusions:** Point of care animation videos of common procedures in family medicine increase resident preparedness to perform the given procedure.

**Take-home messages:** Using current technologies to improve the educational experience for residents in family medicine will increase their confidence and hopefully their competency to perform common surgical skills.

**10H4 (21675)**
Assessment of Teaching Performance in a Family Medicine Residency Program at UNAM in Mexico

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**Background:** The teacher has a key role in the training of family medicine residents with high clinical standards, that attend most of the health problems in Mexico. In our country the evaluation of teaching in residency programs is scarce. The objective was to assess teaching performance by residents' ratings at different hospitals in Mexico.

**Summary of Work:** The study population were 78 UNAM family medicine residency program professors at different hospitals. The anonymous questionnaire to assess teaching performance by residents' ratings has evidence of validity and reliability and is composed of 5 dimensions using a Likert scale. It was applied at the end of the academic year.

**Summary of Results:** 78 Family Medicine Teachers were evaluated by 734 residents, who stated that teaching performance is acceptable, with an average of 4.25±0.93 for medical courses. The best valued dimension was “Methodology” with an average of 4.34±1 in contrast to the “Assessment” dimension with 4.16±1.1

**Discussion and Conclusions:** Teaching performance by residents' ratings was acceptable. Different degrees of teaching performance were found that ranged from sufficient to excellent. Teachers with sufficient degree of competence need to take faculty development courses, particularly about assessment. The assessment of teaching competencies can show different degrees of performance that need to be identified in order to enhance the educational process and the residency programs.

**Take-home messages:** Teachers' assessment is an important aspect of quality assurance and improvement in medical education.
Teaching population health in primary care

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Presenter: Tara Gray*, London School of General Practice, United Kingdom

Background: Tomorrow’s primary care doctors need to understand how to look after populations of patients as well as individuals. Whilst this learning need is reflected in some postgraduate curriculae [such as the UK Royal College of General Practitioners MRCGP curriculum] there is little published work on its implementation.

Summary of Work: We took a group of 60 4th year postgraduate GP trainees [where the 4th year is an innovative development to a more usual 3 year programme] and offered a course in Population Health Care starting in August 2012. This included project work, regular interactive sessions, literature examination amongst other interventions.

Summary of Results: We demonstrated that this group of learners can add to the skills of diagnosis and treatment a set of population health skills, loosely described in a population health paradigm. Results will be presented of content, assessment and evaluation.

Discussion and Conclusions: Both trainees and trainers who took part in the programme reported increased skills and confidence in thinking about the needs of a population and developing interventions for improvement. There were reported benefits for patients and practices too, with improved rates of disease screening, better patient information materials and enhanced processes and efficiency in record keeping. We conclude that Population Health can be taught in a primary care setting effectively to GP trainees.

Take-home messages: It is vitally important to seek improved population health outcomes and supporting GP trainees in learning how to do this work can be achieved, given the appropriate learning environments and teaching skills.
Learning applied anatomy in a novel way: Are we on the right path?

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Background: Learning anatomy in the first year of medical college can be quite tedious both for the medical student as well as the teacher. We experimented with two methods of facilitating effective learning of anatomy for the first year MBBS students (2012-13). The methodology and results were analysed.

Summary of Work: Conventionally, anatomy is taught by anatomists through didactic lectures and dissections. Two new approaches were used to facilitate learning of anatomy. In one, interactive lectures on applied anatomy were given by surgeons and clinicians. The second method required the students to prepare posters and videos on various clinical conditions that require application of anatomical principles.

Summary of Results: Applied anatomy classes were taken twice a month. For the students project, they were divided into 25 groups of ten students each. Topics included inguinal hernia, varicose veins, congenital heart diseases etc. The students were guided by teachers in anatomy as well as clinicians. The project material was viewed by students, faculty and parents. Feedback was positive in 90% of the students.

Discussion and Conclusions: The Medical Council of India has recently come up with guidelines regarding early clinical exposure during the first year. To make learning anatomy more clinical oriented and interesting, we introduced two novel methods. Our methods were appreciated both by the students and faculty.

Take-home messages: Teaching methodology that is based on principles of adult learning and that which is student centered definitely makes a difference in the effective learning of anatomy.
Evaluating the effectiveness of a fully online undergraduate systemic human anatomy course with virtual prosection laboratory

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Background: An online section of a systemic human anatomy was offered for the first time in 2012/13. Lectures for face-to-face (F2F) students (n=365) were broadcasted in live and archived format to online students (n=40) using Blackboard Collaborate. Labs were delivered online using 3D computer models.

Summary of Work: To determine if academic performance is impacted by delivery format, means for each measure (4 tests, 24 laboratory quizzes) were compared. Incoming grade averages were compared to final Anatomy grades to determine if previous performance impacts grades. Interviews (22 online; 38 F2F) and surveys (270 F2F) regarding perceptions of the learning experience were conducted following a cross-over period that exposed students to both formats. Interview transcript analysis is being undertaken to generate grounded theory regarding the strengths and weaknesses of the online course.

Summary of Results: Performance measures were statistically identical between sections. Incoming grade averages strongly correlated with overall anatomy grade in both F2F (r = 0.70, p < 0.01) and online (r = 0.63, p < 0.01) sections. Students surveyed preferred online lectures (52%) yet preferred F2F labs (85%). Online lectures had the benefit of archival review, while F2F labs enhanced student-teacher communication.

Discussion and Conclusions: While grades were not impacted by the delivery format and students preferred attending lectures online, enhancing students/teacher interactions online will improve student satisfaction.

Take-home messages: Prior academic achievement, and not delivery format, predicts performance in anatomy. While virtual classroom software allows students to customize the pace of instruction, student/teacher can be more challenging than in a F2F environment.

Tailored dissection videos alongside dissection improves learning

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Background: Due to a perceived deficiency in medical students' anatomical knowledge, topographical dissections have been reintroduced to the medical curriculum. Due to concern about the availability of experienced demonstrators, short introductory lectures and dissection videos, which highlighted the salient learning outcomes and their clinical relevance, were prepared for each session. The 2 week intensive course consisted of 6 dissections for the upper and 6 for the lower limb. Each dissection consisted of an in-class introductory lecture, a dissection manual and an average of one demonstrator between 16 students.

Summary of Work: Twelve dissection videos and mini lectures (~15 min each) were recorded, edited and published on the college intranet. Voluntary feedback was collected at the end of the course (n=99). Student attendance and examination results were compared to a previous cohort of students.

Summary of Results: Seventy % of students used the online tools, predominately for preparation and revision. Most students (92%, n=56) approved of the quality and the presenter. Assessment grades for the students that used the online tools were significantly higher compared to performance of students from the previous year that did not (P<0.05). Importantly, attendance was not altered by adding the online tools.

Discussion and Conclusions: These tailored dissection videos were perceived as helpful and increased student’s performance. Students felt more confident during the dissections and achieved the main objectives. The unaltered student attendance indicated that the additional online material did not replace traditional dissection teaching methods.

Take-home messages: We conclude that students greatly benefit from this first time use of learning resources which are tailored to the curriculum.
ORDER (observe-reflect-draw-edit-repeat): Student partner approaches for strategic design and evaluation of a novel evidence-based cyclical artistic learning process

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Background: Since the illustrations of Leonardo da Vinci, artistic methods have been used in anatomy education. Artistic techniques, critical looking and reflection can enhance learning. High standards of competency in anatomical knowledge and skills in interpretation of clinical imaging are essential for doctors. We aimed to investigate if student knowledge and skills were significantly enhanced by drawing in comparison with current methods

Summary of Work: We have designed ORDER (observe-reflect-draw-edit-repeat) based on evidence and theory. ORDER involves observation of anatomical images. Images are then covered; students discuss, reflect upon and attempt to draw the observed anatomy. Repetition with further detail added in every cycle builds-up drawings to develop and reinforce student understanding. Medical and artistic student partners have conducted projects in collaboration with a professional artist to develop their research skills, provide student perspectives and foster interdisciplinary alliances.

Summary of Results: A mixed-method approach has generated data to evaluate effects of ORDER on surface anatomy learning in a pilot study (n=7) and cross-over randomised controlled trial (n=250). A cohort study (n=25) has evaluated ORDER in clinical imaging interpretation. Student perceptions were sought.

Discussion and Conclusions: ORDER can enhance learning, is perceived as valuable by students, will be investigated in further topics and learning environments and will be introduced to medical curricula. Alternative artistic learning methods will be investigated to optimise variety and engagement for all students. Value of student partner approaches and evidence-based research will be advocated.

Take-home messages: We have utilised student partner approaches to design and evaluate our novel evidence-based cyclical learning process. ORDER can maintain student engagement and enhance anatomy learning.

Actual drawing of histological images improves knowledge retention

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Background: Paper-and pencil drawings for the uptake of form-function relationships of basic tissues seem to be redundant with virtual microscopy on computer-screens and printers everywhere. Still, claims that actual drawing is more effective for retention than merely inspecting illustrations are found. We tested these claims using randomized cross-over design with different retention periods.

Summary of Work: Students were divided into 198 drawers(D’s) 180 non-drawers(ND’s) by their position in the computer-lab; all accessed the same illustration of tracheal and esophageal epithelium. D’s read a short text about key-features of the two epithelia and drew these. ND’s studied a longer text with key-features, pointed at the screen when applicable and answered questions about the two epithelia. Time on task was controlled for. One week later the experiment was repeated with heart muscle, crossing D’s and ND’s over. Retention was scored by free-recall tests; for heart-muscle this was one week after the intervention, for trachea and esophagus this was four and seven weeks, respectively. Extra read-outs were questionnaires for the heart-muscle and trachea and a redraw for the esophagus.

Summary of Results: For heart muscle 4-out-of-10 features were remembered significantly better (Chi-square;p<0.05) by D’s, for trachea this was 3-out-of-7, and for esophagus this was 2-out-of-7. For heart muscle, the questionnaire showed no difference, but for trachea in 9-out-of-34 features D’s scored better. Also, D’s scored significantly better on the esophagus redrawing after 7 weeks(p<0.005).

Discussion and Conclusions: D’s remembered more key-features of basic tissues, irrespective of the form of retention-test.

Take-home messages: Old-fashioned drawing is a fine teaching method for histology!
**10J SHORT COMMUNICATIONS: PBL in Practice**  
**Location:** Amber 3, Level +2, MiCo

**10J1 (22072)**  
**Can the knowledge structure and the diagnostic strategy of PBL students be advanced by adopting scheme-inductive learning in clinical years?**

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**Background:** PBL curriculum could prepare medical students well for their learning in clinical years in terms of presentation skills, self-directed learning abilities, communication skills and logical thinking abilities. However, PBL students have inadequate and poorly organized knowledge for solving clinical problems. There is a need to find a way to improve the learning in PBL curriculum.

**Summary of Work:** This is a cross-sectional pre-test, treatment and post-test study design. Students acted as their own control (scheme-inductive learning, SIL vs traditional teaching). Four clinical presentations (CPs) were chosen from Nephrology and Neurology, respectively. Two CPs adapted SIL and another 2 CPs were taught in a traditional way. Data of this study came from a talk aloud task and a set of MCQs. Junior and senior clerks were invited to join this study. Students’ perspective and the learning gains of SIL were examined.

**Summary of Results:** The correct diagnosis for the Nephrology and Neurology did not differ significantly between the two teaching methods. Although there was also no significant difference in the overall problem-solving strategies used, the percentage of students using strategic problem-solving skills increased one month after the clerkship in SIL group. SIL also improved students’ knowledge structure and reached statistical significance in Nephrology. Majority of students claimed that SIL increased their interest in the learning, helped them in the process of clinical reasoning. Students preferred to adapt SIL in their learning of clinical problem-solving.

**Discussion and Conclusions:** In the clinical years, SIL could give students a guide in the approach of a patient’s problem and could maintain their knowledge more structured. However, its effect on the correct diagnosis and diagnostic reasoning strategies could not be seen in a short time.

**Take-home messages:** SIL may be a useful tool to strengthen the learning in PBL curriculum.

**10J2 (21678)**  
**The Multi-Systems PBL as a tool for integrating knowledge**

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**Background:** Problem-based learning (PBL) is used widely in medical schools, but the scope is often limited because inclusion of differentials and issues from systems not yet taught need to be excluded. Even triggers written around concepts are subjected to this constraint. PBLs done after completion of all the systems would be more meaningful and real-world. The multi-systems PBL (MS-PBL) was thus introduced in Semester 5 (Clinical Consolidation Semester) of the new curriculum in the IMU.

**Summary of Work:** Medical students (n=180) were exposed to three PBL triggers which addressed knowledge of basic and clinical sciences covering at least three systems, problems with healthcare delivery, ethics and professionalism. A 10-item questionnaire using a 6-point Likert scale was given to students to assess their expectations of the multi-systems PBL (Pre-Test) and what they experienced (Post-test).

**Summary of Results:** Students expected the MS-PBL to be more real-world, broader-based and smoothen the transition into the clinical phase. They were unsure about whether it can fill the knowledge gaps, facilitate clinical reasoning or strengthen knowledge of ethics and professionalism. The Post-Test scores indicate that most of the expectations were met except for clinical reasoning. The scores for “Why are we doing this?” were on the low side. The preference for medically-qualified staff as facilitators was consistent. Open comments were positive: Great! Pleasant surprise, good integration are some of them.

**Discussion and Conclusions:** The multi-systems PBL meets multiple expectations.

**Take-home messages:** It is a useful variation of PBL, well-received if facilitated by effective facilitators.
10J3 (20446)
Group interaction among first-year medical students of Gadjah Mada University-Indonesia during tutorial: Cultural based evaluation

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Background: Studies in various medical programs found that medical students experience difficulties during their first encounter to Problem Based Learning (PBL) and its tutorial due to differences of learning strategies used in their previous education. Moreover, Indonesia culture which value politeness where confront other will be considered impolite, might hinder collaborative process demanded in tutorial. The aim of this study is to investigate group interaction among first-year medical students of Gadjah Mada University-Indonesia during tutorial.

Summary of Work: This phenomenology study qualitatively analyzed reflective writings of 36 medical students about their learning experience in PBL. The writings were collected at the beginning and at the end of the first year program.

Summary of Results: 1) differences between the learning system in high school and PBL in university create difficulties among students, 2) students experienced various advantages and obstacles during group interaction, 3) feedback approach which necessary to evaluate and solve obstacles -including tutor's negative behavior- student faced were found not to be maximally conducted.

Discussion and Conclusions: Indonesian culture which value politeness might hinder one to deliver feedback honestly to others so then the same obstacles during group interaction happened repeatedly. Students also might reluctant to criticize the tutor since students are valuing not to be outspoken in front of their teacher.

Take-home messages: Due to uniqueness of Indonesian culture, tutorial evaluation needs to be carefully design for example by implementing anonymous written feedback. Certain approach also might be authorized to deliver feedback for tutor in the name of institution instead of personal.

10J4 (19264)
Problem-Based Learning in “Medicine and Humanity”: A New Course Leading by Medical Doctors and Teaching Assistants from College of Liberal Arts

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Background: The problem based learning (PBL) course of “Medicine and Humanity” was designed for the second year medical students at College of Medicine, National Taiwan University. Students were divided into small groups with clinical physicians assigned as their tutors. Since 2009, postgraduate students under master or doctor program of College of Liberal Arts (CLA) were recruited as teaching assistants (TAs). They designed teaching materials and facilitated the PBL discussions.

Summary of Work: TAs were responsible for the issues of Taiwan Literature, Eastern Drama, Medical Ethics, Musicology, Western Drama, History of Art, Medical Arts in Children's Hospital, Exhibitions in Museum of Medical Humanities, and Current Medical-Social Events (in English). Students performed PBL under tutors’ and TAs’ supervision. Their performance in the classes was evaluated by tutors and TAs. Students’ response to the new course was assessed by questionnaire.

Summary of Results: TAs from CLA provided good input to the classes. They facilitated and reinforced the PBL discussions. Students revealed great interest and gave strong positive feedback. All the tutors approved the contributions of TAs. Students’ score given by tutors or TAs were positively correlated (r=0.259, p<0.0001).

Discussion and Conclusions: TAs from CLA broadened students’ visions on humanity-related issues. Tutors provided their experience and made the discussions concerning humanity and medical affairs cohere.

Take-home messages: The new course leading by medical doctors and TAs from CLA improved the PBL in “Medicine and Humanity”. Teaching resources outside College of Medicine should be well utilized in medical education.
10J5 (21689)
Nobel Laureates in PBL: An approach to foster integration and deep learning

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Background: This study aimed at linking Nobel laureates to key principles raised in the PBL cases and assessing the impact of the innovation on students’ learning.

Summary of Work: A new format was introduced in 2013 to PBL cases of a 10-week neuroscience block. Second-year medical students who have completed first year using traditional PBL cases were divided into 25 groups of 10 students. In the new cases, the template of the last part of tutorial one was modified to include discussion about how research helped in understanding the related science and who was behind these discoveries. In tutorial two students discussed the learning issues identified by the group as well as explored the work of Nobel laureates related to the case. Groups were also encouraged to submit a written manuscript at the end of the block.

Summary of Results: In a focus group discussion, students commented on the value of searching the Nobel laureates and learning how knowledge mentioned in textbooks and learning resources was discovered. Tutors reported that the approach facilitated deep learning. Submitted manuscripts critically analyzed each PBL case, learning issues, explored the work of related Nobel laureates and included student’s reflection on what was learnt.

Discussion and Conclusions: Linking PBL cases to Nobel laureates enabled students to integrate knowledge, seek deep learning and appreciate the role of research in medicine.

Take-home messages: The new PBL template has added new dimension to the PBL discussion. Further assessment of the impact of the innovation on student’s learning is part of an ongoing research.

10J6 (20372)
Emergence of a novel visual cognitive tool: Encouraging depth and systematic knowledge capture in cancer-focussed problem based learning (PBL)

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Background: Effective exploration of disease processes is an important constituent of PBL in medical education. To improve students’ understanding of a complex disease, a novel tool was developed for use in a cancer-focussed PBL scenario.

Summary of Work: A visual tool was created to act as a matrix on which to build knowledge of cancer during the PBL session, spanning four discrete fields to represent the breadth of fundamental knowledge required (aetiologies, molecular mechanisms, histopathological hallmarks and pathophysiological effects). The tool promotes systematic coverage of essential knowledge and encourages appropriate emphasis to be given across each field. This compels students to place facts in the appropriate context, and to capture their knowledge in a logical, stepwise fashion.

Summary of Results: The scenario was delivered as part of routine PBL; the pilot tool was used to guide knowledge capture. Student evaluations indicated high levels of satisfaction (76% of respondents) in engagement, intellectual challenge and learning. Positive feedback highlighted depth of understanding (31% of respondents); negative feedback related to unfamiliarity with the concept and the high degree of challenge involved.

Discussion and Conclusions: The tool may provide an effective learning framework on which to first acquire, and then deepen understanding of disease. The authors hypothesise that it may offer potential in exploring other complex disease scenarios. The tool may also confer the benefit of encouraging pattern recognition, analytical and heuristic thinking, and thus be transferable to clinical situations.

Take-home messages: The novel visual tool developed may present an alternative and promising method for knowledge capture and cognitive learning in medical education.
Combining Simulation with Problem Based Learning (PBL): 'SIM-PL'

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Background: Problem-based learning (PBL) is well established in most undergraduate medical curricula. Equally, Simulation is an increasingly popular method of postgraduate training. However, little published data exists on the use of simulation in combination with PBL for teaching medical students.

Summary of Work: We developed a novel undergraduate teaching method using simulation combined with PBL (called ‘SIM-PL’). Students were presented with a clinical problem to work through and research. Prior to discussing their findings, they participated in an unsupervised simulation managing the clinical problem. Senior help could be called at any time. Nineteen third year medical students undertook three different ‘SIM-PL’ sessions. The scenarios, based on experiences of newly qualified doctors, ranged from acute surgical presentations and trauma to post-operative complications. The students were then allowed to reflect on their practice and discuss any concerns openly with colleagues and tutors, maximizing the learning experience. Following each SIM-PL the students completed a feedback questionnaire.

Summary of Results: Eighteen students (94%) strongly agreed that SIM-PL improved their confidence in assessing and diagnosing surgical problems. Sixteen students (84%) strongly agreed that ‘SIM-PL’ improved their confidence in patient management. All students thought ‘SIM-PL’ should be made a compulsory part of their training.

Discussion and Conclusions: SIM-PL improved student confidence in the assessment, diagnosis and clinical management of acute surgical presentations. It is popular with students, requires few staff and presents no risk to patients.

Take-home messages: ‘SIM-PL’ is an effective teaching method, which translates theory into clinical practice in a safe and guided environment without the pressures and resources of a busy clinical setting.
10K SHORT COMMUNICATIONS:
Medical English
Location: Amber 4, Level +2, MiCo

10K1 (21897)
Present situation and future outlook of undergraduate English for Medical Purposes (EMP) education in Germany: Introducing a conceptual framework for future EMP curriculum management

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Background: Increasing internationalization and globalization in medicine, with the need to deal with English as the lingua franca in medicine, can be observed worldwide. This trend is obvious in Germany as well, making it necessary for all medical schools to offer structured English for Medical Purposes (EMP) courses in their undergraduate medical curricula.

Summary of Work: This study gives compiled data thus far not available as to how EMP is offered at German medical schools for undergraduate medical students. The objectives of this report are to shed light on the current situation of EMP at German medical schools and to give a possible framework for the implementation of longitudinal EMP curricula in undergraduate medical education.

Summary of Results: A survey including all 36 German medical faculties as well as a scoping review were undertaken to obtain information on the current status of EMP education in this country. An extremely diverse picture of EMP education was found, showing university-associated language centers and diverse departments of medical faculties offering EMP. In the majority of cases, there was no cooperation between language centers and medical faculties.

Discussion and Conclusions: To make a longitudinal EMP curriculum for undergraduate medical students in Germany possible, close cooperation of multiple disciplines, including language specialists and medical personnel seems essential.

Take-home messages: We propose a framework to accomplish the implementation of a longitudinal EMP curriculum taking into account the necessity of multidisciplinary cooperation.

10K2 (20937)
The educational impact and relevance of OET for the medical workplace

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Background: There is concern about the utility of general English language tests for medical purposes. A specific-purposes test of medical English has a significant role to play in encouraging positive learner behaviour and the development of the abilities most relevant to the healthcare context.

Summary of Work: We report on a 2013 mixed-methods research study related to the impact of the OET (Occupational English Test), a specific-purposes test of medical English used for medical registration purposes since the late 1980s. Interviews and questionnaires with 600 stakeholders – healthcare professionals, medical educators, representatives of professional board, and candidates – captured multiple perspectives. We investigated: Does OET have construct validity for the health sector? Are OET test takers perceived as ready for the workplace? Does preparation for the test have a beneficial educational impact on candidates?

Summary of Results: The results show a strong congruence for each language skill between the OET test experience and communication in healthcare contexts. Stakeholders readily linked the tasks, receptive and productive, to typical workplace activities. The process of test preparation was linked with a sense of progress and development, both in language proficiency and in broader acculturation to the demands and expectations of the workplace.

Discussion and Conclusions: The OET is relevant to the healthcare sector, and preparation for the test engages candidates in tasks that are congruent with practice. Stakeholders strongly perceive the test experience as having a constructive impact on candidates’ development.

Take-home messages: The OET test experience has a beneficial educational impact on candidates.
10K3 (20872)
The Development of English in Medicine Curriculum: What works, what doesn’t?

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Background: As a medium of international communication in almost all of the countries, English has become the most influential language in medical journal and international conference. Unfortunately, proficiency among medical students who learn English as a second language is at worrying stage.

Summary of Work: The purpose of this paper is to outline the development of English in Medicine curriculum integrated with a flip classroom concept in the hopes to inculcate the use of proper English in writing and communication. The English in Medicine curriculum revolves around four themes which are icons in medicine, good science-bad science, traditional cure and socio-cultural values and end of life issues. Aligning with the themes, students were given opportunity to visit several sites in the hospital to practice what they have learnt every week.

Summary of Results: After the first cycle of implementation, students’ feedback on various activities was reported. Students are very interested in the flip classroom concept; nevertheless, they do not foresee the relevancy in some of the content. On the other hands, there were mix responses for the site visits. However, students enjoyed the site visits generally.

Discussion and Conclusions: The English in Medicine has been consolidated and improvised based on the students’ feedback. The curriculum will be carrying out for the second cycle which involves more health professional and nonclinical settings.

10K4 (21460)
Experience of History Taking learning methods in international medical students

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Background: Our purpose was to evaluate the perception of non Italian medical students of learning methods used to teach history taking (HT) skills with native Italian speaking patients.

Summary of Work: In our international medical school 20 third-year medical students are not Italian mother tongue speaking. We introduced in the twelve weeks of the HT course five learning methods to train students in the medical interview: 1) laboratories on HT; 2) individual video-recording (VR) with a trained simulated patient (SP); 3) individual self-assessment on the VRS; 4) individual debriefing on VRS with a physician and an educator; 5) a written and oral formative Feedback (FB) with a trained tutor. Students’ performance on HT was evaluated by a 20-items assessment form in the Objective Structured Clinical Examination (OSCE) at the end of the semester. Each item could be assessed on a rating scale from 0-1: 1 (well done), 0.5 (poorly done), 0 (not done). Students perception of each method was inquired by a questionnaire. Descriptive statistics was used.

Summary of Results: Each student passed the HT station with an average of 0.9 ± 0.1 (95% CI). 100% of the students were satisfied with individual debriefing on VRS and with individual formative FB, 70% were satisfied with laboratories and 50% were satisfied with self-assessment.

Discussion and Conclusions: A combination of methods that include individual formative feedback might be useful to teach international medical students history taking skills.

Take-home messages: The implementation of different methods is effective in teaching HT in non Italian students.
**10K5 (18635)**

**Acquisition of Medical English through the first student English magazine in Jahrom university of medical sciences**

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Zahra Kooomal, Jahrom University of Medical Sciences, Jahrom, Iran
Marsoomeh Hosseinpour, Jahrom University of Medical Sciences, Jahrom, Iran
Atefeh Karamzadeh, Jahrom University of Medical Sciences, Jahrom, Iran
Maryam Jadadat, Jahrom, Iran

**Presenter:** Mahsa Aran*, Shiraz, Iran

**Background:** Medical language is a special language used by experts in mutual communication. One of the characteristics of medical discourse community is writing research papers in English. We conducted this study to assess the viewpoints of students of Jahrom University of medical sciences about the influence of this magazine concerning their interest to refer up to date and international texts and writing academic text.

**Summary of Work:** 261 students of JUMS selected by a stratified-randomized method participated in this descriptive cross-sectional study. We used a self-instructive, valid and reliable questionnaire and data were analyzed by SPSS concerning p value<0.05.

**Summary of Results:** The results showed that 60.9% were female and 39.1% were male. Average age was +21.2. 56.3% indicated that contents of the magazine was based on their needs. 57% indicated that it was effective in their improvement of English. 49.7% believed that it represented a new method and model in learning practical English. 53% believed that it presents up to date and suitable contents. 89% of them indicated that Shine is the first student English magazine they have ever been familiar with.

**Discussion and Conclusions:** Taken together, this student English magazine might provide a suitable opportunity for medical students to refer international and scientific texts, websites and write academic papers. And the results of this study might be a stimulator for the managers to revise the weak points of English curriculum in medical education.

**Take-home messages:** This student English magazine might provide a suitable opportunity for medical students to refer to international and scientific texts.

**10K6 (20147)**

**Encounters with Difference: Language Labs for Second Year Medical Students**

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**Background:** With increasing diversity of the local population, there is a growing need to develop skills to establish rapport with people from a wide range of cultures. This can be helped by exposures to language and culture. This paper describes the development of a series of innovative “language labs” that aimed to teach students key phrases and principles of British Sign Language and a number of locally spoken languages. There was no intent for language proficiency but merely to enable a warm and professional start to a consultation. The languages were chosen according to the demographics of the local population and following conversations with our BME contacts. Language labs were facilitated by a range of local people from these backgrounds.

**Summary of Work:** Second year students selected 2 workshops and video-podcasts of all the languages were made available. Students were given a cultural introduction to the ethnic group and were able to practice key phrases in the language aimed at helping them become more welcoming and to build rapport before using an interpreter.

**Summary of Results:** Evaluation by students and facilitators was overwhelmingly positive. Longer-term evaluation on the impact of the sessions on clinical practice is underway and will be available for presentation.

**Discussion and Conclusions:** Ability to speak a few key phrases in a language helps build rapport early in a consultation. The impact of these interventions is being evaluated.

**Take-home messages:**
1. Research the most common BME languages in your locality
2. Discuss with your BME contacts
3. Focus as much on culture as language
4. Watch for game-playing
Teaching Medical English in Large Classes

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Background: Having university classes of more than 100 students may be daunting for a teacher of medical English.

Summary of Work: Students are sensitised to the phraseological dimension of medical English and trained to practise a lexical approach. They are divided into groups. Each student downloads at least five journal articles. After an in-depth lexical analysis, all the articles thus chosen are uploaded on the Moodle platform in order to create a corpus which will be further exploited through concordancing programs to find frequent lexical patterns or content-specific collocations. Recurrent lexical phrases are stored in an open-source electronic notebook and the author of each entry is rendered recognizable by a code.

Summary of Results: The creation of a genre-based corpus and the compilation of an e-notebook, both of which may be exploited not only by themselves but also by students of other courses or even by professionals.

Discussion and Conclusions: The combination of a phraseological approach to language and the use of the Moodle platform can prove very stimulating for students. Thanks to the platform the teacher can monitor the learning itinerary of each student and provide him/her with feedback. The direct involvement of the students in the collection, analysis and discussion of the texts as well as in the storage of the lexis sought and found encourage them to be self-directed language learners.

Take-home messages: “Knowledge encoded from data by learners themselves will be more flexible, transferable, and useful than knowledge encoded by experts and transmitted to them by an instructor.” (Cobb, 1999)
10L SHORT COMMUNICATIONS: IPE

3
Location: Amber 5, Level +2, MiCo

10L1 (21138)
Interprofessional Experience Emersion: Addressing the Milestones

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Jessica Colyer, University of Cincinnati, Cincinnati, United States

Background: Due to overwhelming changes in the healthcare environment, future physicians must be prepared to work within complex distributed healthcare systems and participate in interprofessional healthcare teams.

Summary of Work: The purpose of this project was to provide an interprofessional immersion experience for medical students during their first two years of training. During the Interprofessional Experiences (IPEx) courses, all students were assigned to tertiary care centers and outpatient settings. Over the course of two semesters, the students took part in supervised patient care and experienced the roles of six different interprofessional team members. Prior to their onsite experiences, students were introduced to each health discipline via computer based didactic modules and videos created by the health care disciplines. Students were evaluated by each interprofessional team member and through multiple choice questions.

Summary of Results: The IPEx courses allowed the medical students to learn about, and directly from, other health care disciplines. The hands-on learning experiences improved students knowledge, skills, and behaviors and enhanced their preparation for working on interprofessional teams.

Discussion and Conclusions: IPEx addressed all of the ACGME general milestones featured under the accreditation system including systems-based practice, practice-based learning and improvement, interpersonal and communication skills, and professionalism.

Take-home messages: By fostering skills adoption in each of the core competencies, the IPEx curriculum better prepared the medical students for providing care in interprofessional care teams.

10L2 (21119)
Readiness, facilitators and barriers for Interprofessional Education for medical and nursing students: A literature review

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Background: Reviews on Interprofessional Education (IPE) indicate that there is no generalizable theory which can explain how, why or when IPE can be successful. The literature was reviewed to address the research question “What are the perceptions and attitudes of medical and nursing students towards IPE?”

Summary of Work: Inclusion and exclusion criteria led to the selection of 26 articles from 133 articles found in Pubmed, Psycinfo and ERIC. A meta-ethnographic approach was used to analyze the data.

Summary of Results: The perceptions and attitudes of students could be divided into three categories namely Readiness for IPE, Barriers to IPE and Facilitators of IPE. Within each category the perceptions and attitudes work at three levels: individual, process/curricular and cultural/organizational. Readiness for IPE at individual level is higher in females, irrespective of prior healthcare experience and associated with learning style. At curricular level Readiness fluctuates during the course of medical school. Examples of barriers to IPE at individual level are feeling intimidated by doctors, at process level lack of formal assessment and at cultural level exclusion of medical students from interaction by nurses. Examples of facilitators of IPE at individual level are affective crises and patient care crises situations, at process level small group learning activities in an authentic context and the preference of students to learn from other students rather than from senior staff.

Discussion and Conclusions: The literature has uncovered barriers and facilitators mostly at process and culture level.

Take-home messages: Studying factors at an individual level, like student motivation, could lead to a generalizable theory for IPE.
10L3 (20910)
An interprofessional learning pathway - what structure and activities underpin student learning in a work integrated setting? Staff views and student expectations

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Cindy Sealey, James Cook University, School of Medicine and Dentistry, Townsville, Australia

Background: The aim of the project was to develop an interprofessional curriculum for James Cook University. Two separate clinics were being developed that would support interprofessional student placements if a curriculum were available. This paper outlines the process of implementation in one of the clinics - a Community Neurological Rehabilitation Clinic.

Summary of Work: Preliminary activities to develop interprofessional competencies and learning outcomes resulted in an integrated curriculum using the exposure, immersion and competence approach as students progressed through their courses. Participatory action research has been used to develop a bottom-up approach to the development of an interprofessional learning pathway for students in the clinic.

Summary of Results: Participants included senior allied health students (N=25) on placement and clinic rehabilitation and administration staff (N=14). Key elements of successful interprofessional placements included a clinic structure with shared space, role-modelling of interprofessional practice, and a participant centred approach. Student expectations fit well with the developed interprofessional competencies, as did the methods of facilitating their learning whilst on placement. Focus groups and consultations with staff, have underpinned the development of a learning pathway for students.

Discussion and Conclusions: The development of the interprofessional curriculum using this approach provides the opportunity to tailor learning activities for students learning and practicing together, which meet the realistic needs of providing interprofessional care required by patients with chronic or complex conditions.

Take-home messages: This research has produced a model of curriculum development and delivery, which can be generalised to other settings (although content and context may differ). The curriculum learning pathway is being trialed within the rehabilitation clinic, with outcomes yet to be evaluated.

10L4 (20364)
The students’ perceptions of prerequisites for interprofessional education in primary care

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Helena Salminen, NVS, Centre for Family Medicine, Stockholm, Sweden

Background: The students at Karolinska Institutet have mainly interprofessional learning activities at interprofessional training wards and outpatient clinics at hospitals, while their opportunities for interprofessional education (IPE) are limited in primary care.

Summary of Work: Objective: The objective was to study the students’ perceptions of prerequisites for IPE in primary care.

Methods: Data was collected by four qualitative group interviews with 28 students from medical, nursing, occupational therapist and physiotherapist programmes, using a semi-structured interview guide. The interviews were recorded, transcribed and analysed using manifest content analysis.

Summary of Results: The following themes were identified in the student interviews as prerequisites for IPE:

- IPE requires its own structure and logistics in primary care as there are few natural contacts between different professionals and the patient encounters are most often with only one profession at time.
- As students prioritise the development of their own professional identity and many patient encounters with defined learning outcomes related to their own profession, an IPE activity also needs to contribute to these objectives.
- The students need support and encouragement from clinical supervisors and teachers in order to explore IPE.
- The patients’ complex health problems in primary care stimulate interprofessional learning with a shared understanding.
- A learning environment with reduced stress, hierarchies and prejudices among teachers, supervisors and students supports the students’ IPE.

Discussion and Conclusions: Learning with, from and about other professions takes place in primary care if the structure, logistics and learning outcomes support it. An allowing learning environment and the students’ own interest in IPE are needed.
**10L5 (21042)**

“Pre-IPE” program in professional groups may relieve students’ worries in IPE

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Kazumasa Uemura, Nagoya University School of Medicine, Nagoya, Japan

**Background:** This study aims to explore students’ perception of their learning from an inter-professional education (IPE) program in the community and consider key factors to improve the IPE program.

**Summary of Work:** Thirty students from five departments of medicine (n=8), nursing (n=6), physiotherapy (n=5), pharmacy (n=5) and social work (n=5) participated in the IPE program in the clinical setting. This two-day IPE program with one-week interval between 2 days included ice-breaking sessions, mixed group discussions and medical interviews to patients was administrated. Twenty-minute semi-structured interviews were conducted with groups of students in each department after the course, and analyzed qualitatively.

**Summary of Results:** Four significant themes such as “understanding of one’s own and another profession”, “complement each other”, “patient-centered care”, and “holistic care” were extracted from the interview. Students described knowledge of their own professions as an important factor to deepen discussions with other professions. Technical terms may be a psychological barrier to collaboration in team.

**Discussion and Conclusions:** The themes identified in this study conformed to previous studies, suggesting that students deepened their understanding of inter-professional work. The fact that students highlighted the importance of their own professional knowledge and the existence of psychological barriers by using technical terms indicates that students wish to prepare these prior to IPE program. “Pre-IPE” program in each department may improve the students understanding of IPE.

**Take-home messages:** “Pre-IPE” program should be required for IPE learners.

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**10L6 (21786)**

Impact of Peer Pressure on Accuracy of Reporting Vital Signs: Evidence of Errors Made by Medical and Nursing Students during a Simulated Clinical Performance Exercise

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**Background:** Poor communication amongst healthcare providers has been identified as one cause of adverse events. The present research investigated the impact of peer pressure among healthcare students on reporting accuracy of vital signs.

**Summary of Work:** To determine if students repeat incorrect information they hear from other students, 2nd year medical (n = 60) and 3rd year nursing students (n = 44) were invited to take radial pulse, respiration rate, systolic and diastolic blood pressure readings from a patient simulator (iStan CAE©). Groups consisted of one medical student participant and three actors posing as nursing students, or one nursing student participant and three actors posing as medical students. After a practice session, participants were asked to report vital signs after hearing the actors report incorrect vital signs.

**Summary of Results:** An analysis of variance revealed a significant difference in the total number of inaccurate responses reported by medical (M = 2.13; SD = 1.07) and nursing students (M = 2.84; SD = 1.24), F(1,100) = 5.51, p < 0.05. Reasons for reporting inaccurate readings: confusion of each other’s roles; fear of admitting errors, and awareness of a medical hierarchy.

**Discussion and Conclusions:** Peer pressure may prevent nursing students from questioning information given by medical students that seems incorrect. This may directly impact the quality of care and patient safety. There is a need for interprofessional education to teach students how to assertively manage conflicting or inaccurate information during multidisciplinary teamwork.

**Take-home messages:** Given the importance of communication to patient care, it is critical to examine social factors impeding this communication.
**10M SHORT COMMUNICATIONS:**

**Clinical 3**  
Location: Amber 6, Level +2, MiCo

**10M1 (19535)**  
The Lesser-Spotted Medical Student: Understanding and Facilitating Student Presence on Wards

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*Damian Bragg*, Nottingham University Hospitals, Nottingham, United Kingdom

**Background:** Medical student presence on wards was perceived to be erratic by teaching clinicians. The aim was to understand factors affecting ward activity and how increased activity might be facilitated.

**Summary of Work:** Medical students in their clinical attachments were emailed a link to an online survey containing ten questions pertaining to ward activity.

**Summary of Results:** A total of 122 students responded to the survey. A majority of students (38%) stated that they had completed 1-5 hours of ward work in the past week. The most cited motivator was OSCE-related skills practice (74%). Students identified feeling unwelcome (55%), not feeling part of the team (55%), exam pressure (57%) and staff busyness (50%) as factors which limited their ward activity. The least-identified learning outcome was inter-professional teamwork (20%). The most popular incentives identified were scheduled ward time with a teaching fellow (71%), an assigned ward contact/mentor (67%) and assigned patients/responsibilities (60%); the least popular incentives included the use of an attendance record (8%) or rota (17%).

**Discussion and Conclusions:** This study has identified several viable, low resource-intensity interventions to encourage students to increase their ward activity. Although activity can be facilitated environmentally and extrinsically, medical students may need support to develop their independence and confidence as activity is reportedly dependent on the perceived attitudes of other staff members.

**Take-home messages:** Medical students have specific, skills-related objectives for their limited ward time and welcome modifications which better structure this time. Poor team dynamics is an important and modifiable limiting factor affecting ward activity.

**10M2 (19450)**  
Evaluation of a Palliative Care educational programme

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**Background:** A Fundamentals of Palliative Care programme was implemented at a local hospice site within the Auckland (New Zealand) region and aimed at non-specialist staff working in the residential aged care sector.

**Summary of Work:** The evaluative project involved questionnaire and interview phases. In phase 1, a purposive sample of workshop participants were invited to fill in a confidential evaluation questionnaire (immediate and follow up). In phase 2, semi-structured interviews were conducted with key stakeholders.

**Summary of Results:** In response to the questionnaires, participants commented on the value of the educational programme with the majority of participants indicating that they had gained further knowledge in palliative patient management. According to the interview data (from three educators, one manager, and three registered nurses), the programme objectives were comprehensive but could use minor refinements depending on who was attending the workshops. The interview commentaries further suggested that the teaching was useful and encouraged the learning process; however, the learners were from diverse contexts and it was therefore difficult to suit all learning preferences. The assessment and evaluation processes used required further psychometric refinement.

**Discussion and Conclusions:** The piloting of this educational programme was of benefit and relevance to participants in their clinical practice. Overall all participants felt the course was useful to them and they were able to gain valuable knowledge and skills.

**Take-home messages:** Educational initiatives within the clinical setting need to be encouraged. National agencies are useful in driving such programmes but unique clinical contexts engender the need for fine tuning to enable optimal learning.
10M3 (19602)

On the Relationship Between Reflection and Clinical Performance: A cross-sectional and retrospective-longitudinal correlational cohort study in midwifery

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Background: Increasingly, reflection is highlighted as an integral part of professional competence. Interest in the theme of reflection with the goal of improving clinical performance has seen an exponential growth but empirical research into the relationship between reflection and performance in the clinical workplace is scarce. Our research question was: Is there a relationship between reflection and clinical performance?

Summary of Work: Methods: We designed a cross-sectional and a retrospective-longitudinal cohort study. Data from midwifery students (year 1,2,3) were collected to study the variables reflection and clinical performance. Descriptive statistics, Correlation Coefficients and r² values were computed to investigate associations.

Summary of Results: The results showed a moderate observed correlation between reflection and performance scores. When adopting a cross-sectional perspective, all correlation values were significant (p<.06). The results based on the retrospective-longitudinal data set explained a moderate proportion of the variance after correction for attenuation. Finally, the results indicate that reflection scores of earlier years are significant related with performance scores of subsequent years. These results suggest that reflection is linked to performance; that written reflections are an important, but not the sole way to assess professional competence and that reflection is a contributor to performance improvement.

Discussion and Conclusions: The data showed a moderate but significant relationship between reflection and clinical performance scores.

Take-home messages: Reflection seems an important component of professional competence.

10M4 (22185)

Difficult patient encounters: Setting a limit while preserving a good relationship

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Background: Physicians regularly have to deal with difficult patient encounters, e.g. hostile, demanding or dissatisfied patients. At VU University Medical Center, bachelor students attend seven training sessions on how to act in a broad palette of difficult situations. The focus lies on how to set a clear limit (e.g. intolerable behavior, saying “no” to demanding patients), while simultaneously investing in a good relationship (showing empathy, nonjudgmental listening, finding out underlying needs and expectations). Students are assessed in an OSCE, a 10 minute interview with a ‘patient’ (actor).

Summary of Work: In the programme
• students practise role plays, in order to experiment with new skills;
• students explore their emotional reaction to the difficult situations;
• professional actors play the patient role.

Summary of Results: The OSCE results (n=983) and ratings of 2011-2013 students (n=730) were processed. A large majority (90%) of the student population had developed the necessary skills to pass the OSCE. Students considered themselves to be competent in handling difficult patient encounters with a mean of 4 (on 1-5 Likert scale).

Discussion and Conclusions: Students who learn how to set limits and simultaneously maintain a good relationship can apply the different skills in a variety of difficult situations. They are flexible in using these skills according to the situation, the patient and their personal communication style.

Take-home messages: Flexibility and patient tailored communication is important, not only for managing difficult situations but for physician-patient communication in general. This approach will save time, energy, and elicit less stress and negative feelings, for both physician and patient.
10M5 (20360)

*Ability of veterinary medicine students to perform laparoscopic ovariectomy on live dogs*

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**Background**: Laparoscopy has become standard-of-care in human medicine. Laparoscopy surgery in veterinary medicine gaining worldwide popularity. We tested the hypothesis that with specific and equivalent training time, second year veterinary medicine students can become equally proficient at laparoscopic (L) versus “open” traditional (O) dog ovariectomy.

**Summary of Work**: We tested the hypothesis that with specific and equivalent training time, second year veterinary medicine students can become equally proficient at laparoscopic (L) versus “open” traditional (O) dog ovariectomy. 25 students completing their second year at the Western University of Health Sciences (WesternU) College of Veterinary Medicine with no previous experience as primary surgeon in ovarioectomy surgery and no previous experience in laparoscopy technique were selected. Students were randomized to Group O (13) or Group L (12). All students were asked to participate in the following three phases: 1- pre-training assessment, 2- fourteen hours of group- specific training in basic surgical skills and dog ovariectomy, and 3- post-training assessment. After the training each student was required to complete traditional or laparoscopy dog ovariectomy. Assessment was preform in the pre-training, post-training and during surgery.

**Summary of Results**: The surgery scores of both evaluators for each group were very close, with no significant difference between the 2 groups score (p=0.71). The surgery time was shorter for the “open” surgery compared to the laparoscopy surgery.

**Discussion and Conclusions**: We demonstrated that with an efficient training program, laparoscopic surgical techniques can be easily introduced into veterinary school curriculum.

**Take-home messages**: The demand for new graduates with a high level of proficiency in elective surgical procedures, including minimally-invasive surgery, continues to increase. Veterinary medical schools and colleges should adopt new surgical techniques, such as laparoscopy, and find novel and effective ways to incorporate them in existing curricula.

10M6 (20581)

**Confounding factors affecting utilization of clinical skills laboratories among Japanese medical schools**

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**Background**: Underutilization of simulation-based clinical education remains a major issue among Japanese medical schools. Although more than 90% schools possess clinical skills laboratories, there are significant differences in utilizing these facilities among schools, suggesting that medical students are getting different educational opportunities in Japan (Ishikawa K. amee 2013. 52/4). In this study, we analyzed factors affecting utilization of skills laboratories among Japanese medical schools.

**Summary of Work**: Fifty four medical schools in Japan, which effectively responded to a registered form questionnaire sheets on clinical skills laboratory, were analyzed. As candidate confounding factors affecting medical students’ utilization of skills laboratories, we examined total number of medical students, length of clinical clerkship, years after facility establishment, floor area, presence or absence of on-site director, presence or absence of simulation specialist, staff numbers and open access policy to community.

**Summary of Results**: Promotional factors for medical students utilizing skills laboratory were larger floor area (p<0.0001), presence of on-site director (p<0.0001), open access policy (p<0.001) and presence of simulation specialist (p<0.02). In contrast, total number of medical students, length of clinical clerkship, years after facility establishment and staff numbers did not affect the utilization.

**Discussion and Conclusions**: Active learning by medical students in skills laboratories seem to be achieved via sufficient scale of a facility, on-site director and teacher for simulation-based learning, and open access policy to community.

**Take-home messages**: Effective utilization of clinical skills laboratory requires adjustment of the factors on...
institutional layout, human resources and facility openness.
Near-peer teaching is a useful tool in teaching clinical examinations effectively. Further studies are required to confirm the impact of near-peer teaching upon summative assessments.

**Summary of Results:**

\[ t_{(345)} = -2.54, p = 0.012 \]
\[ t_{(345)} = -2.89, p = 0.004 \]

**Discussion and Conclusions:** Our study demonstrates the positive impact of near-peer learning on the outcomes of summative assessments and may provide further evidence of its benefit. Students who attended the course performed significantly better across both summative examinations. We posit that the score improvement resulted from the integration of clinical science with practical examination skills in a near-peer teaching setting. We suggest that newly qualified medical graduates may be suitable to impart this integrated teaching effectively because of their recent experience of learning similar content.

**Take-home messages:** Near-peer teaching is a useful tool in teaching clinical examinations effectively. Further studies are required to confirm the impact of near-peer teaching upon summative assessments.
Peer influence on students’ trajectory of becoming a doctor

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Background: In clinical workplaces, students develop their professional identities in communities of practice. The shared goal of becoming a professional inevitably leads students to make so-called ‘social comparisons’ with one another. In this qualitative study we investigated the nature of these comparisons and their perceived effects on students’ development.

Summary of Work: Twelve students (6M/6F) in their first clerkship year kept audio diaries for 4 weeks. Entries into their diaries (74) were analysed using constructivist grounded theory, drawing sensitising insights from social comparison theory.

Summary of Results: Participants used comparisons with their peers to appraise and promote their progress along the trajectory of becoming a doctor. Comparisons were made in three domains: 1) the ‘self’; 2) interactions with others; and 3) ability to perform medical tasks. Students either identified or contrasted themselves with their comparison peer. Most comparisons resulted in self-affirmation and motivation to progress. Reports of negative outcomes, like feeling distressed, were few.

Discussion and Conclusions: Those findings give meaning to the role of peers in clinical workplaces. Peer comparison was a significant feature of the processes that helped students become aware of their current stage of development. Beyond that, it provided insights that supported their professional development, or centripetal progression, within communities of practice. A better understanding of how students identify or contrast themselves with one another could help supervisors to guide them in their use of social comparison.

Take-home messages: Peer comparison has an influence on medical students’ trajectories of becoming doctors, which tends to be overlooked.

Peer and Online Learning: The Beginning of a Sustainable Approach

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Background: The University Of Dundee School Of Medicine has observed a growing trend of student engagement through student societies and projects, typically also supported by substantial staff time and buy-in. These projects then lose momentum when students move into clinical years where time within the medical school environs is limited. Formal teaching experience prior to graduation is required. (Tomorrow’s Doctors 2009)

Summary of Work: The School is addressing these issues around sustaining engagement and continuity with students and teachers working in partnership to co-produce an open online student teacher course (OOC). This is linked to the curriculum and the core clinical problems. Student achievement and learning on the OOC in relation to the different roles of the teacher will be acknowledged by awarding open badges.

Summary of Results: In order to achieve the most from this initiative the University has signed up to collaborate with the Higher Education Academy’s ‘students as partners in the curriculum’. A student focus group is designing the OOC and is developing a framework for application of this approach in other Schools.

Discussion and Conclusions: Engaging students as partners in the curriculum, in the project’s infancy, has highlighted the potential to support sustainable approaches to peer-learning activities. New opportunities have been generated to allow innovative approaches to inter-professional learning; an OOC can also support staff development around the role of online teacher.

Take-home messages: Students can be actively involved in cultivating a sustainable approach to peer and online learning, while acting as agents of change in the curriculum.
**10N5 (21147)**

**Peer tutoring promotes development key competences of future physicians: Social, performing and pedagogical skills**

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**Background:** We use peer assisted learning (PAL) in a clinical skills refresher course for medical students before their clinical attachment. Each peer tutor is trained and assessed by a clinical teacher and they receive structured pedagogical guidance before and after tutoring.

**Summary of Work:** We focused on the experiences on tutoring of 12 peer tutors with a structured in-depth interview on how they see the personal development and emotional aspects of peer tutoring. Data were analyzed quantitatively.

**Summary of Results:** As in previous studies, the peer tutors highlighted the intense learning of pedagogical skills and clinical skills as main benefit of their tutoring. In addition, peer tutoring promotes social skills and is good training for performing in front of audience. On an emotional level peer tutoring was considered to be a great opportunity for getting feelings of success. Self-knowledge and confidence increased as well. Peer tutors felt that a longer peer tutoring process would be even more beneficial to peer tutors were there more sessions, preferably over a longer period of time.

**Discussion and Conclusions:** Peer tutoring promotes learning of skills that are of special importance for delivering practical skills to colleagues in the clinic. It is a long-term investment to these key competences of physicians regardless of clinical specialty.

**Take-home messages:** Peer tutoring promotes development of key competences of future physicians and would be ideally effective in long-term training for enthusiastic medical students.

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**10N6 (22140)**

**Quality improvement: Training of peer tutors in surgery**

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**Background:** Many studies show that peer assisted learning can be comparable to teaching delivered by health care professionals regarding basic practical skills. However, the studies differ regarding the necessity and the extent of a didactic training. At our medical school, peer tutors perform the training of basic surgical skill such as sutures and wound dressing in the obligatory surgical training week for 4th year undergraduate students. Herefor, they observe some trainings prior to perform it by themselves as peer tutor under supervision of experienced tutors. The aim of the present study was to evaluate the effect of a 3-day training on the peer tutors’ performance.

**Summary of Work:** The 3-day training included presentations and role plays of teaching methods, as well as a half day feedback training. Furthermore, students simulated in role plays their teaching units followed by peer feedback.

**Summary of Results:** A total of 7 peer tutors participated in the training. Peer tutors received a significantly higher ratings from their blinded peers after 3-day training compared to prior to the training and compared to the not-specifically trained tutors. Even experienced tutors (2-3 years practice) stated after the training that they increased their teaching performance and confidence. The effect of the training on students’ practical surgical skills will be evaluated using a 8 station OSCE in April 2014.

**Discussion and Conclusions:** The peer tutor training was implemented as obligatory training for all peer tutors in surgery at our medical school and will be implemented for further subjects such as internal medicine.
10O SHORT COMMUNICATIONS:
Approaches to eLearning

Location: Amber 8, Level +2, MiCo

10O1 (22132)
Appraisal of authoring softwares at healthcare courses development

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Background: Different technologies to develop distance education material provide innovative alternatives in the creation of virtual learning objects. The aim of this paper is to describe the building process of a learning object (LO) in two different platforms, ExeLearning and Articulate Storyline, highlighting the differences between the two approaches and the main features of each.

Summary of Work: The creation processes described in this paper were performed for learning objects development of the Specialization Course in Health Services Evaluation UNASUS / UFCSPA, using two authoring software. Despite being aimed for the same purpose, during the use, both tools demonstrated several differences observed by the production team.

Summary of Results: The classes development in ExeLearning are simple, however the classes produced in this tool tend to be linear and without much interactivity. Meanwhile the building process in Articulate, is not so simple, but offers greater flexibility and creative possibilities, and the objects created in this tool are, in most cases, more visually attractive and more interactive.

Discussion and Conclusions: Articulate proved to be a tool with more resources for creating courses, allowing the creation of activities that enable greater interactivity between the student and the content. On the other hand, it has been shown ExeLearning is limited at the content development and at the creation of an interface with good usability.

Take-home messages: The authoring software used in the development of distance learning courses should be flexible and adaptable to different production methodologies. These features make it easier to design and create engaging lessons and using innovative teaching approaches.

10O2 (22265)
A methodology for a distance learning update course in prosthesis for Primary Health Care

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Background: In a recent Brazilian Oral Health Policy is expected the construction of dental prosthetic devices in Primary Health Care (PHC). However, professionals who work in this system do not feel able to perform this procedure leading to a necessity of a continuous education program. Thus, the aim of this work is to develop a methodology for a dental prosthesis distance update course oriented for PHC.

Summary of Work: The course was structured in 40 hours, divided into 10 weeks. It is developed in partnership between the Laboratory of Dental Materials, Federal University of Rio Grande do Sul and UNASUS of the Federal University of Health Science of Porto Alegre. The course learning objects (LO) will be developed in Articulate Storyline that allows the insertion of several digital resources. During the course, the students will be held in with online tutoring. Each tutor will guide groups of 40 students, controlling frequency of access and performance in activities.

Summary of Results: Articulate allowed building learning objects with innovative and interactive design. Furthermore, the virtual environment has stability in access and it provides the tutor information such as frequency of access, activity performance, etc.

Discussion and Conclusions: The student learning in distance education is directly related to LO quality and the assistance of distance tutoring. Articulate Storyline demonstrated to be a suitable tool into the development of distance courses, allowing LO creative and interactive.

Take-home messages: Distance education has been an effective way to educate professionals of public system health and it became necessary for a country of continental size like Brazil.
10O3 (19280)
Student perspectives on the use of digital resources in biomedical education

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Advances in biomedical sciences generated an increase in the amount of preclinical courses. There are difficulties for Italian medical students to memorize and understand an enormous amount of data.

Summary of Work: In order to explore students’ perspectives concerning biomedical teaching a questionnaire has been administered to 138 Medical School III year students and two focus groups have been implemented with III and IV year students. Quantitative and qualitative analysis’ results have been clustered around key literature issues.

Summary of Results: Answers to questionnaires and focus group contributions highlight that:
There is an awareness of the significant contribution of Biomedicine to the academic curriculum;
Biomedical science lectures tend to focus on and provide an overwhelming quantity of molecular details and pathways;
It is hard to contextualize biomedical data and to memorize it when it is not integrated with laboratory experience and with clinical practice;
Digital resources would be a welcome educational complementary tool although they should not substitute the face-to-face student-teacher interaction.

Discussion and Conclusions: According to students there is a need for more efficient learning approaches and tools including the use of devices and programs that provide visualization examples and support their direct laboratory experience in order to address complex issues in more adequate ways.

Take-home messages: A focused integration of digital resources in biomedical teaching linked to direct laboratory experience would seem to improve students’ understanding concerning the interplay between science and clinics in translational medicine.

10O4 (21406)
How do medical students assess the credibility of online or downloadable medical reference resources?

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Background: Ease of access to reference resources and their credibility are a concern to educational institutions, regulatory bodies and the public particularly with regards to ensuring accurate and up to date information is being accessed. The study was designed to elucidate how students assess the credibility of online resources and downloadable applications as well as describing resource usage trends of websites and applications.

Summary of Work: Participants and setting: An electronic questionnaire was disseminated to 130 clinical year students at Manchester and Dundee Medical Schools. 72 students consented to participation in the study and completed the questionnaire. Perceptions of accuracy, authority, objectivity (where the reader questions the provenance of the material), currency and coverage (questioning appearance, reliability and accessibility of a document) were explored. Participants were also surveyed on the websites and applications that they utilised on a regular basis.

Summary of Results: There were variations in the reported use of parameters of credibility with objectivity and currency being the most used widely used credibility measures. The study group were most significantly influenced by the cost of resources using free resources if possible. Student responses revealed that most medical students were using interactive open access sites such as Patient.co.uk (92%), Wikipedia (83%) and YouTube (71%) over commercially based peer review resources.

Discussion and Conclusions: The widespread availability of mobile technology has increased the accessibility of online and downloadable medical resources. Educators need to be aware of the increased use of these resources and the potential for students to access materials, which are not peer reviewed. Medical schools should consider equipping students with skills to successfully evaluate resource credibility as part of their core curricula.

Take-home messages: Medical Schools must research further into what resources students use and how they should evaluate their credibility.
1005 (21773)
Virtually there: A journey to the HKU Medicine Island for teaching and learning

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Background: The use of the 3D avatars in a laboratory session is relatively new but fast developing. Similar to virtual simulation training for airplane pilots, it has come to the era where virtual simulation training for doctors is gaining popularity in the medical schools.

Summary of Work: After conducting a survey on their preferred teaching and learning styles among the medical students, we applied a series of spiced-up integrations of the eLearning activities in the actual hands-on biochemistry practical and workshops. The 3D avatars in our tailor-made virtual HKU Island were utilized together with the Moodle eLearning platform to accommodate for varied leaning styles of the students. In addition, Google presentation and Google documents were also used in a blended fashion during class to enhance collaborative learning.

Summary of Results: A quiz conducted at the end of lessons with and without the virtual simulation revealed that sufficient simulation through appropriate virtual activities did have a significant positive impact on more effective learning.

Discussion and Conclusions: We conclude that virtual simulation seems to be one of the effective strategies for more engagement and therefore effective learning by the students. The observations gathered on the student’s reactions when being introduced to such simulations and the intriguing effects on their learning stimulation will be discussed.

Take-home messages: A good blend of traditional and modern strategies is our recipe for effective teaching and learning.

1006 (22197)
Health problems regionalization through the use of virtual cities in a distance education course for primary health care professionals

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Background: Brazil, being a country of continental size, has endemic and regionalization diseases occurring naturally. To solve the diversity and bring the contents to reality for the students, at the distance Specialization in Family Health UNASUS/UFCSPA three virtual cities located in different regions of the country fit in the course. The objective is to familiarize the professional with their work environment, through virtual reality.

Summary of Work: From literary workshops and understanding the imitation of reality principles in literature, three virtual cities that fit in the health content were created: Santa Fe, at the south, Muiraquitã, in the Amazon region and São Luis Gonzaga, in the northeast. All have real geographical location, constitution principles suitable to the region, such as geography and population distribution and health units with characters where the contents are acclimatized.

Summary of Results: The use of virtual cities for setting the health contents proved to be a suitable methodology that approached reality faced by professionals in their field of work. The use of different cities allows content regionalization through clinical cases with epidemiological characteristics of each region.

Discussion and Conclusions: The virtual cities proved to be an appropriate teaching resource for the health content setting. There are virtual patients and professionals interacting in an unreal city, but with adequate and relevant problems also really portrayed.

Take-home messages: In distance learning courses in the Primary Health area, virtual reality can be an important learning resource, allowing the creation of regionalized situations, adequately addressing the epidemiological specificities of each region.
10P SHORT COMMUNICATIONS: Simulated Patients
Location: Theatre Room 13, Level 0, MiCo

10P1 (20794)
Standardised patient assessment and VP in an OSCE exam

Helen Roberts*, University of Auckland, Obstetrics and Gynaecology, Auckland, New Zealand
Vernon Mogol, University of Auckland, Medical Programme Directorate, Auckland, New Zealand
Anthony Chung, University of Auckland, Centre for Learning and Research in Higher Education, Auckland, New Zealand
Michelle Carvalho, University of Auckland, Obstetrics and Gynaecology, Auckland, New Zealand

Background: In Auckland medical students are taught at different cohort sites making the delivery of consistent assessment staff resource intensive.

Summary of Work: Gynaecology Teaching Associates (GTAs) were trained as standardised patients and assessors for a communication station. Medical staff also performed this assessment. The delivery was face to face and video linked to a cohort site. The following station was a post encounter computer VP case with automated marking; the woman returning for smear results and management plan. This linear VP, incorporating the key features approach, allows only forward progression with responses not affecting the student’s ability to continue.

Summary of Results: Thirty-three volunteer students were independently assessed by a doctor and a GTA. A two-facet Rasch analysis using RUMM2030 software revealed that the data fit the model indicating the marking instrument’s internal construct validity. The instrument was also found to have good internal consistency reliability, PSI = .74 and Cronbach’s alpha = .72. The GTAs were slightly more stringent than the doctors. However, the distribution of assessor type stringency is much narrower than that of students’ ability, which implies that student scores need not be adjusted for assessor type differences.

Discussion and Conclusions: Although students did not feel comfortable using the video link station, additional analysis showed no statistically significant difference in performance. Further modifications improved student ease of use. These issues will be discussed along with the psychometric properties of the marking schedule of the VP OSCE as determined by traditional item and Rasch analysis.

Take-home messages: OSCE stations can be successfully delivered without using academic staff for assessment.

10P2 (20184)
A prospective study to compare teaching by clinical teaching associates with traditional methods

Alan Radford*, Great Western Hospital, Academy, Swindon, United Kingdom
Anne McCabe, Great Western Hospital, Academy, Swindon, United Kingdom
Helen Dee, Great Western Hospital, Academy, Swindon, United Kingdom
James Goodliffe, Great Western Hospital, Academy, Swindon, United Kingdom
Kevin Jones, Great Western Hospital, Academy, Swindon, United Kingdom

Background: Clinical Teaching Associates (CTAs) are lay women trained to teach gynaecological consultation skills and pelvic examination using their own bodies. Previous analysis showed statistically significant differences between O&G students’ opinions of CTA vs. traditional teaching. We therefore expanded the CTA’s role to include students in other specialities, junior doctors and GP trainees. We aim to increase evidence demonstrating superiority of CTA teaching vs. traditional methods.

Summary of Work: We used questionnaires asking participants to rate the CTA teaching session and compare it with traditional training on Likert scales (0-10). They were invited to give qualitative feedback.

Summary of Results: Analysis of the current cohort (34) shows similar results to previous analysis of 39 students. Comparison of CTAs with students’ rating of traditional teaching was statistically significant in all areas. Nine qualified doctors participated in this study. Subgroup analysis showed statistically significant (P<0.05) differences between doctors’ opinions of CTA teaching compared with traditional methods. Qualitative analysis remained consistently positive.

Discussion and Conclusions: This study supports existing data demonstrating CTA teaching as superior to traditional methods for learning intimate examinations. In addition to medical students, we have shown that it may help in training doctors to perform pelvic examinations.

Take-home messages: CTA teaching is an effective and superior way to learn pelvic examination.
**10P3 (21497)**

My child has autism? Teaching residents using a novel family facilitator-standardized patient model

Anne Kawamura*, University of Toronto, Holland Bloorview Kids Rehabilitation Hospital, Pediatrics, Toronto, Canada
Maria Myleopoulos, University of Toronto, Hospital for Sick Children, Pediatrics, Toronto, Canada
Elizabeth Jimenez, University of Toronto, Pediatrics, Toronto, Canada
Angela Orsino, University of Toronto, Pediatrics, Toronto, Canada
Nancy McNaughton, University of Toronto, Standardized Patient Program, Pediatrics, Toronto, Canada

**Background:** Active involvement of patients as educators in the health professions is known to increase learners' empathic understanding and sensitivity to the needs of their patients. In pediatrics, only a few studies have specifically engaged family members of children in teaching residents. These studies have not fully explored the role of family facilitators in teaching residents about patient and family perspectives.

**Summary of Work:** This study uses a new educational model for actively involving parents of children who have a diagnosis of autism spectrum disorder (ASD) in the creation and facilitation of simulated learning encounters alongside standardized patients (SP) for teaching pediatric residents. This study explores how this educational model influences residents' understanding of family perspectives.

**Summary of Results:** We created a series of simulation scenarios to teach pediatric residents how to explore family perspectives when sharing a diagnosis of ASD. The live simulation involved a resident interacting with an SP who played the role of a parent of a child who is being given a new diagnosis of ASD. Feedback on the residents' skills in providing a diagnosis of ASD was provided by both the family facilitator and SP.

**Discussion and Conclusions:** This study allowed us to explore a new educational model where family facilitators were involved in the creation and facilitation of a simulated learning encounter alongside SPs. This model may encourage residents to consider family perspectives when sharing new diagnoses of ASD.

**Take-home messages:** Engaging family facilitators in the creation and facilitation of simulation scenarios may influence residents' understanding of patient and family perspectives.

**10P4 (20382)**

Clinical and communication skills assessment by Standardised Patients (SP) played by professional actors: A new tool in medical education?

Jean-Marie Castillo*, Nantes Faculty of Medicine, Family Medicine Department, Nantes, France
Bernard Planchnon, Nantes Faculty of Medicine, Internal Medicine Department, Nantes, France
Jean-Benoît Hardouin, Nantes University, EA4275, Biostatistics, Pharmacoepidemiology and Human Sciences Research, Nantes, France
Vicki LeBlanc, University of Toronto, Wilson Center, Toronto, Canada
Pierre Pottier, Nantes Faculty of Medicine, Internal Medicine Department, Nantes, France

**Background:** In our previous study presented at the AMEE 2012 ("Large scale development of clinical skills learning, based on standardised patients, for year 3 medical students at the Nantes medical school, France"), we reported differences of student’s communication and clinical skills according to time or scenarios during simulated ambulatory settings. Student's assessment was completed by SP played by professional actors. Nevertheless, one of the study’s weakness was the lack of information about the method’s reliability and validity: are the results correlated with experts’ assessments?

**Summary of Work:** The same study plan was reproduced in order to assess the method. Students were still assessed on communication and clinical skills by SP using assessment forms previously established by clinical experts. SP had the same previous communication and clinical training. The difference was that each one of the 960 simulated ambulatory consultations was video-recorded. At the end of the sequence a number of consultations has been statistically determined and visits randomly chosen to be representative of the whole session. These selected consultations were then analyzed by two pairs of experts using the same assessment forms. The first pair had the same time lapse to be as close as possible of the SP’s assessment conditions, and the second had a free time to watch the videos to determine the gold standard assessment. Results of clinical and communication skills according to SP’s and experts’ assessment were then compared.

**Summary of Results:** 20 consultations have been randomly selected among 960. Statistical analyses are currently in process. In August 2014 we will be able to report the results of clinical and communication skills according SP’s and experts’ assessments and especially the comparison between SP’s and experts’ assessments.
10P5 (19711)
How useful are standardised patients in teaching mental state examinations in psychiatry?

R Mahendran*, National University of Singapore/NUHS, Psychological Medicine, Singapore
EH Kua, National University of Singapore/NUHS, Psychological Medicine, Singapore

Background: Standardised patients (SPs) are used in teaching psychiatry at all levels. But can SPs help students engage with empathy and can they portray psychiatric symptoms and emotions realistically to provide the learning experience?

Summary of Work: Mixed methodology was used, qualitative interviews to determine students’ learning experience, emotional experience, skills acquisition and specifically empathy and realism of the experience. Questionnaire methodology (N 206) and performance on the end of posting exam were examined.

Summary of Results: Qualitative interviews found themes centered on Challenges faced, Beneficial effects and the actual Clinical experience of learning and relating to SPs. Students found SPs useful to learn MSE and they could engage emotionally with SPs. However real patients provided a better learning opportunity because of insufficient training of SPs and the setting with SPs was experienced as ‘artificial’ and ‘contrived’. Few could empathise or establish a therapeutic alliance with SPs. Respondents on the questionnaire favored SPs (p < .01) as SP sessions improved: (1) their clinical skills (2) confidence in dealing with psychiatric patients and (3) assessment and history taking. However students’ reported that SPs were least able to replicate psychotic conditions as compared to neurotic and mood disorders. The use of SPs in learning communication skills significantly predicted performance on the end of posting OSCE score (p .002).

Discussion and Conclusions: The study established differences in medical students’ learning experience with SPs and real patients. A balanced stepwise approach with SPs for skills acquisition before learning with real patients would provide a better clinical learning opportunity particularly in psychiatry where empathy and alliance are crucial to patient engagement.

Take-home messages: SP use should be supported by clear understanding of students’ needs. Targeted approaches with clearly defined roles for SPs in learning is crucial.

10P6 (19327)
Standardised patients or patient volunteers: Is there a difference in cost-effectiveness for interviewing practice?

Sue Murphy*, University of British Columbia, Physical Therapy, Vancouver, Canada
Donna L MacIntyre, University of British Columbia, Physical Therapy, Vancouver, Canada

Background: The use of standardized patients (SPs) and patient volunteers (PVs) in health professional education is common. However PVs may provide an equivalent experience at lower cost.

Summary of Work: This study compared 73 first year physical therapy (PT) students’ ability to extract pertinent clinical information from PVs versus SPs during patient interviewing practice and costs between the 2 groups. Each group of 4 randomly assigned students completed one patient interview, blinded to whether the patient was a PV or a SP. Following the interview, students completed a cross sectional, anonymous survey to determine whether information collected from the PVs and SPs was comparable in terms of data relevance, depth and ease of extraction.

Summary of Results: When analyzed, survey results showed no significant differences in the depth, relevance or ease of extraction of data between the 2 groups. Costs for the SPs were significantly higher than for the PVs.

Discussion and Conclusions: PVs and SPs both provide the opportunity for students to gather pertinent clinical data during interview practice. PVs provide a cost effective alternative to SPs for interviewing practice for first year PT students when the goal is data gathering. Because the use of PV’s results in considerable cost savings, it may be advantageous to use PV’s. More research into the students’ overall perceived quality and authenticity of the learning experience with the use of SPs versus PVs is warranted.

Take-home messages: In academic health education programs, cost effectiveness is a high priority. In this study we report that using PV’s for interview practice with PT students is a good choice.
10Q  CONFERENCE WORKSHOP:
Bringing Crisis Resource Management (CRM) to Life with Comics and Cartoons (21922)
Location: Workshop Room 1, Level 0, MiCo
Peter Dieckmann*, Danish Institute for Medical Simulation (DIMS), Center for Human Relations, Capital Region of Denmark, Herlev, Denmark
Jean Ker, University of Dundee, Dundee, United Kingdom
Walter Eppich, University of Chicago, Chicago, United States
Kamran Khan, Mafraq Hospital, Abu Dhabi, United Arab Emirates
Bryn Baxendale, University of Nottingham, Nottingham, United Kingdom
Doris Østergaard, Danish Institute for Medical Simulation (DIMS), Herlev, Denmark

Background: The principle of Crisis Resource Management (CRM) or non-technical skills (NTS) such as situation awareness, decision making, team working and leadership skills are important elements to improve patient safety in conjunction with the medical knowledge and skills. This type of simulation based training is often conducted for the multi-professional team. To fully understand and use these principles, instructors and participants need a deep understanding of the meaning of CRM and NTS. During this workshop we will use comic strips and cartoons to facilitate the reflection about these concepts.

Intended Outcomes:
1) Identify scenario elements that are examples of positive or negative CRM and NTS.
2) Integrate CRM and NTS principles into the design and conduction of simulation scenarios and debriefings.
3) Apply the workshop format in own environment.

Structure: Short presentation, group exercises
We will present the basic ideas around CRM and then present some cartoons and comics that make the point of the CRM principles. Participants will discuss the comics in relation to the principles. Then they will work with comic strips in which they use the CRM principles to fill in the words into the strips. In the end they will discuss what they learned around CRM and how to apply the excise at home. The workshop was tried at simulation conferences (SESAM and IMSH) and was very successful.

Timeline: 10 min Introduction to Workshop and CRM; 30 min Discussion of cartoons in regards to CRM in small groups, lead by faculty; 30 min Discussion and reworking of comic strips along the lines of CRM principles in small groups lead by faculty; 20 min Concluding discussion of CRM and ways of applying it

Who should attend: Educators involved in postgraduate simulation based training. Maximum number of participants: 60 (who will be working in six groups of 10).
Level: Intermediate

10R  CONFERENCE WORKSHOP:
Using theory in medical education research – as hard as it gets? (20159)
Location: Workshop Room 2, Level 0, MiCo
Klara Bolander Laksov*, Karolinska Institutet, LIME, Stockholm, Sweden

Background: For over a decade, there have been expressions of concern about medical education research publications lacking any explicit theoretical basis (Van Der Vleuten, 2000) and the situation does not seem to be improving (Bordage, 2009; Ringsted, Hodges, & Scherpbier, 2011). Just identifying the issue, it seems, has not helped researchers remedy it. The aim of this workshop is to help researchers explore different ways they could use theory by critically examining how others have done so in the past.

Intended Outcomes: This workshop will help participants understand how to use conceptual frameworks and theories relevant to medical education and increase their confidence to do so.

Structure: The workshop will combine short plenary inputs with active learning in small groups. It will first offer an analytical framework, which the presenters have developed by reviewing a wide range of theorised publications. Participants will then be divided into groups, each of which is allocated two papers (or summaries of papers) to analyse using our framework. The workshop will conclude with a general discussion, comparing the outcomes of group discussions.

Who should attend: PhD students and early-stage researchers in medical education.
Level: Intermediate


**ABSTRACT BOOK: SESSION 10**  
**WEDNESDAY 3 SEPTEMBER: 0830 - 1015**

### 10S CONFERENCE WORKSHOP: Research in Health Education: Opportunities in the Iberoamerican context (22394)

**Location:** Workshop Room 3, Level 0, MiCo

**Jordi Palés***, Medical School of University of Barcelona, Department of Ophthalmology, Otolaryngology and Head and Neck Surgery, Barcelona, Spain  
**Maria L. Veronese Rodrigues***, Ribeirao Preto Medical School, USP, School of Medical Sciences, Ribeirao Preto, SP, Brazil  
**Eliana Amaral***, State University of Campinas, School of Health Sciences, Campinas, Brazil  
**Nuno Sousa***, University of Minho, School of Health Sciences, Braga, Portugal  
**Manuel João Costa***, University of Minho, Department of Ophthalmology, Otolaryngology and Head and Neck Surgery, Braga, Portugal

**Background:** Most of the research published internationally in medical education originates from a restricted pool of countries that are not representative of all the educational and institutional cultures around the world. Within the Ibero-American countries, there are probably many thousands of institutions devoted to health professions education. The growth of the scholarship of research in medical education within the ibero-american has a huge potential for developing the training of health professionals in each country and to leverage medical education research worldwide.

**Intended Outcomes:** Participants will: (1) develop awareness about opportunities for collaborative research in medical education across ibero-american context; (2) contribute to identify ongoing and potential principal research lines in this geographic and cultural context; and (3) explore possibilities for design a collaborative research network.

**Structure:**
1. Overview and introductions (5 minutes)  
2. Review of principal geographic trends in medical education publications: Contributions from the iberoamerican context (15 minutes)  
3. Individual and group exercises – participant contributions (30 minutes)  
4. Identification of research lines and seeding of cross-country collaboration (30 minutes)  
5. Wrap up and evaluations (10 minutes).

**Who should attend:** Iberoamerican country delegates interested in getting involved in an iberoamerican network in Medical Education.

**Level:** Introductory

### 10T CONFERENCE WORKSHOP: Professionalism and Beyond: Instruction and Assessment in the Affective Domain (19184)

**Location:** Suite 9, Level Mezzanine, MiCo

**Machelle Linsenmeyer***, Oklahoma State University College of Osteopathic Medicine, Office of Educational Development, Tulsa, United States  
**India Broyles***, University of New England College of Osteopathic Medicine, Master’s in Medical Education Leadership, Biddeford, United States

**Background:** Is teaching and assessing the affective domain important in medical education? We believe that attitudes, beliefs, and professionalism are essential to our goal of educating caring, competent physicians who are ready for patient care in interprofessional teams. Attitudes in the instructional program need to be appropriately assessed.

**Intended Outcomes:** At the end of this workshop, participants will be able to:
- Identify learning outcomes that fit within the affective domain
- Select teaching strategies & learning experiences for acquiring attitudes
- Select varied assessment tools for affective outcomes
- Address the particular challenges of assessing affective outcomes

**Structure:** This workshop will help educators go beyond the principles of professionalism to align learning outcomes with instructional experiences and assessment strategies specific to levels in the taxonomy of the affective domain. Participants will work through a case related to professionalism and communication skills to create a teaching/assessment curriculum blueprint for the set of learning outcomes. The Affective Domain includes feelings, emotions, motivations, beliefs, attitudes, appreciations, values, preferences, opinions, and relationships. Three instructional conditions to teach attitudes: a) Demonstration by a respected role model, b) Practice of desired behaviors and attitudes, and c) Provision of reinforcement for desired behaviors (Marzano et al). Affective learning is demonstrated by behaviors indicating awareness, interest, attention, concern, and responsibility. Assessment includes: Self-assessment questionnaires, Narrative/reflective writing, Progressive disclosure cases, Ethical dilemmas, Autobiographical sketches, Learning logs or field logs, Role plays and simulation/standardized patient activities.

**Who should attend:** Medical educators in both undergraduate and graduate medical education.

**Level:** Introductory
10U CONFEREE WORKSHOP: From A to Z, essential tools to building a successful Gynecologic Teaching Associate program (19129)
Location: Suite 8, Level Mezzanine, MiCo
Lisa Pompeo*, New Jersey Medical School, Rutgers, Department of Ob/Gyn and Women’s Health, Newark, United States
Isle Polonko*, New Jersey Medical School, Rutgers, Department of Ob/Gyn and Women’s Health, Newark, United States
Gerson Weiss, New Jersey Medical School, Rutgers, Department of Ob/Gyn and Women’s Health, Newark, United States

Background: In the United States, Gynecologic Teaching Associate (GTA) programs are widely utilized to train medical students in breast and pelvic exam techniques. GTAs are highly trained lay women who utilize their bodies as teaching tools. This method of instruction is highly effective and numerous studies have shown it to positively impact student learning. It has been seen to increase student retention and ability to recreate exam techniques; reduce student anxiety; and positively impact student ability to interact with and educate patients. In Europe and other areas there are only a handful of GTA programs. This workshop will seek to provide necessary information for successful GTA program start up and implementation. History of GTA programming as well as comparative information will be provided as to other traditional methodologies of instruction, (pelvic task trainers, practice on untrained volunteers or anesthetized patients, etc.) so attendees understand the history, benefits and potential challenges of running an on-site GTA program.

Intended Outcomes: Participants will: 1 Gain knowledge of this type of education, its utilization and implementation 2 Understand benefits and challenges of GTA programming 3 Understand how it compares to more traditional methods of invasive exam instruction 4 Receive information necessary to begin groundwork for in-house GTA program.

Structure: I Greeting/Introductions II What is a GTA program? III How does this type of education compare to more traditional methods of invasive exam procedures? IV What are the necessary steps to program implementation? V Conclusion.

Who should attend: Anyone with an interest in understanding this method of instruction, its benefits and how to systematically go about implementing an individual program.

Level: Introductory

10V CONFERENEE WORKSHOP: Teaching in the Clinical Setting: Strategies to Assist the Teacher in Difficulty (20599)
Location: Suite 7, Level Mezzanine, MiCo
Leslie Flynn*, Royal College of Physicians and Surgeons of Canada, Kingston, Ontario, Canada
Linda Snell, Royal College of Physicians and Surgeons of Canada, Montreal, Quebec, Canada
Denyse Richardson, Royal College of Physicians and Surgeons of Canada, Toronto, Ontario, Canada
Anna Oswald, Royal College of Physicians and Surgeons of Canada, Edmonton, Alberta, Canada

Background: Front-line clinician-teachers are essential to medical education; yet the majority do not have formal training in teaching. Qualities of excellent clinical teachers are well described but there is a gap in the literature on how to address individuals at the opposite end of the spectrum, the ineffective teacher. Using archetypal cases and a systematic educational plan, this interactive workshop will assist faculty developers and clinician educators to develop and implement a quality improvement program for the clinical teacher in difficulty. The focus is on teacher performance in the clinical setting. Improvement strategies can be tailored to meet the participants' own educational environment.

Intended Outcomes: The participants will leave the workshop with the ability to develop a strategic plan to assist the teacher in difficulty for their own setting.

Structure: This will be an interactive workshop. Following a brief introduction to the topic, the participants will be provided with an approach to assisting a teacher in difficulty. The participants will work in groups to develop a plan to improve the teacher’s effectiveness.

Who should attend: This workshop is intended for those who are engaged in faculty development, mentorship and leadership positions working with clinical teachers.

Level: Intermediate
**10W  CONFERENCE WORKSHOP:**
The Small Group Experience: Strategies to Improve Your Performance as Facilitator (22424)

**Facilitator (22424)**
Location: Suite 6, Level Mezzanine, MiCo

Carol F. Capello*, Weill Cornell Medical College, Academic Affairs, New York, United States
Thanakorn Jirasevijinda*, Weill Cornell Medical College, Pediatrics, New York, United States
Joseph F. Murray*, Weill Cornell Medical College, Academic Affairs, New York, United States
Elza Mylona*, Eastern Virginia Medical School, Faculty Affairs and Professional Development, Norfolk, United States
Norma S. Saks*, Rutgers Robert Wood Johnson Medical School, Education, New Brunswick, United States

**Background:** In small groups, students can organize their thinking by comparing ideas with others; be self-reflective; polish communication skills; and exercise self-directed learning. Thus, schools are increasing the proportion of time students spend in small groups versus lecture. Yet, unfortunately, not trained in this pedagogy, most medical educators resort to what is familiar – lecturing.

**Intended Outcomes:** This highly interactive session will provide educators with practical strategies for managing small groups, an understanding of the importance of anticipating a group’s stages of development, and an increased confidence in dealing with stresses particular to this teaching venue.

**Structure:** After brief introductions, establishing “ground rules” for the 90-minute session, and an overview of the learning objectives, facilitators will ask participants to share self-reflections on various challenges-successes they have experienced leading or being a member of a small group. They will then view a trigger video illustrating “good” and “not-so-good” small group facilitation and discuss how – or if – the facilitator established the learning climate, moved the group forward, and/or addressed problematic behavior, recognized group dynamics, and wrapped up that first-day session. Next, following a brief discussion of how small groups develop over time, participants will break up into “buzz groups.” Each group will be given a different case vignette of a dysfunctional group and asked to think about various strategies and activities that a facilitator might use to resolve the issues presented in the vignette. The groups will then share their suggestions with the large group. The workshop will conclude with participants sharing one take-home strategy they plan to implement.

**Who should attend:** Medical educators across the continuum.

**Level:** Intermediate

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**10X  CONFERENCE WORKSHOP:** How NOT to deliver a lecture (19033)

**Location:** Suite 4, Level +2, MiCo

Howard Tandeter*, Ben Gurion University, School of Continuing Medical Education, Beer Sheva, Israel
Jacob Urkin*, Ben Gurion University, Prywes Center for Medical Education, Beer Sheva, Israel

**Background:** Although in general we don’t like lectures, we often have to use them as a teaching method. So if we have to use them it will be useful to learn some tips on how to do them right.

**Intended Outcomes:** Creation of a tool by the group to be used by the group while returning to their institutions.

**Structure:**
1. Part one is a role play in which one of the presenters gives a lecture full of errors and the participants act as expert educators diagnosing the teacher’s errors.
2. The second part is a nominal group process in which a checklist will be created with the observations made by the participants. This checklist will be the product of the workshop, to be used by the participants in the future for peer evaluation and feedback.
3. A group discussion will be held on possible uses of this checklist in the participants’ institutions.

**Who should attend:** Mainly young teachers, but also others interested in peer evaluation.

**Level:** Introductory
Implementing a medical student quality improvement project (21608)

Location: Workshop Room 2, Level 0 MiCo

M R Wise*, University of Auckland, Obstetrics and Gynaecology, Auckland, New Zealand  
B Kool*, University of Auckland, School of Population Health, Auckland, New Zealand  
L Sadler, Auckland District Health Board, Obstetrics and Gynaecology, Auckland, New Zealand  
F Mahoney, University of Auckland, School of Population Health, Auckland, New Zealand  
G Robb, University of Auckland, School of Population Health, Auckland, New Zealand  
S Wells, University of Auckland, School of Population Health, Auckland, New Zealand

Background: Quality improvement (QI) is formally taught by the School of Population Health at University of Auckland in Years 3 and 5 of the medical programme. In Year 6, during their five week clinical attachment in Obstetrics and Gynaecology, students complete a project that vertically integrates their knowledge. In pairs, they choose a topic, develop a standard of care, audit patient records against the standard, and present their findings. Students develop cause and effect diagrams to interpret their findings and suggest ways to enhance quality of care. This is our tenth year of the project, and this workshop will highlight the experience of our academic team.

Intended Outcomes: Understanding the value of students completing a short practical QI project in a clinical setting to consolidate the formal teaching in the curriculum; taking home a practical toolkit of resources to facilitate implementation of a QI project in your medical school.

Structure: Conceptual framework for QI in a clinical setting; examples of student QI projects; developing resources, networks, and processes to implement a QI project in your medical school curriculum; challenges and enablers to implementation of, and sustaining, a QI project; survey results of students and staff attitudes towards the QI project; interactive development of an example project; the impact of student QI projects on quality of care in women’s health in New Zealand.

Who should attend: Academic clinicians interested in developing or revising a QI project in their medical school; population health experts; clinicians in any specialty; fellows or postgraduates in medical education.

Level: Introductory

Networking, LifeLongLearning and LifeLongMobility in designing an ICT supported curriculum (23189)

Location: Suite 2, Level +2, MiCo

Background: There are key innovations adapted by the Communication of European Commission that Universities must meet: open educational resources (OER), technology enhanced learning curriculum designing, and virtual and blended mobility forms. Despite the fact that there exist good practices of virtual mobility designing for university studies, and that OER is not new initiative in education, these innovations are hardly mainstreamed and even applied in university studies. Innovative practices have not become a well, uptake tradition in study process.

The reason for this is that innovations are hardly introduced to teachers, university staff. Surveys implemented at university level show that the majority of them do not know or use OER in curriculum designing. Moreover, virtual mobility (VM) innovation needs to be introduced to regular student exchange possibilities, and teachers should be trained on how to design open curriculum and how it can be recognised afterwards in regular university study programs.

The aim of this workshop is to highlight the present situation and to discuss how to open university studies for VM by training teachers and academic staff on how to design curriculum using OER and applying correct licensing, how to establish collaborative trusted relationships in curriculum designing for multicultural exchange and how to integrate these opening education innovations in every day practices.

Intended Outcomes: Stress the importance of the networking in the educational field and look at the future of the Medical teaching, highlight the present situation and to discuss how to open university studies for VM by training teachers and academic staff on how to design curriculum using OER and applying correct licensing, how to establish collaborative trusted relationships in curriculum designing for multicultural exchange and how to integrate these opening education innovations in every day practices.

Structure: Learning approach using open educational resources (OER), technology enhanced learning curriculum designing, and virtual and blended mobility forms in order to enhance skills and knowledge.

Who should attend: Doctors- Students- Residents.

Level: Introductory
10AA CONFERENCE WORKSHOP: MEDEDWORLD 3: Introduction to MedEdWorld for Institutions - How can MedEdWorld be utilised to the advantage of your institution? The benefits for organisations

Location: Suite 1, Level +2, MiCo

Ricky Shek*, AMEE, Dundee, United Kingdom
Catherine Kennedy*, AMEE, Dundee, United Kingdom
Ken Masters*, Medical Education & Informatics Unit, College of Medicine & Health Sciences, Sultan Qaboos University, Sultanate of Oman

Health profession education is a progressive and demanding field in which both individuals and institutions are required to keep pace. Recognising this, medical education institutions are increasingly striving to promote and develop their services. MedEdWorld provides institutions with both a space on which to promote their activities to the wider medical education community and a space in which their members can debate and network with likeminded colleagues from around the globe. MedEdWorld can therefore make a significant contribution to your institution’s faculty development programme.

This workshop offers an overview of the MedEdWorld website’s most innovative features with a focus on the services MedEdWorld offers institutions and their members through Institutional or Affiliate membership. The session will include advice on how institutional members can make best use of MedEdWorld’s promotional services. The session will also discuss the resources available to Institutional and Affiliate members through MedEdWorld and will discuss with participants how the MedEdWorld Webinar Series can be integrated into your faculty development programme.

Workshop participants are encouraged to bring along a laptop or other device to fully participate in this session.

10BB BEME CONGRESS

Location: Suite 5, Level Mezzanine, MiCo

Please come to the BEME Congress if you would like to contribute to the discussion about the work undertaken by the BEME Collaboration with regard to systematic reviews in education, and how evidence may best be used to inform teachers about decisions they make in their daily practice. Evidence informed practice is the theme of various BEME-related sessions during the Conference (see page 6 of the final programme). You will find more details about BEME in the leaflet in your Conference pack. Further information is available at the AMEE exhibition stand in Milan.
**10CC POSTERS: Assessment 6: Written**

**Location:** South Hall, Level 0, MiCo

**10CC1 (21787)**

The correlation of a comprehensive MEQ score with the GPA of the last year medical students in Faculty of Medicine, Thammasat University, Thailand

Nonglak Kanitsap* Faculty of Medicine, Thammasat University, Prathum Thani, Thailand

Pisit Wattanaruangkowit, Faculty of Medicine, Thammasat University, Prathum Thani, Thailand

**Background:** Comprehensive examination is mandatory for 6th year student before graduation. MEQs have emphasis on clinical-reasoning, decision-making and case-solving. Our school has 5 teaching hospitals using same curriculum, same teaching and assessment method. All disciplines were assessed by the same criteria.

**Summary of Work:** To identify the correlation of MEQ scores with GPA and the difference of MEQ scores of 6th year medical student in 5 different hospitals of Thammasat Medical School. Five MEQ papers including medicine, pediatric, obstetrics, surgery and emergency medicine were used for examination in the last semester. MEQ scores and GPA of the students were correlated. Difference of MEQ scores in 5 groups of students according to teaching hospitals was examined by one-way ANOVA.

**Summary of Results:** The MEQ total score is 500 with range 234-384 marks (mean 303.96;SD 5.58). With minimal passing level of 265 (53%), 142 from 159 students (89.2%) passed the exam. There was no correlation of total MEQ score and GPA in all hospitals. The mean score of surgical MEQ was high in Saraburi (Hospital 2) and the mean score of pediatric MEQ were high in Surat Thani (Hospital 3) with statistical significance. (p<0.001). Mean surgery MEQ score was 62,68,58,60, and 61; and mean pediatric score was 57,56,68,65, and 60 from 1st to 5th hospital respectively.

**Discussion and Conclusions:** No correlation between comprehensive MEQ score and GPA was found. Total MEQ score of students from five hospitals were not statistically different, however there were statistical differences in the scores in surgical and pediatric papers.

**Take-home messages:** Well organized curricular management in different hospitals would bring standard of medical educational outcomes.

**10CC2 (20897)**

Development of a Script Concordance Test to Assess Ethical Reasoning Ability (SCT-ERA): A Preliminary Study

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**Background:** The script concordance test (SCT) is used to assess clinical reasoning in ambiguous situations that are not reliably measured with conventional tests. This paper reports on the development of an SCT to assess ethical reasoning ability (ERA).

**Summary of Work:** The research team developed ethics dilemma vignettes based on the UNESCO Bioethics handbook. Qualitative feedback on the vignettes was obtained from 22 faculty members. Following appropriate revision, the SCT-ERA was administered to a sample of 19 clinicians to set standards and compare the performance of different groups of clinicians.

**Summary of Results:** An SCT-ERA consisting of 24 scenarios with 3 questions each was developed. Standards were set with 19 clinicians, and the results suggested that older clinicians (p=0.030) holding high academic positions (p=0.003) and with more clinical experience (p=0.001) performed statistically significantly better than their counterparts. No statistically significant differences were observed based on gender, race, religion or teaching experience.

**Discussion and Conclusions:** The SCT-ERA can differentiate varying degree of ethical reasoning skills. Further validation is needed with a wider range of stakeholders.

**Take-home messages:** The SCT-ERA is a novel tool to assess ethical clinical reasoning.
**10CC3 (20883)**
**Dyna: Combining webinars, virtual patients and SCT for improved knowledge translation**

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**Background:** Clinical practice guidelines (CPGs) have little impact on improving care. Strategies to enhance uptake are difficult to assess. Combining small-group webinars, virtual patients and integrating script concordance testing (SCT) as both needs assessment and outcome measure appears to address some of these challenges.

**Summary of Work:** We used a combination of webinars and virtual patients incorporating SCT to assess changes in clinical reasoning amongst experienced rural physicians. Participants tackled virtual patients on low back pain and headache before, during and after webinar sessions on chronic pain CPGs. Case design emphasized areas where pragmatism conflicts with established CPG principles.

**Summary of Results:** Clinicians strongly favored this approach. They found it more relevant to practice, and allowed them to explore investigative and treatment options with their peers. Immediate reporting of decision pathways enhanced discussions of clinical controversies but was challenging to generate on-the-fly. Analysis of reference panel and participant scores showed surprising divergence in some areas, pushing us towards a different stance in assessing what constituted a ‘good question’, as compared to traditional SCT metrics for student exams.

**Discussion and Conclusions:** Blending webinars and virtual patients significantly enhances learner engagement and enriches case discussions, which may enhance uptake of CPGs. An SCT approach fits better with how experienced clinicians like to be challenged, if placed within a realistic clinical context. Standard SCT metrics need a new approach when used in this manner.

**Take-home messages:** SCT-based virtual patients provide a rich assessment tool to evaluate learning in experienced practitioners.

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**10CC4 (20913)**
**A comparison between four- and five-option multiple-choice questions for assessment of postgraduate medical training: A randomized study**

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**Background:** Multiple-choice questions (MCQs) are objective and allow teachers to evaluate a wide range of content and objectives. Currently, there is no consensus for optimal number of options, especially in postgraduate students. This study aimed to compare the psychometric properties of four- and five-options MCQs in residency assessment.

**Summary of Work:** We developed two versions of 10-item MCQs for summative basic science assessment of transfusion medicine. The first version consisted of five options in odd items and four options in even items and vice versa for the second. Both versions were randomly distributed to 94 interns and the first-year residents at the same time. We performed item-analysis to compare the properties between two sets of MCQs.

**Summary of Results:** The median test scores (IQR) were 4 (3, 5) in both groups. The means (range) of difficulty index of the first and second version were 0.38 (0.0, 0.77) and 0.40 (0.04-0.78), respectively (p=0.8). The mean item difficulty using point-biserial correlation was similar (0.29 for the first and 0.25 for the second, p=0.79). Proportions of students got the item correct and KR20 reliability were not significantly different. Furthermore, distractor performance analysis demonstrated a similar picture in both versions.

**Discussion and Conclusions:** Results of item analysis from teacher-generated MCQs showed no significant differences between four- and five-option MCQs for residency evaluation.

**Take-home messages:** Developing of four-option items require less time to write and may allow to develop more items rather than more options, teachers are encourage to use four-option MCQs for postgraduate evaluation.
10CC5 (19092)
Short and long term effectiveness of a course on writing better MCQs

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Background: Quality of MCQs can be improved by training. We aim to present a research project design to get feedback and suggestions.

Summary of Work: Three identical courses titled “Student Assessment in Medical Education: Writing Better MCQs” will be given in three different medical schools. MCQs prepared by the participants before and after the course will be compared to determine short-term course effectiveness. Additionally we will generate a control group including the MCQs prepared by medical teachers who has not received any training on MCQ writing. MCQs prepared by the participants and the control group for in-house exams will be followed-up for one year to evaluate long term course effectiveness. We will also divide the participants into three groups to explore the effect of follow-up efforts after the course. The first group will get no support after the course. The second group will receive refreshment training 9 months later. The third group will be supported by frequent meetings, collaboration and feedback. The MCQs will be assessed giving a score between 1 and 5 to each of them according to cognitive domain assessed (knowledge-1, comprehension-2 and problem solving-3), question type (single correct answer-0, best answer-1) and presence of technical errors (present-0, absent-1).

Summary of Results: Two courses have been performed by the authors so far.
Conclusions: The project intends to evaluate short and long-term effectiveness of a course on writing MCQs and to see the effect of different post-course follow-up strategies on MCQ quality.

Discussion and Conclusions: The project intends to evaluate short and long-term effectiveness of a course on writing MCQs and to see the effect of different post-course follow-up strategies on MCQ quality.

Take-home messages: Well designed studies may reveal short and long-term effectiveness of trainings on MCQ writing.

10CC6 (22143)
What the MCQ tests tell us about the knowledge and skills of medical students on pathophysiology

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Background: Written assessment of students’ knowledge we did by MCQs tests during semesters and in the final exam. We would like to know: a) How the results of tests taken by students during semesters fit the result of the final test, b) What is the students’ knowledge on different taught topics.

Summary of Work: Students underwent 4 tests during semesters and 1 test in the final exam. Knowledge on 27 pathophysiological topics was tested. Number of questions in the tests/pool of questions were: 1st-50/225, 2nd – 40/186, 3rd – 50/255, 4th – 45/178, final-60/844.

Summary of Results: Percentage of incorrect answers in tests was: 1st -17,4%, 2nd -10,6, 3rd- 18,6%, 4th- 14,9%.
There were important differences in % of incorrect answers among different topics – from 4,8% up to 43,3%. Incorrect answers higher than 25% was found in 6 topics, and lower than 10% in 8 topics. Average of incorrect answers in all 4 tests was 17,1% and in final test was 24,7%. It seems that retention of knowledge acquired by students during semesters is not good enough.

Discussion and Conclusions: Results of tests taken by students during the semester were better than results of the final test. There were high differences in test results in different topics.

Take-home messages: MCQs tests used for assessment of medical students’ knowledge on pathophysiology are able to point to effectiveness in teaching different topics.
**10CC7 (23182)**

Cognitive complexity training to support cross-discipline multiple choice exam item evaluation

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**Background:** Multiple-choice exam items generally involve very little higher order thinking (HOT), possibly because experts are challenged to identify HOT in test items in their own domains. Our work has found that HOT is reflected by cognitive complexity, not difficulty, of items, and suggested that cross training subject matter experts, to evaluate HOT in the exam items outside their expertise, could improve their perception of HOT.

**Summary of Work:** The Cognitive Complexity Matrix (published in 2013) was used to rate 100 multiple-choice items from each of five preclinical course directors (and 55 items from a sixth) participating in this project. Six workshops will have been completed by June 2014. Tests are given after each workshop on exam items from their own and other disciplines.

**Summary of Results:** After 3 workshops, three results are already clear: 1. One workshop for this skill does not change performance. 2. Changes in performance depend on whether items are from one’s own (simpler items improved) or different (more complex items improved) domains. 3. The main error initially was overestimation of complexity (items seemed harder); the shift is towards correct or underestimation (items seem less hard).

**Discussion and Conclusions:** Although with a small sample, this will be the first project to empirically test the hypothesis that cross training can differentially improve HOT perception.

**Take-home messages:** A single workshop is not sufficient to promote competency in understanding HOT, although “Bloom’s Taxonomy” (from whence most information on HOT arises) is almost universally the content of a single workshop.

**10CC8 (21650)**

Eliminating Flawed Items in High-Stake Examination: The Chinese University of Hong Kong Experience

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**Background:** The Teaching and Learning Resource Centre (TLRC) of The Chinese University of Hong Kong (CUHK) recently completed a major revamp of items used in its final surgical examination. An internal review of examination items completed in 2007 revealed that half of the items (311 out of 625) that were used in final surgical examination from 2002-2005 were flawed. TLRC attempted to remediate the situation through providing bi-annual items writing workshops, reorganization examination committees and most importantly, introducing an item bank for quality control.

**Summary of Work:** The item writing workshops teaches teachers with guidelines on how to create quality questions and the examination committees screens all questions that are used in high-stakes examination. An item bank called IDEAL, or International Database for Enhanced Assessments & Learning, is introduced to store all the items used for high-stakes examinations. It allows each examination data to be collected and provides an indicator of potential flawed items that need further review.

**Summary of Results:** A follow-up study on the items used in the final surgical examination for 2008-2011 was performed and the number of flawed items reduced to 7% (54 out of 742).

**Discussion and Conclusions:** TLRC interventions greatly improved the quality of the items that are used in high-stakes examination in the Faculty of Medicine of CUHK. Many departments also adopted IDEAL as their database to store their own examinations items to ensure for their quality.

**Take-home messages:** The use of an item bank is extremely useful and important for identifying problematic items and ensures the examinations can provide a meaningful assessment of students.
**10CC9 (19717)**

**Developing and gathering validity evidence for a MCQ test**

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**Background:** Theoretical testing provides the necessary foundation to perform technical skills. Additionally, testing improves retention of knowledge. The aims of this study were to develop a multiple-choice question test in endosonography and to gather validity evidence for this test.

**Summary of Work:** Informal conversational interviews were held with four international experts in endosonography (step 1) and 78 questions were constructed (step 2). Content validity of the questions was explored using a Delphi-like approach (step 3) and construct validity was explored by administering the test to three groups: 27 medical students, 18 respiratory physicians with limited endosonography experience, and 14 experts (step 4).

**Summary of Results:** Two Delphi iterations reduced the test to 52 questions. Item analysis reduced the final test to 46 questions with mean item discrimination = 0.47 and mean item difficulty = 0.63. Internal consistency reliability was calculated to 0.91. The three groups performed significantly different; ANOVA: p < 0.001, and all post hoc tests were significant. The experts performed significantly more consistent than the novices (p = 0.037) and the intermediates (p < 0.001).

Satisfactory item analysis was achieved giving most items the best item characteristics. Internal consistency reliability was high and good discriminative ability was shown.

**Discussion and Conclusions:** A four-steps model could be used to develop a theoretical test and gather necessary validity evidence.

**Take-home messages:** Carefully designed and tested theoretical tests could aid learning, retention, and assessment.

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**10CC10 (19078)**

**Progress Test Attendance, Progress Test Score, and GPA as National Competency Examination (UKN) Performance Prediction for Faculty of Medicine University of Indonesia (FMUI) Students**

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**Background:** Progress Test (PT), conducted twice per year, has become part of formative evaluation at Faculty of Medicine University of Indonesia (FMUI) since 2007. In 2010, a study was conducted to correlate between Progress Test results with GPA, and UKN, which has shown a significant correlation but not taking into account the Progress Test attendance. Recently we have conducted the correlation between Progress Test attendances, Progress Test results, and GPA to predict National Competence Examination (UKN).

**Summary of Work:** GPA year 1-5, Progress Test Attendances during last 5 years studies, and Progress Test Results (N=10) were collected from 195 medical students who entered FMUI in year 2007 and completed their study in year 2012. Data analysis was conducted using SPSS 11.5 with correlation test and multiple linear regressions.

**Summary of Results:** There were significant moderate correlations between UKN score and 1st-5th year GPA, 1st-10th Progress Test score, Mean Progress Test score. There was strong significant correlation between Progress Test attendances and Mean Progress Test score. The best significant model to predict UKN Performance with Progress Test components and GPA is UKN Performance = 37.71 + 0.12 (PT Attendance) + 0.16 (5th year GPA) + 0.33 (8th PT, year 4) + 0.23 (10th PT, year 5) with R-square 0.34.

**Discussion and Conclusions:** Progress Test score, especially in clinical years, fifth year GPA, and Progress Test attendance has correlation with UKN score.

**Take-home messages:** Progress test components (attendance and score) and GPA can be used to predict National Competence Examination performance.
10CC11 (18575)

Measuring Medical Students’ Motivation after Progress Test

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Background: Assessments like progress test play an important role in providing an institution the information concerning students’ achievement and growth. It is also quite evident that lack of motivation to perform well on such tests may produce scores that are spuriously low.

Summary of Work: This cross-sectional study was conducted to explore medical students’ motivation level after taking the progress test. Secondly, to correlate SoS scale score with progress test score and last semester cumulative GPA. The data was collected using SoS questionnaire in English language from 69 medical students studying in 1st and 2nd year at College of Medicine, Majmaah University using complete enumeration method.

Summary of Results: Moderate to severe stress was experienced by 18 (26%) students. Students in year 2 considered progress test more important (p=0.026) and also had higher progress test score (p<0.05) respectively.

Discussion and Conclusions: This study may be considered as a step-forward for measuring students’ motivation after the progress test to evaluate student’s success in achieving their intended aims, particularly around changes to curriculum or assessment structure.

Take-home messages: It may be considered important to continue monitoring student motivation and effort so that they try to give their best in high and low stake examinations. Performing well in such assessments may help to bolster student’s confidence and enhance their academic growth and development.
10DD1 (20124)
Developing rurally focussed online modules using the interactive e-Medici platform to enhance medical students’ learning and immediate feedback

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Background: eMedici (http://www.emedici.com) is an online interactive e-learning platform developed by the University of Adelaide (UA). Since 2006, more than 600 case-based scenarios had been developed covering Surgery, Cardiology, Paediatrics, Ophthalmology and O&G. Rural medicine however presents unique challenges to the practitioner.

Summary of Work: In collaboration with UA, the University of Notre Dame Australia School of Medicine Sydney has developed 3 specifically rural modules in Emergency Medicine, ICU/Trauma and Paediatrics. Each module contains 10-15 cases initially developed by final year students. Topics were selected by clinician experts and 3 weekend workshops were conducted in rural clinical schools where content experts (local and external) and students critiqued and modified each case.

Summary of Results: After further peer review, 32 cases were developed and published online. Each case was situated in a rural setting. Interactive questions on history, examination, diagnosis, management, and transfer/disposition were framed in a rural context. Each case was completed with a synopsis and references. The responses of surveyed students were positive, with most users rating highly the validity and relevance of the materials to the rural curriculum and stating that eMedici was an important learning source.

Discussion and Conclusions: Case development workshops located in rural locations with the contribution of specialists and students are an effective strategy in generating online learning materials with direct relevance to rural practice.

Take-home messages: eMedici is an effective online interactive platform to enhance students’ learning in a rurally focused context.

10DD2 (21466)
Assessment performance of students completing a year-long rural clinical clerkship at the Ukwanda Rural Clinical School of Stellenbosch University, South Africa

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Background: A major concern of medical students applying for our final-year rural clinical clerkship, is that they may not perform as well in the exit-level final assessments as their counterparts remaining at the academic hospital (AH). Both groups are assessed together in the final examinations, but the in-course assessments are conducted differently. The assessment methods employed at the Rural Clinical School (RCS) for the latter are better aligned with modern teaching approaches.

Summary of Work: A five-year cohort study to investigate the implementation of a year-long rural placement for final year medical students is underway. The assessment results of three successive cohorts at the RCS have been analysed and compared with students at the AH. In addition, in-depth interviews have been conducted each year with RCS students to determine their experience of the rural immersion.

Summary of Results: RCS students complete the same exit level assessment as their colleagues at the AH. In-course assessment differs in the form of a patient portfolio. While they describe confidence in their clinical skills, the students articulate concerns about their academic preparedness for final assessment. The analysis of exit results, however, indicates that RCS students are not disadvantaged relative to students at the AH.

Discussion and Conclusions: Assessment remains pivotal to the student experience. The implementation of an educational innovation requires careful consideration of the implications that such innovation holds for assessment. While it creates opportunities to embrace new approaches, these should be nested within a renewed and aligned assessment plan.

Take-home messages: Innovation in education offers spaces to challenge traditional assessment practices.
How can we achieve the country's goal in production of rural doctors?

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Background: Shortage of rural doctors occur in many parts of the world especially developing countries. The ratio of doctors to population in Thailand in 1995 was 1:4,282 with maldistribution. The ratio in Bangkok, the capital city was 1:909 while the central, the southern, the northern and the northeastern part were 1:5,548, 1:5,968, 1:6,318 and 1:10,740 respectively.

Summary of Work: Ministry of Public Health started Collaborative Project to Increase Production of Rural Doctors in 1994 with collaboration with Ministry of Education. The policy is local recruitment with quota, local training and hometown placement. Fourteen out of nineteen university joined the project, only two located in Bangkok. Medical students study three years in medical school and another three years in provincial and community hospitals of Ministry of Public Health.

Summary of Results: Total recruitment from 1995-2013 was 11,213 students. The ratio of doctor to population improved to 1:1,985 in 2012. The ratio in each region was 1:628 in Bangkok and 1:2,533, 1:3,128, 1:3,059 and 1:4,682 in the central, southern, northern and northeastern part respectively. The retention rate in rural area for at least three years was 1.5 times higher than normal track.

Discussion and Conclusions: Increasing rural doctors by collaboration between medical schools and Ministry of Public Health can be done in order to reach the ratio 1:1,500 in 2017.

Take-home messages: Provincial and community hospitals is a real world healthcare system for teaching rural doctors.
The Outcomes of the Doctor of Medicine Program of Maharat Nakhon Ratchasima, School of Medicine, Thailand

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Background: Maharat Nakhon Ratchasima Medical Education Center (MNRHMEC) has established the Doctor of Medicine Program since 1997, aiming to solve rural doctor shortage in the responsible area. Therefore the program evaluation were needed to assess the achievement.

Summary of Work: The cross-sectional study was conducted in four North-East provinces of Thailand. Data were collected by reviewing documents, replied questionnaire from 3 groups which were MNRHMEC alumni, health care providers, and the patients including their relatives in 2013 (formerly yearly data not included in the report). The site visits were held to get additional information i.e., workplace context, alumni practice, group discussion with stakeholders. Descriptive statistics was used in data analysis.

Summary of Results: The average 3 years and 4-9 years retention of MNRHMEC graduates in the responsible area were 95% and 73% respectively. Twenty nine rural doctors, 1,413 health care providers and 628 of patients and relatives from 20 hospitals replied the questionnaires. Majority of alumni had a good quality of life. Medical knowledge and practice, professionalism, communication and interpersonal skills of alumni were assessed by themselves, health care providers, patients and their relatives. The results of assessment were good among alumni and healthcare providers, and very good among patients and their relatives. However, Holistic Approach, Epidemiology, Evidence-based Medicine and Working with Community should be more in the curriculum.

Discussion and Conclusions: Alumni of the Doctor of Medicine Program, Maharat Nakhon Ratchasima hospital have good performance and appropriate for healthcare-needs of the responsible area.

Take-home messages: The outcome assessment is necessary to evaluate the achievement of Medical Program.

Medical students’ perceptions of community-based medical education and traditional structured teaching

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Background: In recent years, community-based medical education (CBME) through general-practice consultations has become an attractive model, as it requires fewer resources than traditional structured teaching sessions (STS). Little is known about students’ experiences of a year-long integrated curriculum involving both CBME and STS simultaneously. Peninsula Health in Victoria, Australia is one of a few institutions in the country to offer such a curriculum. This study aimed to explore the learning experiences of students and identify potential issues related to the curriculum.

Summary of Work: All students in the curriculum were invited to participate in this cross-sectional study. A modified DREEM (Dundee Ready Education Environment Measure) questionnaire and additional short answer questions were administered. Thematic analysis of short answer responses was conducted by independent evaluators.

Summary of Results: Data from the DREEM questionnaire showed students perceived the curriculum overall as “more positive”. In addition, CBME was perceived more favourably than STS. Two themes emerged from students’ experiences of CBME: opportunity via observational and experiential learning experiences; engagement through synergy with supervisors. Two themes were identified in relation to STS: engagement through case-based activities; content relevancy in need of improvement.

Discussion and Conclusions: Although the curriculum involving both CBME and STS appear to be perceived well, more focus should be directed to address issues in STS.

Take-home messages: While the determinants of students’ learning experiences are multi-factorial, the curriculum design offered imparts a significant influence. The integrated curriculum of this study, with further optimisation has a potential to enhance students’ learning experiences.
10DD7 (20162)  
An innovative GP, community placement in difficult and deprived UK areas  

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Background: The application of extended undergraduate clinical placements in under-served, community areas is an increasingly accepted education setting. These placements are mainly located in vast rural and remote areas with very little known about placements in other under-served settings such as inner-city, difficult and deprived UK areas.  
Summary of Work: Qualitative research to understand stakeholder experiences of an innovative DDAP (Difficult and Deprived Area Programme) was carried out. Data from the first two cohorts has been collected, including nine students in total. Semi-structured interviews with DDAP students (before, during, end placement), GP supervisors, and patients, were completed. The data was investigated within a constructivist approach; framework analysis was used to explore the data.  
Summary of Results: Students, supervisors, and patients had positive experiences of the DDAP. Students perceived learning about the difficulties in providing healthcare for deprived areas mainly through the teaching sessions and community placement, while the GP component enabled practice and reinforcement of clinical skills.  
Discussion and Conclusions: The DDAP provides medical students with a learning experience in an under-utilised setting within medical education. A clinical experience in deprived areas (community based) may require more exposure in GP settings but a social accountability emphasis (community engaged) suggests more attention for the community aspect.  
Take-home messages: The DDAP provides a model for educators seeking to implement similar initiatives in other under-served settings. This research provides more valuable information on an emerging topic which is gaining vast momentum within medical education.

10DD8 (20965)  
100 Medical students in primary care clinical placement 2011-13  

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Background: Kardinia Health is a GP Super Clinic in Geelong, Australia which was opened in August 2010. Since January 2011, 100 final year Deakin University medical students have undertaken their five or six-week clinical placement in general practice here. Students form part of the multidisciplinary team and experience vertical integration of training with a GP registrar and a Prevocational General Practice Placement program (PGY2) trainee. Thirteen GPs supervise with two consulting rooms dedicated to students for parallel (wave model) consulting.  
Summary of Work: To report on the experiences of Kardinia Health in training 100 students in relation to:  
• Student, patient and GP experience  
• Models of student supervision  
• Impact on GP income.  
Summary of Results: Satisfaction is high amongst the students and the patients regarding the participation of the students. GPs identify GP fatigue, reduced income and slower throughput as issues; however GPs find students contribute to GP education and to the consultations. The impact on GP patient numbers and income varies between different GPs. Vertical integration of training has been well accepted. GPs have different methods of student supervision utilising:  
• Student observation of GP  
• GP observing student  
• Parallel consulting 1 student  
• Parallel consulting 2 students (each with their own patients).  
Discussion and Conclusions: The essential ingredients for having large numbers of final year medical students on clinical placement are:  
• Established GPs with a strong patient base  
• Consulting rooms for students  
• Excellent process for patient consent  
• Training and support for GPs  
• Thorough orientation  
• Good evaluation, feedback and response mechanisms  
Take-home messages: Final year medical students can contribute significantly to workplace efficiency in clinical placement in primary care whilst also experiencing a rich learning environment.
**10DD9 (22931)**

We go to school but hand

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Cruz Bartomoe-Moreno, CS Parque Goya, Zaragoza, Spain  
Belen Benede Azagra, CS Actur Sur, Zaragoza, Spain  
Enrique Concha-Mayayo, CS Actur, Zaragoza, Spain  
Sonia Bonet C Alafell, CS Arrabal, Zaragoza, Spain  
**Rosa Magallon-Botaya***, CS Arrabal, Zaragoza, Spain

**Background:** Methodological difficulties have been an obstacle to the development of community work in primary care. In previous studies in Spain activities aimed at children and school population account for only 6% of the total and predominate on drug prevention and addressing oral health.

**Summary of Work:** After Web 2.0 tools are created (Google site "Our community side" with training activities, Netvibes "Community" to update knowledge, Google calendar "Our community side") a formative workshop is given to all residents and the new program starts. After 5 years development an observational cross-sectional study was done on Primary Care doctors and nurses during residency. The information was gathered by self-administered questionnaire with an automatic registration by Google analytics. A univariate analysis was done. It was impossible to do subgroup analysis.

**Summary of Results:** All medical and nursing residents are included in the study from 2009 until today. 20 professionals were involved in the survey. 88.8% of the participants were women. 88% physicians. 100% of the residents have participated in organized community activities, 100% of residents are listed with Google calendar, and receive information via email or sms, 64.7% use Google site (50% bonds, 31.3% training activities, 25% bibliography), 94.1% use Netvibes to update knowledge, 100% use the resources of the web page.

**Discussion and Conclusions:** All residents participate in community activities, and it has become important in the future to have built this kind of work. All use the website and use Google calendar, and virtually all have acquired the habit of regularly updating knowledge in this case to Netvibes.

**Take-home messages:** Web 2.0 tools proposed are useful to integrate Community Health Education Intervention Programmes on Nutrition and Lifestyles.

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**10DD10 (21861)**

Non doctor community placements: Making it work

**Erica Sullivan***, University of Manchester, Community Based Medical Education, Manchester, United Kingdom  
**Rachel Lindley**, University of Manchester, Community Based Medical Education, Manchester, United Kingdom

**Background:** Care in the community is increasingly delivered by a variety of health care professionals, often non-doctors. This creates a challenge for educationalists to ensure that medical students learn from those with the most knowledge in these fields whilst not compromising the quality of educational experience.

**Summary of Work:** The Community Sign Up project was developed where medical students chose a pre-approved community healthcare placement for one day e.g. prison, hospice, physiotherapy, drug teams. Quantitative and qualitative evaluation data was collected from students and tutors.

**Summary of Results:** 96% of students would recommend their placement to others. Over 2/3 of placements were rated good or excellent. Qualitative themes from students and tutors will also be presented.

**Discussion and Conclusions:** Non-doctor led placements can provide valuable learning opportunities. Non-doctor tutors need support to understand the factors required for a positive and useful educational experience that the medical students can take forward throughout their careers. Keys to success of this project are:

1. A dedicated clinician to lead the project with an academic doctor mentor for help and support to link this to the medical curriculum. In our case the lead clinician is an academic nurse who still has a clinical role.
2. Committed administration staff for organisational issues
3. Quality assurance processes to ensure a valuable and challenging learning experience.

**Take-home messages:** The untapped resource of non-doctor specialists in the community can provide a valuable educational experience for medical students often addressing un-met learning needs.
10DD11 (23077)
Increase in students' social and civic awareness following exposure to minorities in community

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Background: Community exposure is useful for medical students in providing contextual learning. Richness of information in real setting might provide students with hidden curricula during their learning experience. Third year medical students are sent to community to learn communication skills in various groups in the community. Various learning outcomes were identified in the process.

Summary of Work: 60 third-year medical students are attached to a non-government organization (NGO) working with and managed by transvestites for 10 weeks with approximate contact time of 2-3 days per week. Students are expected to practice exploration of health problems, negotiation and making shared decisions. During the program, students made written self-reflection about their experience using Gibbs’ method. The reflections are categorized in themes and contents within themes are compared between weeks.

Summary of Results: Results showed increased awareness about social, civic, and controversial issues, faced by certain minorities in the community. Students also reported awareness about the lack of communication skill in negotiation and making shared decisions about health-problems with specific groups of community members. Students’ performance in the particular communication skills should be investigated in future research.

Discussion and Conclusions: Exposure to minorities in the community increases students’ social awareness and civic awareness as future medical personnel. Positive learning outcomes were also demonstrated in terms of self-awareness about communication skills, although increase in performance isn’t yet demonstrated.

Take-home messages: Community provides authenticity that is often difficult to reproduce in a laboratory setting. Exposure to various groups in the community provides students with rich learning experiences. Care should be taken to anticipate hidden curricula and to prepare students in facing a highly complex learning environment to avoid cognitive overload.

10DD12 (21624)
A survey of attitudes toward and knowledge of community-based medicine for medical students at Kyushu University, Japan

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Masaharu Nagata, Kyushu University, Community Medicine Education Unit, Fukuoka, Japan
Makokto Kikukawa, Kyushu University, Medical Education, Fukuoka, Japan
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Background: There is no established Community-Based Education Program in Japan. Our purpose was to clarify what should be included in the curriculum for medical students.

Summary of Work: A questionnaire on community-based medicine was given to 6th year medical students at Kyushu University (111 students: men 87, women 24) who had no experience with community-based medicine.

Summary of Results: Of the fifteen questions, the Visual Analogue Scale (VAS) scores of three were under fifty. “Question 4: In the future, I would like to work in a rural area” (48.5mm) “Question 6: Specialized knowledge will be needed to work in rural area” (46.8mm) and “Question 8: I understand the content of home medical care” (45.9mm). VAS was significantly higher on question 8 for students who reported wanting to be attending family physicians/generalists (group A) than for specialists/researchers (group B) (P<0.05). However, there was no significant difference between the groups on question 6. Furthermore, there were no significant differences according to the upbringing (city or rural) of the students.

Discussion and Conclusions: Rural upbringing has been reported to be strongly correlated with recruitment of physicians to rural areas, but in this study there was no difference in the answers to our survey of community-based medicine related to a rural or urban upbringing. Experience in the field is very important in programs teaching community-based medicine.

Take-home messages: Medical students should experience home medical care in their community-based medicine program.
10DD13 (20011)
Community-Based Learning in Community Medicine curriculum: The experience of the Medical Education Center, Chiang Rai Prachanukroh Hospital, Chiang Rai, Thailand

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Background: Community-based learning (CBL) has been known to promote students’ competency, cultural awareness and prepares students for future work at the community level. To increase the number of primary care physicians working in the community, all medical schools in Thailand are expected to implement CBL into Community Medicine curriculum which is different in activities and structure of each program. This paper presents the aspect of CBL structured in this program for the community medicine rotation and students’ evaluation is also included.

Summary of Work: From 2010 to 2013 during community medicine rotation, 4th year medical students were assigned to stay and work for 3 weeks in the different communities to complete the community health diagnosis; visiting people houses and applying questionnaires designed for identifying community health risks and problems. Then, the students analyzed the main health problems and made recommendations back to the community. Finally, students presented their project at the end of rotation. Also, Self-administered questionnaires were given to students to evaluate their knowledge, skills, and attitudes before and after working in the community.

Summary of Results: Students’ knowledge, social skill, communication skill and confidence were significantly increased. More than 90% of students believe the program was worthwhile and should be continued. However, a few students chose Family Medicine or want to work in the primary care setting.

Discussion and Conclusions: CBL is successful in increasing students’ attitude, knowledge, skill and confidence in primary care, but there is still an inconsistency between attitude and decision making of the future career selection. Factors effecting career selection should be further investigated.

10DD14 (19660)
The Effectiveness of Community-Oriented Course of Maharat Nakhon Ratchasima Medical Education Center (MNRHMEC)

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Sorarat Lermanuworat, Maharat Nakhon Ratchasima Medical Education Center, Orthopedic, Nakhon Ratchasima, Thailand
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Background: Community-oriented medicine is one of the strategies to raise medical students’ awareness about the importance of rural medicine and their desire to become rural doctors. MNRHMEC has developed the course for the fourth-year medical students to get the experience from community and community hospital for 3 years. Therefore, the effectiveness of this course needs to be evaluated.

Summary of Work: The community-oriented course was applied to 49 fourth-year medical students who were divided into 12 groups. A field visit by teachers was set in each group and the sharing among 4 groups was set at the end of course. Attitudes toward the course was evaluated by 28-items of self-assessment questionnaire (Cronbach’s Alfa=.956) before and after 10 days-community and community hospital exposure. Descriptive statistics and Pair T-test were used to analyze.

Summary of Results: 49 fourth-year medical students consisted of 51% males (n=25) and 49% females (n=24). The pair T-test yielded statistical significance (p<0.05). The imperative differences pertained realizing the importance of multidisciplinary health team and team learning, understanding rural doctors’ lifestyle and role in community, awareness of the relationship between doctors, coworkers, patients and community. Also, inspiration to improve their own learning was found to have significance.

Discussion and Conclusions: Community-oriented medicine is important to increase medical students’ awareness of the role of rural doctor and multi-disciplinary team.

Take-home messages: Community-oriented medical education is one of the strategies to establish the rural doctor who can work in community hospital and work with community.
**ABSTRACT BOOK: SESSION 10**
**WEDNESDAY 3 SEPTEMBER: 0830-1015**

10DD15 (19349)

**Education Criteria for Performance Excellence in Medical Education Center**

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**Background:** Maharat Nakhon Ratchasima Medical Education Center (MNRHMEC) has been established since 1997 to solve the problem of shortage of rural doctors in responsible area. MNRHMEC has adopted Baldrige Educational Criteria for Performance Excellence (EdPEx) as an assessing tool for improvement of the institute.

**Summary of Work:** During November 2012-November 2013, the data were collected by reviewing documents, interviewing committee, gathering annually reports and gap analysis based on 7 EdPEx criteria.

**Summary of Results:** The gap analysis of 7 EdPEx criteria revealed that some aspects should be more considered i.e., leader participation in organizational learning, communication of key decisions, support and strengthen key communities. In addition the strategy development process should be addressed all key elements. From annual reports, satisfaction of students and stakeholders which were 59-84% should be increased to exceed their expectation and secure engagement. Systematic measurement and analysis should be regularly performed to strengthen the strategy development. Community based curriculum should be emphasized in order to increase the retention of graduates in rural areas (average formerly 3-yr and 4-9yr retentions were 95% and 73% respectively). Although the retention in rural area of MNRHMEC graduates were rather high comparing to other medical schools in Thailand, the gaps of 7 EdPEx criteria have been identified. MNRHMEC should use EdPEx as a tool for achievement of the institutional ultimate goal.

**Discussion and Conclusions:** To AIM@Excellence, EdPEx is a tool for assessing, improving and measuring organizational performance.

**Take-home messages:** EdPEx is a useful managing tool for medical school sustainability.
10EE1 (20604)
Medical students’ evaluation of clinical departments can help low score departments to improve their effort

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Ulrik Brandi, Aarhus university, Institute of Education, Copenhagen, Denmark
Torben Schroeder, Capital region of Denmark, Center of Human Resources, Center of Clinical Education, Copenhagen, Denmark

Background: The learning environment in clinical departments is important in educating good doctors. International literature describes that good role models, step-by-step learning strategy and inclusion in community of practice is essential. Former research indicates that Danish students are observers in clinical training. We aimed to explore: “What are the differences in learning environment in high and low evaluated clinical departments”.

Summary of Work: Using data from the University of Copenhagen, we selected 2 high and 2 low evaluated departments. All departments received medical students in their first clinical stay. Four direct observations on introduction to clinical ward and fifteen interviews with medical students were conducted. A qualitative research strategy was used. Data was evaluated by thematic analysis.

Summary of Results: Highly evacuated departments had planned reflection, feedback and evaluation. Expectations and possibilities were reviewed and a work schedule linked the medical students with their supervising doctor. Learning strategy was stepwise and supervised. In low evaluated departments the learning depended on the student’s ability to find a supervising doctor by themselves. The clinical learning were either passive or without supervision.

Discussion and Conclusions: Differences in the learning environment was: Programme and time devoted to Introduction to clinical education, good role models and mentors, reflection feedback and evaluation, visible workplace structure, step-by-step learning strategy with active participation and inclusion in community of practice.

Take-home messages: The departments with low evaluation scores need to improve their practice. Experiences from highly evaluated departments and Individual guidance inside the department, which adjust for medical specialty, potentials and challenges, could initiate future progress.

10EE2 (22869)
Assessment of medical students’ perception of the quality of educational service at Medical School Gadarif University- Gadarif State- Sudan 2013-2014

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Background: Students are becoming more conscious of their consumer rights and of gaps between their expectations of service delivery and the reality of that service. Not only does this service gap present a quality assurance challenge for universities, it is also likely to contribute to student withdrawal. The basis of this research is to determine if a gap exists between students’ expectations of service quality and actual service delivery at Faculty of Medicine, Gadarif University Gadarif state Sudan.

Summary of Work: One hundred ninety six students were enrolled. To assess medical students’ perceptions of educational service quality, a study was conducted which was guided by three objectives. To identify medical students’ expectations in terms of higher educational services provided, to determine the perceptions of medical students towards the service the Medical school provides and to discover the gaps between students’ expectations and perceptions of service quality.

Summary of Results: The study shows that students’ expectations of service quality exceeded their perceptions on the five service quality dimensions used in the SERVQUAL questionnaire. The smallest dimension gap score proved to be tangibles, while the largest gap score in the study proved to be reliability followed by empathy.

Discussion and Conclusions: These results present challenges to the staff and management at the Medical school as the institution is expected to offer their students excellent service at all times.

Take-home messages: Student perceptions of higher educational facilities and services are becoming more important. It is, therefore, critical that universities develop some form of evaluating, tracking and managing the student perceptions of service quality.
**ABSTRACT BOOK: SESSION 10**
**WEDNESDAY 3 SEPTEMBER: 0830-1015**

**10EE3 (22974)**

**Issues influencing student participation in feedback about teaching**

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**Gary Hamlin**, Bond University, Faculty of Health Sciences and Medicine, Gold Coast, Australia

**Background:** Many institutions use institution-wide surveys to measure student satisfaction with their subjects and teachers. Achieving adequate response rates that enable meaningful interpretation of the data obtained is often problematic.

**Summary of Work:** In 2012, Bond University moved institutional student surveys (TEVALs) to electronic surveys delivered through the learning management system (LMS). Within the undergraduate medical program, the first 3 years are primarily on-campus and use the LMS extensively for curriculum delivery; in the final 1.8 years, during the dispersed clinical immersions (rotations) its use becomes less routine. This work summarises the differences in TEVAL response rates in the two curriculum stages and strategies taken to address these differences.

**Summary of Results:** When electronic surveys were introduced for Years 1 – 3 of the program, student response rates rose from approximately 25% to over 80%. However, despite their stated enthusiasm for electronic delivery, its use with students in the final 1.8 years resulted in response rates substantially lower (often approximately 30%). Discussion with students indicated numerous factors contributed to their non-participation. Prominent was their perception that their lack of familiarity with the LMS acted as a barrier to survey completion. Returning to paper-based surveys, together with increased feedback about the actions taken in response resulted in improved response rates.

**Discussion and Conclusions:** Flexibility in delivery of student feedback surveys to suit student’s context and comfort with delivery systems are important factors in attaining satisfactory response rates. **Take-home messages:** Continued dialog with students raises the profile of evaluation efforts, increases their understanding of its importance and contributes to their willingness to participate.

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**10EE4 (22310)**

**A comparison between routine questionnaire (which includes open questions method) and In-depth interview in Post-undergraduate evaluation**

**Thawanrat Srichan**, Lampang Medical Education Center, Lampang, Thailand

**Background:** Curriculum evaluations are important processes in order to develop suitable programs for medical students.

**Summary of Work:** This study aims to compare the results of these two methods derived from the colleagues in hospitals after the students graduated for 2 years. Information from checklist methods and In-depth interviews in the year 2013 were analyzed.

**Summary of Results:** The data from checklist method offered general information, especially on the level of satisfaction while open questions method has the drawback that subjects do not convey their deep troubles. In-depth interview, on the other hand, could explore issues that were difficult and sensitive to them. Some issues that could be identified by In-depth interview were communication skills, life skills, and crisis management.

**Discussion and Conclusions:** In-depth interview provides more details than routine questionnaires especially on the negative view of items in curriculum evaluation.

**Take-home messages:** The right and effective evaluation methods can improve and guide medical schools in their efforts to develop curriculum.
10EE5 (22266)
Standards of medical training during the final year in Germany – a survey

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Nicole Deis, Medical Faculty Mannheim, Heidelberg University, Dean's Office, Mannheim, Germany
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Anne-Kathrin Steger, Medical Faculty, Freiburg University, Dean’s Office, Freiburg, Germany
Jan Stiepak, Medical Faculty Heidelberg, Heidelberg University, Competence Centre of the Final Year, Heidelberg, Germany
Katrin Schüttpelz-Brauns, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany

Background: In Germany, final year medical education takes place at university and teaching hospitals all over the country. There are two mandatory clinical rotations (surgery, internal medicine) and one elective subject. Caused by the heterogenic background of the involved people, a great variability in the standards of training during this period has to be supposed. Until now little is known about the structure of medical training during the final year in Germany. There are efforts to set standards – e.g. using logbooks (mandatory since April 2013) including obligatory training objectives, structured conversations and feedback. Aim of the study was to find out if formal training procedures during the final year already exist.

Summary of Work: 237 instructors involved in medical training during the final year of five medical faculties in Baden-Wurttemberg, Germany answered a survey.

Summary of Results: Answers show that 43% of educational ward rounds follow formal procedures. 22% of the instructors use formal learning materials / courses and 12% are using manuals which structure formal conversations. Only 4% apply standardized observations.

Discussion and Conclusions: There are too little generally applied standards in the German curriculum of the final year. It is necessary for the Medical Faculties in Germany to train the trainers for final year education to ensure a minimum of consistent training.

Take-home messages: There is a strong need for developing standards and structured teaching during the final year to ensure a minimum level of consistent training.

10EE6 (22360)
Study diaries as a sensitive instrument to detect the gap between a planned and experienced new medical curriculum

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Background: The introduction of a new medical curriculum brings with it the challenge that relevant gaps arise between the planning and implementation process and the feasibility of the new program for students. The multidimensional construct of feasibility of studying refers to all structures and resources provided by the university to enable the students to graduate successfully.

Summary of Work: The Charité – Universitätsmedizin Berlin started to plan and implement a new integrated, outcome-orientated modular, six-year medical curriculum in 2010 in a term-wise manner. Feasibility of studying was examined by means of an in-process qualitative evaluation using an online-supported, semi-structured study diary which is completed daily, weekly and modularly by twenty students. Data is analyzed using qualitative content analysis.

Summary of Results: The qualitative analysis revealed five main categories: 1) teaching subjects related module structure; 2) organizational aspects; 3) workload; 4) preparation for exams; and 5) relationship between students and lecturers (e.g. complaints about lecturers who were insufficiently informed about planned course topics, or requests for a more continued relationship to lecturers).

Discussion and Conclusions: Study diaries provide useful information about the feasibility of studying and for specific interventions. For instance, better training of lecturers and the implementation of additional longitudinal teaching formats has allowed more long-term relationships between students and lecturers.

Take-home messages: Understanding the dimensions of feasibility of studying is key to improving the implementation process of a new curriculum.
10EE7 (21455)
Medical education in undergraduate students, students’ point of view at the Faculty of Medicine, National Autonomous University of Mexico (UNAM)

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Javier Aragón-Robles, Faculty of Medicine, National Autonomous University of Mexico, Clinical Education and Medical Internship Department, México City, Mexico
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Background: Educative phenomenon is complex and diverse, so it is necessary to obtain indicators like students’ opinion about its quality. Miron and Sáenz (1999) carried out research with 144 students about the training received at school. 90% of them considered they were not well trained nor ready for good medicine practice. Nevertheless they made a positive evaluation of the theory knowledge in their medical education.

Summary of Work: This study looks for indicators related with educative quality integrally on basic and clinical areas. Goal: Test validation of a questionnaire taken from students’ opinion about professional training at the Faculty of Medicine (UNAM, campus University City).

Summary of Results: Descriptive, transversal study with aleatory sample. Seventy two closed questions, Likert type questionnaire were applied to three generations that finished medical internship. The sample size was 1424 subjects. A Cronbach’s Alpha of .8 was obtained, the factorial analysis showed 9 factors. Bartlet sphericity test was p 0.0001. Kaiser Meyer Olkin .902. Factorial charges of variables: range=-.468 to .815. Variance 57.96%.

Discussion and Conclusions: The questionnaire is valid and reliable, according to Cronbach’s alpha and construct validity analysis, it is an approximation about what students think about their professional formation. Students’ opinion is important for our School about an almost absent relationship between basic and clinical courses.

Take-home messages: It is a challenge to develop instruments for professor training, self-assessment and co-evaluation with acceptable validity and reliability.

10EE8 (23032)
Improving feedback yield in large-group teaching sessions using Audience Response Technology (ART)

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Background: Feedback is an important mechanism for educationalists to assess effectiveness of teaching in a variety of settings (individual/small group/large-group teaching). Low feedback yield is often a problem with large-group sessions. From our own experience of leading seminars, we have had response rates between 17-32%. This makes it difficult for teachers to objectively assess their own teaching methods. A new method of capturing feedback was trialled at a conference for junior clinical researchers.

Summary of Work: A pre-conference questionnaire (59 items) using Likert scales was a mandatory requirement for delegates registering to attend. Questions were based on aims and objectives of the lectures and aimed at assessing delegates’ knowledge. Immediately after each lecture, students completed the same questions using a touchpad system (TurningPoint™ software). The poll can be closed when sufficient responses are obtained.

Summary of Results: 230 students completed the pre-course questionnaire online. Total attendance on the day of the conference was 133. The mean number of responses/question was 91 (range 70-119). The poll for each question was closed when >95% of delegates present had responded.

Discussion and Conclusions: ART is a highly effective means of obtaining instantaneous and paperless feedback in large-group teaching sessions. The main advantage of live polling is that one can ensure a sufficient proportion of delegates provide feedback. Disadvantages include inability to compare progress of individuals and capture text comments. Comparability of data depends on teachers adhering to pre-defined objectives so that pre- and post-seminar questions match.

Take-home messages: ART is an effective tool for high-yield feedback.
10EE9 (22949)
Sociodemographic profile of the newly graduated medical students of UNESA / Rio de Janeiro – Brazil (2012)

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Sarah de Oliveira, UNESA/RJ, Brasil, Medical Psychology, Rio de Janeiro, Brazil

Background: Medical training requires great financial and psychological efforts of undergraduates, but also includes the expectation of finding satisfaction and recognition in future employment opportunities, good wages and working conditions. Therefore, our interest was to investigate whether these aspirations were being conquered.

Summary of Work: Our goal was to define the profile of newly graduated medical students of UNESA/RJ, including social-demographic characteristics, specialization, employability and satisfaction concerning newly acquired working life. We conducted a quantitative, exploratory and cross-sectional study on UNESA medical graduates of the year of 2012 (n = 163), through a structured electronic questionnaire addressing demographic and academic data, applied via personal email.

Summary of Results: The average medical graduate is a Brazilian woman of 26 years old, single, resident of Rio de Janeiro, who lives with her parents and has no children. She attends medical residency and is not yet pursuing master’s degree or PHD. Works from 60 to 80 hours weekly in public health units. Her wages are between US$1,500 and US$3,000. Feels unsatisfied with salary and weekly workload, but appreciates teamwork and working conditions.

Discussion and Conclusions: The knowledge of the profile of medical graduates provides information on the quality of medical schools per se and its suitability to local realities. It allows socialization among former graduates and present medical students, and promotes the exchange of personal experience (mentoring), diminishing their psychological stress at the beginning of their working life, therefore improving the quality of health care in general.

Take-home messages: Studying the graduates’ profile is an important tool to improve medical education.

10EE10 (21449)

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Irma Virjo, University of Tampere, Department of General Practice, Tampere, Finland
Harri Hyppölä, Kuopio University Hospital, Emergency Department, Kuopio, Finland
Hannu Hallila, Finnish Medical Association, Centre of General Practice, Helsinki, Finland
Jukka Vänskä, Finnish Medical Association, Unit of Primary Health Care, Helsinki, Finland
Kari Mattila, Pirkanmaa Hospital District, Tampere, Finland

Background: Universities of Kuopio and Tampere were established in 1972. In these, a new community-oriented curriculum was developed for undergraduate medical education.

Summary of Work: Physician studies in 1988, 1993, 1998, 2003, 2008, and 2013 examined e.g. physicians’ satisfaction with medical education. In each study a questionnaire was mailed to half of the physicians graduated 2–11 years earlier. The response rates varied between 40% and 78%, and the number of respondents between 1,177 and 1,822. The respondents were asked to evaluate their satisfaction with hospital and primary health care (PHC) teaching on a 5-step scale from very unsatisfied to very satisfied. The answers of respondents graduated from different universities were compared.

Summary of Results: The proportion of respondents who were rather or very satisfied with teaching of hospital work has been on the level of 60–85% in the five Finnish medical faculties in all years. But the proportion of respondents satisfied with PHC teaching has been on the level of 73–86% among graduates from Kuopio and Tampere, while it was about 20% among graduates from three older faculties (Helsinki, Turku and Oulu) in 1988. The proportion of satisfied graduates has increased most in Turku up to 63% in 2008 (58% in 2013), and least in Helsinki (44% in 2013).

Discussion and Conclusions: All five universities have put more emphasis on PHC teaching in recent years. According to our results, however, the changes in satisfaction with PHC teaching seem to be quite slow.

Take-home messages: Changing an established curriculum takes time and perseverance.
10EE11 (19408)
Do our graduated students meet educational outcomes? Multisource feedback

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Background: An outcome based evaluation of our first group graduated medical students of Udonthani Medical Education centre, Thailand was done after first year of their graduation.

Summary of Work: We set the survey groups to our graduated students’ working places (10 hospitals, 28 graduated students) in the northeast part of Thailand to evaluate the opinion of themselves, their colleagues and supervisors about 14 educational outcome achievements of our graduated students.

Summary of Results: The achievement of our educational outcomes was good in all outcomes. The self-evaluation of graduated students showed highest scores of achievement in history taking, physical examination and procedural outcomes nevertheless lowest scores in evidence based medicine, legal issue and health promotion outcomes. These results were similar to the evaluation from their supervisors. However, the evaluation from their colleagues was shown lowest scores in procedural, legal issue and health promotion outcomes.

Discussion and Conclusions: The multisource feedback showed high scores in educational outcome achievement of our graduated students. However, some topics such as evidenced based medicine, legal issue, health promotion and procedure should be improved.

Take-home messages: The outcome-based evaluation from multisource opinion is an important feedback to help us improve our curriculum planning.

10EE12 (19906)
Integrating Social Accountability into the Medical Curriculum at Qassim Medical College

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Background: The Saudi Medical Deans Committee and the Saudi Office of the Association for Medical Education in the Eastern Mediterranean Region (AMEEMR) introduced a newly created group, Group on Social Accountability (GOSA) as one of the taskforces to support AMEEMR to develop and enhance Social Accountability (SA) in medical education in Saudi Arabia. Following the issue of the Global Consensus for Social Accountability of Medical Schools in December 2010, College of Medicine, Qassim Medical College (QCM) took an initiative to reform its social services.

Summary of Work: Objectives: reform QCM curriculum to direct education, research activities, and other interests towards SA and addressing the health and educational concerns of the community.

Design: Three steps for curriculum reform are followed. First, a review of the curriculum through discussion with senior and relevant staff members and through a feedback from student graduates. Second, adopting the GOSA ten strategic areas to promote Social Accountability The third step implementation of the suggestions for improvements.

Summary of Results: Outcomes and Results: Students of Year 1 are asked to prepare a flyer (pamphlet) as health education message suitable for the local community needs. Flyers suitable for publication will be printed and distributed in different health institutions and settings with a fund from college administration. Students of second year are asked to follow the same rules and prepare and deliver a health education message in a form of a lecture or a talk. They can deliver the message in schools, malls, or through a contact with group of population in schools, health care setting or community organizations. Groups of 5-6 student of 2nd year are asked to prepare a research protocol on community health. During 3rd year, students will then conduct the research proposal which they developed before. Students have to present their findings during the Annual Research Meeting.
**10EE13 (20829)**

**Students’ experience of 119 emergency call center during clinical clerkship**

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**Background:** One of the core values in medical education is social accountability. At the Chungnam National University, medical students engage in 119 emergency call center for community-service opportunities in regional area.

**Summary of Work:** To derive students’ experience and to describe the impact of exposure to 119 emergency call center, narrative study was conducted. For narrative study, in-depth individual interviews with students who had participated in 119 emergency call center and who responded to interview were performed. All interviews were transcribed verbatim. Interpretative descriptive methods were used to elucidate thematic findings.

**Summary of Results:** Two major themes emerged from students’ experiences. Firstly, exposure to 119 emergency call center increases students’ insight into issues about social systems on emergency medical service and prehospital transport for patients. Secondly, community placement enhances students’ learning opportunities about relationship between primary care facilities and referral hospitals.

**Discussion and Conclusions:** Clinical exposure to 119 emergency call center for medical students increased understanding of emergency systems and social accountability.

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**10EE14 (22691)**

**Teaching sexuality in the medical curriculum: Views of first year medical students towards diversity education**

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**Background:** The GMC requires all UK Medical School curricula to include diversity-education in order to provide patient-centred care and improve doctor-patient communication. Evidence suggests the Lesbian, Gay, and Bisexual (LGB) community is an under-served population vulnerable to health inequalities. The study aimed to assess students’ perceptions of diversity teaching and in particular the teaching regarding sexuality and the LGB community.

**Summary of Work:** In this qualitative study involving first-years at QMUL, focus-groups explored student’s views of diversity teaching generally, and individual interviews investigated perceptions of teaching regarding sexuality and the LGB community. An extensive literature review influenced focus-group/interview topic-guides and informed thematic data analysis.

**Summary of Results:** Analysis identifies students are in favour of diversity teaching and increased awareness of healthcare issues for the LGB population. Themes of tolerance are strongly emphasised across all areas of diversity; however, evidence suggests that whilst diversity education is appreciated, it is considered of secondary importance to clinical aspects of the curricula. Diversity-education is a required aspect of medical curricula but its importance is underestimated by students; this may be partly due to the teaching strategies employed and the emphasis it is given.

**Discussion and Conclusions:** The LGB community is a significant and rising section of the UK population and teaching for medical students needs to emphasise the professional-relevance of diversity education. Further research must be done in this area to improve student-centred education. Emphasising the importance of diversity teaching may further engage students and improve learning outcomes.

**Take-home messages:** Evaluating students’ perceptions of diversity-education provides valuable insights in how to improve student-centredness and achieve outcomes.
Families Reunited: Medical Student Research Project On Refugee Family Reunion

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Background: Family reunion is a stressful event for refugees and can have long-term repercussions for their wellbeing. Existing research concentrates on the initial process, entitlements, and support. This qualitative student research aimed to look at medium term challenges and use a narrative approach to support future refugees and services better plan for effective support. Using social responsibility as a driver gave the student an additional focus for reflection.

Summary of Work: The method employed was to interview refugees around their perceptions of the challenges they faced, their preparedness for reunion, and their reflections on how support for this process may be improved.

Summary of Results: A narrative is presented describing the common themes identified in interviewing refugees which is then used to design and distribute materials accessible to both refugees contemplating reunion and support agencies.

Take-home messages: The medical student undertook a local project in an area under-represented by research to benefit a socially disadvantaged group. The university implemented its Social Responsibility strategy helped the student to focus on where they could act to make a difference prior to the completion of their course. It allowed them opportunities to work with a range of NGOs and consider the role of the doctor as a community advocate.

“I don’t think it should be made compulsory”: First year medical students’ perceptions of cultural competency teaching

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Background: The General Medical Council requires that medical curricula in the UK include education about diversity. This is in order to improve patient-doctor communication, reduce health disparities, and appropriately address the needs of potentially marginalised populations.

Summary of Work: This study aims to identify and explore attitudes of first year medical students towards diversity teaching at Barts and The London School of Medicine and Dentistry. A qualitative research approach was taken, with two focus groups initially exploring first years’ perceptions of diversity teaching in general. Following this, six semi-structured interviews were carried out, regarding teaching ethnicity as a particular aspect of diversity. All data collected were transcribed, coded and analysed thematically.

Summary of Results: Data analysis highlights issues regarding contemporary student perceptions of both diversity in general and ethnicity. This includes their understanding as first years of how ethnic diversity may affect their future professional practice and influence patient contact with healthcare. It also explores student’s perceptions of different methods for teaching ethnic diversity.

Discussion and Conclusions: Health professionals work within societies that are increasingly ethnically diverse. In describing views and experiences of first year students based in a large central London medical school, this study identifies several key issues that need to be considered when developing student-centred diversity teaching, in particular regarding ethnicity. Medical schools must continue to seek student’s opinions to ensure they equip them with the necessary knowledge and skills to function in an ethnically diverse environment.

Take-home messages: Research with medical students is valuable for informing diversity teaching, both in terms of content and teaching methods.
Disability and diversity - is it as simple as you think? Perceptions of First Year Medical Students on Disability and Diversity Teaching

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**Background:** Discrepancies in aims and results of disability and diversity teaching is resulting in the surface learning of these issues and can exacerbate stereotypes. Various literature regarding disability teaching resonate with Social Cohesion Theory, and indicate that interaction with individuals with disabilities improve student perceptions, despite initially negative attitudes. The study explores perceptions of first year students of diversity teaching.

**Summary of Work:** Conventional issues and methods of diversity teaching were researched through online literature searches. Two research methods for data collection were used; focus groups and interviews. First year medical students were recruited from Barts and The London SMD. Thematic analysis was conducted using NVivo software, with critical analysis using available literature.

**Summary of Results:** Data analysis revealed limited disability teaching which primarily concerned visual or auditory impairment. Familiar contexts, such as dyslexia, aided disability perception.

**Discussion and Conclusions:** The quantity of teaching, combined with summative assessment, is a possible contributor to surface learning. This is despite quality being reasonable. Therefore, more time should be spent on diversity teaching, emphasising its importance as a medical practitioner, and less emphasis on summative assessment.

**Take-home messages:** Teaching regarding disability should nurture epistemic curiosity, intrinsically motivating students to understand and learn about disability and its issues.

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The Graduate Programme Evaluation Through the PhD Students' Eyes

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**Background:** This is the second report presenting data submitted by PhD students to evaluate their PhD studies at the Jessenius Faculty of Medicine.

**Summary of Work:** Authors of this study created a questionnaire focused on PhD student's opinions about many aspects of PhD study. The most frequently asked topics were as follows: PhD supervision, equipment access, foundation sources, scholarships and their availability, educational responsibilities, clinical practice and its influence on research work. Very important part of the questionnaire includes questions focused on the future of PhD students. In February 2014, questionnaire was sent per email to all PhD students.

**Summary of Results:** The number of respondents answering the survey was 76. This is a more than 50% increase over two years. 45% were students from clinical, 20% preclinical and 35% theoretical study programme. Nearly 90% of students answered that the supervisor has enough time/attention for them. Despite sufficient information about possibilities of international cooperation, only few students work in international groups. The results also show that students have a little awareness of the PhD students' organizations (60% of them couldn't answer on this question) and possibilities of anonymous evaluations of supervisors.

**Discussion and Conclusions:** We need to increase the activity in establishing international contacts. It is necessary to create a fully functional PhD fellow organisation in our faculty and we need to give sufficient information about existing PhD organizations at the university and in the world.

**Take-home messages:** Feedback in graduate programme is specific information with the intent to improve the student's performance.
10FF1 (22109)

Do students perceive medical curriculum differently depending on their ethnocultural and lingual background?

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Background: In today’s global world, it is not uncommon for medical schools to host students of different ethnocultural and lingual backgrounds, forcing them to study in non-native language in atypical sociocultural environment. The same curriculum is offered to all students and the same academic results are expected. We aimed to see how students perceive this problem, and how it affects their academic success.

Summary of Work: We examined the progress testing results, learning style preferences (by D.Kolb), and level of verbal creativity in 5353 students of Karaganda State Medical University, 80 students voluntarily participated in 10 focus groups. The analysis addressed the students’ year of study, ethnicity, language of instruction (Russian or Kazakh), and residential background (urban or rural).

Summary of Results: Kazakh students preferred divergent learning (“feeling and watching”), while Russian-speaking urban students preferred convergent learning (“thinking and doing”). Kazakh students from rural areas also showed consistently lower progress test scores. Focus groups revealed that Kazakh-speaking students were less motivated to learn because of fears “to not do it right”, stressful learning environment, excessive tutor pressure and lack available Kazakh resources. They complained of self-learning inefficiency and insisted on teachers explaining them everything.

Discussion and Conclusions: The medical students from rural Kazakh-speaking areas of Kazakhstan (where teacher authority is very high and self-learning is never promoted) were not capable to benefit from self-directed learning. The educational program did not consider this fact, and these students demonstrated lower academic success.

Take-home messages: Curriculum developers should be aware of sociocultural diversity of their students and consider it when running a medical curriculum.

10FF2 (22796)

Personality measures in medical education: Is NEO-FFI a reliable and stable instrument?

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Background: Nowadays, the “Big Five” model is the most popular conception of personality, assuming 5 underlying dimensions: neuroticism, extraversion, openness, conscientiousness and agreeableness, generally assessed by the NEO personality inventory. These traits are considered stables, although conscientiousness and openness could increase before age 30. NEO is the only non-cognitive measure constantly associated with success during medical school. However, little is known about its psychometric properties in medical student’s populations.

Summary of Work: This study aimed: -to confirm NEO internal reliability; -to study NEO stability in 2 medical undergraduate students’ populations. Eighty students (population 1) assessed on their first (2011) and third (2013) study years, and forty students (population 2) assessed as freshmen (2012) and repeaters (2013) during their first study year, answered the NEO-FFI, a brief, 60-items version of NEO-PI-R. Reliability was tested by Cronbach’s alpha, consistency and stability by paired sample correlations and T-tests.

Summary of Results: Internal reliability coefficients ranged from 0.61 to 0.82. Paired samples correlations coefficients were significant for the 5 traits ranging from 0.55 to 0.82. Agreeableness and Extraversion showed weaker coefficients; Neuroticism, Openness and Conscientiousness coefficients were strong in both populations. Conscientiousness decreased in year 3 (t= -8.7; p= .001).

Discussion and Conclusions: Neuroticism, Openness and Conscientiousness traits are reliable and consistent, confirming previous NEO-FFI studies. Conscientiousness is unstable across academic years, contradicting current developmental personality theories, and suggesting a potential context-sensitivity.

Take-home messages: NEO-FFI can be used as a personality measure instrument for medical students. However caution is required concerning Agreeableness and Extraversion traits. Potential changes across academic years should also be considered.
10FF3 (21165)
Accuracy of resilience scale and general health questionnaire for the detection of academic performance in medical students

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Background: Psychological resilience is an individual's tendency to cope with stress and adversity which has an effect on the academic performance. This study aims to evaluate accuracy of resilience scale (RS) as well as the General Health Questionnaire-12 (GHQ-12), a short form questionnaire to detect current mental health, on the student’s performance.

Summary of Work: This is a cross-sectional study including all six years of medical student in Khon Kaen Medical Students. Self-administered questionnaire RS and GHQ-12 were sent via e-mail to them to complete to detect their academic performance regarding Grade Point Average (GPA) less than 3, Grade D, fail to pass the National License test level 1 (NL1) and social behavioral problem using the Receiver Operating Characteristic (ROC) curve.

Summary of Results: In 211 medical students, 71% completed the questionnaire. For the RS, the accuracy was found to be 0.43, 0.51, 0.56 and 0.53 for detecting GPA less than 3, Grade D, fail to pass NL1 and social behavioral problem, respectively. In relation to GHQ, the accuracy was found to be 0.52, 0.49, 0.47 and 0.23 for detecting GPA less than 3, Grade D, fail to pass NL1 and social behavioral problem, respectively.

Discussion and Conclusions: Limitation for psychological questionnaire to detect academic performance in medical students is observed.

Take-home messages: Be critical when use the questionnaire.

10FF4 (21736)
Analysis of primary mental abilities in 1st year medical students after an educative intervention

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Background: Our current traditional methodology does not promote the improvement of the mental abilities in medical students, which assure their successful performance as future physicians.

Summary of Work: Proposal: to analyze primary mental abilities (PMA) and study habits and techniques (SHT) as self-learning skills in 1st medical students while taking Cellular Biology; supported by scientific inquiry and complex systems approach as methodological resources. 52 1st year medical students (universe: 256, confidence-interval: 90%) were included in our action-research and prospective study. Their PMA and SHT were assessed twice using internationally validated instruments of measurement.

Summary of Results: We measured 5 of the 7PMA: Word-fluency, verbal-comprehension, spatial-visualization, number-facility and reasoning. Total results of first-test showed highest values for word-fluency and lowest values for reasoning. The second-test maintained the same pattern, but increased values in the 5PMA were shown; when analyzing how each student moved forward, values also demonstrated remarkable advances. SHT results demonstrated (first-test) that students' grades are not affected by their physical conditions, but they are by their personal attitude to scholar-tasks and the lack of adequate studying-techniques. Second-test also showed that lack of a plan affects them less than the environment where they study.

Discussion and Conclusions: Both the 5PMA and self-learning capability remarkably improved as outcomes of our intervention. Word-fluency was the highest PMA while reasoning was the lowest, which compromises us to follow up these students as a cohort.

Take-home messages: Students’ global academic development and 5PMA improved significantly supported by scientific inquiry and complex systems approach as methodological resources.
10FF5 (19088)

Evolution of the Professional Support Unit in Wales

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Background: To ensure the quality management of postgraduate medical education the Wales Deanery has developed systems to respond as quickly as possible to any concern raised. The Professional Support Unit, Wales Deanery supports all doctors in training whose performance has been affected and provides advice, guidance and information regarding concerns to all parties involved in the management of postgraduate medical training.

Summary of Work: The Professional Support Unit offers a range of support and advice to trainees including:
- Pastoral care and support
- Early identification of issues
- Immediate action upon identification
- Review of support available
- Support with repeated exam failure
- Access to experts to deal with specific areas
- Planned return to work
- Targeted educational plan
- Adjustments to working environment

Training is also provided for all educators and individuals involved in managing trainees.

Summary of Results: Successful remediation or support for doctors with performance issues requires an accurate understanding of the underlying reason affecting their performance and increases the likelihood of being able to tailor subsequent intervention to the individuals' circumstances.

Discussion and Conclusions: With a clear structure in place for identifying and addressing the issues trainees are facing combined with clear lines of responsibility for all educators involved in managing trainees, PSU supports doctors with performance issues to help them continue in training.

Take-home messages: The support provided by the Professional Support Unit, Wales Deanery helps trainees resolve their performance issues and continue in training.

10FF6 (20383)

Failing medical students find one-to-one peer tutoring highly beneficial

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Background: Failing exams at medical school has significant effects on the student, medical school, and society. We describe failing students' perceptions of a novel peer tutoring intervention to improve academic performance.

Summary of Work: We started a one-to-one peer tutoring program for Year 1 & 2 medical students who fail one or more in-course assessments (ICAs). Volunteer tutors from the year(s) above were randomly allocated a student, and met weekly until the end-of-year examinations. Post-tutoring questionnaires evaluated students' perceptions of tutoring and tutors through 5-point Likert scales and free-text responses.

Summary of Results: 47 students (22 males, 25 females) failed an ICA and were offered tutoring. 88% of respondents agreed or strongly agreed that tutoring increased their knowledge and improved their confidence. 79% felt better prepared for subsequent ICAs and agreed that tutoring prepared them for independent study. All respondents felt tutors were enthusiastic, and were confident about tutors' knowledge. Nearly all (96%) felt they had a good rapport with their tutor while 86% felt comfortable asking questions. 54% felt teaching was at an appropriate level and 88% agreed that tutors provided useful revision tips. The free text responses were again extremely positive.

Discussion and Conclusions: Failing students had highly favourable opinions on one-to-one peer tutoring. Increases in knowledge and confidence may lead to improvements in exam performance. Students felt the tutors performed strongly and provided a safe learning environment. Objective outcomes from tutoring will be required to assess efficacy.

Take-home messages: One-to-one peer tutoring is a favourable intervention for failing students.
10FF7 (20294)
One-to-one peer tutoring for at-risk medical students

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Background: Failing exams at medical school has significant effects on the student, medical school, and society. We describe a novel intervention to improve academic performance of at-risk students.

Summary of Work: We started a one-to-one peer tutoring program for Year 1 & 2 medical students who failed one or more in-course assessments (ICAs). Volunteer tutors from the year(s) above were randomly allocated a student, and met weekly until the end-of-year exams. Post-tutoring ICA and end-of-year exam scores were analysed with SPSS v20.

Summary of Results: 47 students (22 male, 25 female) failed an ICA and received tutoring. Mean ICA scores pre-tutoring: 45% (standard deviation 3.5%). Paired t-test showed significant improvement in mean score from pre-tutoring ICA to end-of-year exam (45% v 59%, p<0.001). Significant improvement was also seen in the subsequent ICA (45% v 56%, p<0.001). 39 students (85%) passed the year successfully: 31 (66%) at first attempt, 9 (19%) after resits. 5 students (11%) failed resits: of which, 3 retook the year and 2 were de-registered. 2 students withdrew before end-of-year exams. 39 students (85%) passed the year successfully: 31 (66%) at first attempt, 9 (19%) after resits. 5 students (11%) failed resits: of which, 3 retook the year and 2 were de-registered. 2 students withdrew before end-of-year exams.

Discussion and Conclusions: Peer tutoring improves academic performance in at-risk students and the majority of tutored students pass the year. A comparison between tutored and non-tutored at-risk cohorts is essential to assess correlation. Some at-risk students didn’t access tutoring; our cohort of self-selected students may be more motivated. In conclusion, one-to-one peer tutoring significantly improves exam performance in at-risk students. The majority of tutored at-risk students pass the year.

Take-home messages: Medical schools should consider peer tutoring as a means to improve academic performance of at-risk students.

10FF8 (21162)
What are the potential challenges for senior medical students with specific learning difficulties for future prescribing in a clinical setting?

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Background: A growing number of medical students are being diagnosed with dyslexia (UK incidence of around 10% experiencing some degree of dyslexia). Some medical students are only identified with dyslexia when they arrive at university for not all have had a pre-admission diagnosis. Medical schools are required by law to provide ‘reasonable adjustments’ during education and training for students with a confirmed diagnosis. However, responsibilities are less well defined in the postgraduate education, but medical graduates must demonstrate prescribing competence to practise as a foundation year one [FY1] doctor irrespective of dyslexia diagnosis.

Summary of Work: Semi-structured interviews were conducted with medical students and FY1 doctors with a declared SpLD. The interviews were transcribed and qualitative data subjected to thematic analysis. The discussions explored potential challenges when writing prescriptions, the levels of support available, and the personal strategies adopted to overcome them.

Summary of Results: The results showed that issues raised were not only in the prescribing but also impact of perceptions and reactions of peers and clinical tutors, with variability in willingness to recognise and support dyslexia in practice.

Discussion and Conclusions: The exploration of perceived challenges facing medical students and FY1s with dyslexia influence the ability to perform the different competences required in safe prescribing, as is the attitudes of supervisors to individuals with dyslexia.

Take-home messages: There is a need for tutors, and students with dyslexia, to be supported in learning medicine in practice to ensure safe prescribing.
10FF9 (20091)
Developing effective feedback for underperforming medical students: Understanding their specific needs through semi-structured interviews
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Background: Underperforming students appear to retain maladaptive learning approaches, are more likely to fail again and may not respond to study skills’ interventions. It is therefore important to understand how underperforming students perceive their feedback experiences to identify possible interventions, but they are reluctant participants in questionnaires and discussion forums.

Summary of Work: We identified medical students from Years 1-4 of the Edinburgh MBChB programme who had experienced failure with one or more examinations. Each student was invited to participate in a semi-structured interview to explore their feedback experiences and ideas on how to improve feedback. A thematic analysis using nVivo software was carried out on transcriptions of the recorded interviews.

Summary of Results: Nine out of eighty underperforming students (11%) participated in this study. Most students had underperformed in their first year examinations. Students expressed a desire to have regular formative examinations with subsequent tailored one-to-one feedback. They also reported that they did not know how to seek further feedback, were reluctant to seek help due to the perceived stigma associated with examination failure and wished to have an allocated member of staff from whom they could receive feedback and pastoral support.

Discussion and Conclusions: Students were almost exclusively focussed on feedback solutions in terms of what the medical school should do and saw themselves as passive recipients. The embarrassment of failing exams appeared to inhibit students adopting effective learning strategies.

Take-home messages: Medical schools should consider how to encourage all students to undertake optional formative exams, provide emotional support for those failing exams and encourage underperforming students’ self-regulation.

10FF10 (21578)
Development of professional competency: The voice of the failing or marginal speech pathology student
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Michelle Lincoln, The University of Sydney, Speech Pathology, Sydney, Australia

Background: Learning through experience during clinical placement is a socio-cultural event where the environment is a key component of this process. Lave and Wenger’s (1991) model of legitimate peripheral participation is supportive of the notion that learning does not occur in isolation. This research asks: what are the experiences of those involved and how do they interpret the events that contributed to those experiences?

Summary of Work: A narrative review of the literature in relation marginal students on clinical placements and the impact of the learning environment will be presented. Preliminary results of semi-structured interview data will be presented from the first phase of a qualitative research study, using a narrative inquiry method.

Summary of Results: The main finding from the literature review is that the voice of the student is conspicuous by its absence. Preliminary findings and main themes that emerged from the semi-structured interviews with the speech pathologists who experienced struggle or failure (marginal students) will be presented, particularly highlighting their views about the impact of the learning environment.

Discussion and Conclusions: This research highlights the importance of the learning environment in the development of professional competency for health science students. The impact of the learning environment on and the views of the marginal student past or present are relatively absent.

Take-home messages: Clinical education occurs in dynamic workplaces, where the environment plays an important part in the student’s development of clinical competency. Students’ views need to be heard and considered to create a more holistic picture of this area.
Examining the relationships between attendance, online engagement and summative examination performance

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Background: Non-attendance correlates with poor performance, but manual recording of attendance is problematic. Online activity reports may be a more efficient method of identifying at-risk students.

Summary of Work: This research is part of a prospective study examining physical attendance, online activity reports (Moodle), continuous assessments and summative examination performance. Ethical approval was granted by RCSI Ethics Committee. Two modules within the first year of the undergraduate medical program were identified for inclusion.

Summary of Results: Data from 2 RCSI modules are presented (NM and AS). A single cohort of 365 students undertook both modules, 30 of whom were repeating. Comparison of medians showed significant reductions in all parameters within the repeat student group. In NM, regression analysis showed continuous assessment had the largest effect size on summative examinations for both first-time and repeat student groups (R² = 0.545; R² = 0.289). Among repeat students, online access of lecture notes had a larger effect size than physical attendance at small group tutorials, while both these indices were less contributory (R² < 0.1) for first-time students. In AS, continuous assessment showed the largest effect size for first-time students (R² = 0.585), while online access of lecture notes was most contributory among repeat students (R² = 0.35).

Discussion and Conclusions: Effect sizes are most notable for continuous assessment, but online activity correlates with summative performance and is more predictive for outcomes among repeat students than physical attendance. These indices may be useful to screen at-risk students for individual intervention and support.

Unknown aspects of medical students’ unprofessional and problematic behavior toward the staff in the educational affairs section

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Background: Since difficult learners have multiple aspects to be dealt with, cooperation between faculty members and staffs in educational affairs section is crucial for a comprehensive support. Although many studies were conducted mainly from faculty perspectives, difficult situations with students observed and experienced by the staff in the educational affairs section have not been revealed sufficiently. The aim of this study is to analyze such medical students’ unprofessional behaviors toward the staff in educational affairs section.

Summary of Work: The survey was conducted to the staff in educational affairs sections at several medical schools in Japan. After attending the three-day seminar for the staff in educational affairs sections, 39 participants were encouraged to describe the top three most difficult encounters with students and their outcome. The content analysis was done by the researchers.

Summary of Results: In general, many of the 39 participants described surprising experiences and that even experienced faculty members. The major domain categorized was absenteeism of the students, unprofessional communication such as complaining too much, private parents’ issues, psychiatric problems and students’ private issues.

Discussion and Conclusions: Many students’ unprofessional and problematic behaviors toward the staff in the educational affairs section were emerged, which were not previously well known by faculty members. This study suggested that cooperating between the staff and faculty members will be effective for detecting difficult students and early interventions for such situations. Careful support for the staff would also be needed.

Take-home messages: The perspectives of the staff in the educational affairs section are useful information to recognize and understand the difficult learners in depth.
Discussion and Conclusions:

Mechanisms.

Conditional pathways and flexible feedback creation was enhanced by powerful branching use in self-directed and small group learning. Case educational tool showed it to be sufficiently robust for some of these challenging issues. Pilot testing of this community preceptors as a useful approach in tackling disruptive factors from learners and community system problems, ‘conservative’ colleagues, and situational perspective of learners and teachers. Topics included shared experiences of scenarios, illustrating maladaptive behaviors from the perspective of learners and teachers. Situational Judgement Testing and Scenario Based Learning provided the learning constructs for the case series. Cases were peer reviewed by community and academic faculty.

Summary of Results:

Virtual cases were valued by community preceptors as a useful approach in tackling some of these challenging issues. Pilot testing of this educational tool showed it to be sufficiently robust for use in self-directed and small group learning. Case creation was enhanced by powerful branching conditional pathways and flexible feedback mechanisms.

Discussion and Conclusions:

In the case-related secure forum around how best to handle these cases helped to foster a community of practice approach, how the academic program can support preceptors and how to improve the cases themselves. Detailed metrics provided by the OpenLabyrinth platform has provided the basis for ongoing learning analytics in upcoming studies.

Take-home messages:

Shared experiences of potentially painful encounters in a non-threatening yet challenging manner is highly valued in community-based streams.
periodically assessed and vulnerable students enrolled in specific supporting programs.

10FF15 (22679)
Common Mental Disorders and associated factors among medical students: Six years follow-up investigations for repeated survey

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**Background**: Common Mental Disorder (CMD) is characterized by anxiety, somatoform and depression disorders, manifested by fatigue, insomnia, forgetfulness, difficulty concentrating, irritability and somatic complaints without present organic cause. Among Brazilian medical students the prevalence of CMD varies from 31.7% to 44.7%.

**Summary of Work**: OBJECTIVE: to estimate the prevalence of common mental disorders (CMD) and associated factors among medical students in a public northeast Brazil University. METHOD: A repeated inquiry cross-sectional study applying the Self Reporting Questionnaire-20 (SRQ-20) and a structured questionnaire development by the authors to the students admitted annually from 2006/1 until 2011/1. Correspondence analysis and Poisson regression were performed.

**Summary of Results**: We studied 40 students with 20±2.4 years old (57.5% was female and 41% admitted in the third entrance exam). The CMD had prevalence increased throughout the course from 12.5% in the first year to 43.2% in the fifth one. Variables potentially associated with CMD were: the course is less than expected (PR=3.20), discomfort with the course activities (PR=2.10), dissatisfaction with teaching strategies (PR=1.08), the course is not a source of pleasure (PR=2.06).

**Discussion and Conclusions**: Factors potentially associated with CMD were mainly those related to the educational process. Further studies in this and other institutions of similar profile will contribute for the comparison and validation of our results.

**Take-home messages**: The permanent research of mental disorders among medical students, as well as the critical reflection by medical school on its role in the promotion and prevention of these disorders, will help to train doctors healthier and better emotionally prepared to help diminish the real problems of health people they assist.

10FF16 (21255)
Long-term follow up of sexual harassment and gender education at Uppsala University School of Medicine

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**Background**: In 2002 a questionnaire survey regarding sexual harassment and gender education was carried out among medical students at Uppsala University School of Medicine, Sweden. Results showed that sexual harassment was a problem and that gender education was deficient. This prompted changes in the program. Mandatory courses on both issues were included in the curriculum. The purpose of this study was to follow-up these changes.

**Summary of Work**: During 2013 a similar questionnaire as was used in 2002 was distributed to 942 medical students. Sexual harassment was assessed by a battery of seven questions which included verbal and physical behaviors.

**Summary of Results**: Seventy-six percent of the students answered the questionnaire compared to 56 % in 2002. The response rate did not differ between the sexes in the present study whereas significantly more female students answered the questionnaire in 2002. Sexual harassment was more common in women than men in general. However, in 2013 compared to 2002 this was less common in both sexes. In both surveys more severe sexual harassment (e.g. invitation to sexual relationship) was experienced by only a few students. Seventy-one percent of the students, more women than men expressed the need for more gender education in the curriculum.

**Discussion and Conclusions**: Our study showed that despite efforts to mitigate sexual harassment and increase education in gender medicine these issues persist.

**Take-home messages**: Greater efforts are therefore needed to raise awareness of gender issues.
**10FF17** (23073)
Perception of physical and mental exhaustion in medical students during the fifth year internship of a Brazilian University

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Background: Medical studies demand an early conversion of adolescents into professional doctors. Studies have shown that burnout is likely to begin during this training period and to continue throughout the working life.

Summary of Work: The presence of burnout in the fifth year medical students (9th and 10th semesters) in the ward rounds was assessed using the Maslach Burnout Inventory (MBI, SS). The influence of the following socioeconomic variables was also analyzed: gender, age, marital status, children (presence and amount), municipality of family residence, need to work and hours spent in traffic. Statistical significance threshold was adopted at p < 0.05.

Summary of Results: Differences in the results according to semester of studies were statistically significant for the domains emotional exhaustion (p=0.012) and disbelief (p=0.048), but were not significant for the other domains.

Discussion and Conclusions: There was a trend towards a positive correlation between age and domain Disbelief. No correlation between the subscales and other socioeconomic variables was observed. There appears to be a decreasing trend to the Burnout Syndrome as long as the students progress on their studies; it is possible that beneficial adaptations play a role. The tenth semester students have scores that are less prone to the Burnout Syndrome than students of the ninth semester both in the fields emotional exhaustion and disbelief.

Take-home messages: Burnout Syndrome is common among medical students and means of preventing its occurrence should be a priority field in medical education.

**10FF18** (19631)
Redesigning clinical mentorship program for improved outcomes in the clinical training of clerks

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Background: Job Characteristics Model (JCM) argued that 5 factors—skill variety, task identity, task significance, autonomy, and feedback—that might positively influence an employee's psychological job status and employment outcome (Hackman et al., 1975). Based on JCM, we redesigned a clinical mentorship program in a medical center and this study examined how it improves clerks' perceptions of mentorship.

Summary of Work: We adapted 15 question items of mentorship measurements (Sandura, 1993). Two surveys were conducted by web or mail, respectively, before and a follow-up evaluation 3 months later of the redesigned clinical mentorship program. We included in the analysis 57 clerks (46% women and 54% men), with a mean age of 23.1 years, who completed both surveys. We performed paired t tests to determine the effectiveness of the new clinical mentorship program.

Summary of Results: Based on JCM, our mentorship program was redesigned in several ways, including training and development of mentoring skills (skill variety), caring for mentees regarding their clinical knowledge and their personal lives as well (task identity), a mentor’s qualifications for the ranked excellence physicians in clinical teaching or mentoring (task significance), free scheduling by mentors and mentees (autonomy), and regular and irregular evaluations from mentees immediately to their mentors for continued improvement—top-ranked mentors rewarded with promotions and annual bonuses (feedback). It revealed that the redesigned program led to improved perceptions in 9 of 15 items of the clerks' career development, role modeling, and socio-psychological support.

Discussion and Conclusions: By applying the JCM, mentorship could be enhanced on the mentor-mentee relationship.

Take-home messages: The theory of the JCM could be used as a reference for educators and clinical
practitioners to create job content initiatives for improved medical education outcomes.

10FF19 (21327)
Stress, Depression and Psychological Factors among Medical Students: A Cross Sectional Study at Buriram Medical Education Center (BRMEC), Institute of medicine, Suranaree University of Technology (SUT)

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Background: Medical education is concerned about being stressful. Medical students have the risk of exposure to stress and depression because they have to study hard and take high responsibility. There are many psychological factors related to depression and stress. Recognition and promoting of mental health in students would enhance the medical learning experience.

Summary of Work: The researchers studied the prevalence and factors related to stress and depression by using questionnaires; Suanprung stress test (SPST), Rosenberg’s self-esteem scale (RSES), which were distributed to the 57 of medical students.

Summary of Results: The study showed 75.4% with no depression, followed by 22.8 %, 1.8% with mild and moderate depression, respectively. No student had severe depression, followed by 22.8%, 1.8% with mild and severe stress, respectively. The low trait self-esteem correlated with the risk of mild-moderate depression about 16 times (p<0.05, 95%CI = 2.7-93.9). Moreover, this increased the risk to high-severe stress about 4.4 times (p<0.05, 95%CI = 1.1-14.9) as compared the high self-esteem.

Discussion and Conclusions: Most medical students had no depression but had high and moderate stress level. The factor related to depression and stress was self-esteem.

Take-home messages: Promoting self-esteem activities in medical school curriculum would improve stress and depression status in students.

10FF20 (22791)
Impact of various final-year clerkships on student anxiety: A call for tailored curricula change?

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Background: Anxiety generated by final-year clerkships may differ depending on factors unique to a clerkship (e.g. perceived demand). Anxiety, a prospective academic emotion, is highest when entering clerkships and may hinder learning. Clerkships are frequently given equal duration to facilitate student rotation, but understanding how clerkships differ in their impact on students may inspire improved curriculum design.

Summary of Work: Final-year medical students were recruited at the beginning of five clerkships- Medicine, Surgery, Paediatrics, Obstetrics & Gynaecology (O&G) and Accident & Emergency (A&E)/Family medicine (FM). Ninety-eight students (96%) had 292 clerkship experiences. Questionnaires containing Likert-scale questions (evaluating confidence as a marker of anxiety in a number of domains) were administered during the first and final weeks of clerkships. Analysis was done using Stata V13.

Summary of Results: Questionnaires were very reliable (Cronbach alpha coefficient >0.8). Baseline anxiety varied between clerkships, and was highest for Medicine and lowest for FM (p=<0.001). Other significant differences in baseline anxiety were seen when comparing Medicine to Surgery (p=0.018) and O&G (p=0.03). Individual comparisons between clerkships showed a statistically significant decrease in anxiety over time for all clerkships except Paediatrics (consistently high anxiety) and FM (consistently low anxiety).

Discussion and Conclusions: Final-year clerkships generate varied anxiety, which may stem from unique demands. Understanding how clerkships differ may produce curriculum shifts towards an improved undergraduate clinical experience, tailored to facilitate all learning objectives of specialty areas based on their demand. Clinical clerkships vary in the anxiety they generate.
Take-home messages: Clerkships of equal duration may generate potentially avoidable anxiety as their demands differ. Tailoring curricula to specialty demands may optimize learning.
10GG1 (21975)
Introducing Problem Based Learning in the curriculum of Faculty of Medicine Cluj Napoca

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Background: The goal of Faculty of Medicine is to prepare the students not only to be good professionals in the medical field, but also to help them to develop the habit of life-long learning. PBL is a method which allows the students to gain various skills and attitudes that will help them become competent reflective practitioners.

Summary of Work: The leadership of the Faculty decided to introduce a module of PBL for the first year students. Having the support of the professionals of the Department of Medical Education from the University of Medicine Vienna we plan how this module should be prepared so it can be introduced into curricula in the university year 2013-2014.

Summary of Results: First, we had a pilot PBL module which was a success but it also revealed a lot of problems that were not foreseen. A group of teachers was formed to create different PBL scenarios containing anatomy, physiology and biochemistry issues integrated in a clinical environment. 50 teachers were trained to be facilitators. The PBL module was introduced in 1st year curriculum, for two hours/a week.

Discussion and Conclusions: The main difficulty in the implementation of PBL seemed to be the understanding of the roles in PBL for both teachers and students, considering that the whole Romanian educational system is teacher-based. The PBL module was a success, being very well accepted by the teachers and the students, which provided a very positive feedback.

Take-home messages: PBL is a very useful method in medical education, which can be implemented as a complementary part of the traditional medical education.

10GG2 (22928)
Different perceptions of Problem Based Learning among Polish and foreign students. Is PBL the same for everyone?

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Background: Problem based learning is often used to teach social competences which are very culture dependent and prior background, ethnicity and other factors may play a role. Data on role of those contributing factors is very limited.

Summary of Work: Comparison of perceptions of PBL between native Polish students and English language full time Scandinavian students of the same university. In 2013 a fully integrated with Pathology, based on PBL principles subject was introduced into the curriculum. Two groups of students were evaluated: group A (Polish) and group B (Scandinavian). Both had the same content. After one semester (75 hours) the analysis was performed. Questionnaire evaluating various elements of the course (19 questions) was used.

Summary of Results: We had sufficient return rate 69,6% (71/102) vs. 63,8% (46/72) respectively. Almost 62% of Polish and 67,4% of Scandinavians liked the method of teaching. 74,6% (A) vs. 78,3% (B) claimed that course motivated them to learn and explore knowledge in various fields. 71,8% vs. 89% think that time devoted is well spent. 60,6% (A) vs. 91% (B) claimed that the course help them to recall basic science and 39,4% vs. 69,3% students think that it increased their skills in teaching others. Class performance (tutor assessed) and MCQ test were not significantly different.

Summary of Results: We had sufficient return rate 69,6% (71/102) vs. 63,8% (46/72) respectively. Almost 62% of Polish and 67,4% of Scandinavians liked the method of teaching. 74,6% (A) vs. 78,3% (B) claimed that course motivated them to learn and explore knowledge in various fields. 71,8% vs. 89% think that time devoted is well spent. 60,6% (A) vs. 91% (B) claimed that the course help them to recall basic science and 39,4% vs. 69,3% students think that it increased their skills in teaching others. Class performance (tutor assessed) and MCQ test were not significantly different.

Discussion and Conclusions: Polish and foreign students were satisfied with the PBL course. There are significant differences between students from different ethnic groups in their perceptions of PBL. Further assessment of PBL should be continued to better understand how to use it to maximize benefits of different students’ populations.

Take-home messages: The same PBL course may be different for subpopulations of students.
**10GG3 (19076)**

**Problem Based Learning and Virtual Patient in Anaesthesia Undergraduate Education**

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**Background:** Virtual patient implementation for Problem Based Learning (PBL) can be found on the AKUTNE.CZ (www.akutne.eu). We describe implementation of interactive sessions to medical curriculum and student’s evaluation after completing them, focused on anaesthesia.

**Summary of Work:** Our typical PBL session in the courses that use algorithms and/or scenarios lasts 3 hours. It consists of three parts: 1) delivering theoretical background and 2) playing a selected interactive algorithm/scenario, 3) evaluation and debriefing along with a short questionnaire. Our study was based on data collected during 2 days in April 2013. The questions were focused on the attractiveness of PBL, memory footprint fixation during PBL, its complexity, the quality of PBL and on using PBL tools in the preparation for exams. Answers were coded on a 5-point Likert scale. Descriptive statistics were computed after the data had been collected.

**Summary of Results:** Interactive teaching tools and methods were implemented into selected compulsory courses with acute medicine topics on Medical Faculty of Masaryk University. In the feedback survey, 35 participants out of the addressed 35 completed the questionnaire (two groups of medical students after finishing the Anaesthesia lessons with implemented PBL). In general, there were given very positive answers (258 answers out of 280 belonged to the Agree/Strongly agree category). Only one question: “I used PBL Tools to prepare for the final exam” was answered with Disagree, five times (14.3%).

**Discussion and Conclusions:** We reported a great medical student’s satisfaction with virtual patient implementation into acute medicine courses.

**Take-home messages:** Virtual patient is a great instrument for case-based learning which loses its value without a teacher.

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**10GG4 (22094)**

**Creating Multimedia Vignettes for use alongside Problem Based Learning Cased in Undergraduate Medical Curriculum Teaching Using Students from Across Faculties – A Case Study**

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**Background:** Problem Based Learning (PBL) is widely used in UK medical schools. Traditionally, the presentation of cases used in this teaching has been in a text format. Studies suggest that appropriately used media enhances student learning and understanding by creating realistic mental images of clinical situations and patient reactions and using multimedia to present cases is becoming more popular.

**Summary of Work:** This project produced video or audio vignettes aligned to current learning outcomes that accompany the PBL cases in the first module of the undergraduate curriculum. The vignettes aim to promote discussion of various, difficult issues. The project recruited students across different schools of study. Each team incorporated a consultant (Medical Student), scriptwriter, videographer or sound engineer (Film, Television & Media Students). Professional actors were used in the vignette production. A learning outcome was selected and students designed, scripted and produced a vignette that is hosted on a virtual learning environment. The project was supervised by faculty members.

**Summary of Results:** Production of the vignettes is in progress and is scheduled for completion by June. Formative evaluation of the process is ongoing with evaluation of their use following implementation in September 2014.

**Discussion and Conclusions:** Students are a resource that, with support and guidance, can deliver curriculum change and development. A cross faculty approach can produce novel collaborations benefitting student learning.

**Take-home messages:** Creating online resources can provide real opportunities for student involvement in curriculum design and development. Working across different schools is challenging but can provide mutual benefits.
Effective learning: Application of eLearning technology in PBL medical course

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Background: The undergraduate medical course at State University of Londrina/Brazil implemented a PBL curriculum in 1998. Since then, several strategies were introduced to improve curriculum to obtain effective learning. However, after 15 years we observed that student and teachers’ behaviour changed in learning activities throughout the course.

Summary of Work: The revitalization of the course started based on analysis of learning theories and new technologies, since 2012. The medical board prioritized to adjust PBL processes and implemented (a) revision of structure of problems and “seven jumps”, and (b) application of eLearning tools to facilitate learning process.

Summary of Results: Changes were introduced in structure of problems e and “seven jumps” of 4th academic year. We sustained the PBL’s design and strategy from 1st to 3rd academic years. Simultaneously, we started to prepare Moodle as virtual learning environment to revitalize PBL processes.

Discussion and Conclusions: Revitalization of PBL processes encompasses behavioral changes of teachers and students to adopt changes. Students are more responsive to use new technology. On the other hand teachers resist applying the steps to discuss problem and use of moodle to facilitate learning process.

Take-home messages: The key issue is faculty development to be succeeded to promote effective learning, as well as in improving motivation and cooperation among teachers and teachers, and teachers and students.

Students views on near-peer compared to senior tutors for problem based learning.

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Background: Student (peer) tutors have been used since the early days of problem-based learning and compared to more experienced tutors. Only small differences have been described, both in style and achievement. We studied first and second year tutorials in a single medical school with a highly scaffolded PBL model, where there are defined learning objectives for each problem. Tutors’ status ranges from senior medical students and foundation doctors within 2 years of graduation (near-peer tutors) to consultant clinicians, general

Summary of Work: Focus groups were undertaken with first and second year medical students who had experienced both near-peer and senior tutors. Bias was minimised using a neutral trained interviewer and a structured interview guide. The discussions were recorded, transcribed and subjected to thematic analysis. A supporting questionnaire was developed gathering quantitative and qualitative to further elucidate the differences between the two tutor groups.

Summary of Results: The focus groups highlighted important themes differentiating characteristics of near-peer and senior tutors. These included; approachability, the ability to mediate group discussion, awareness of the required level of student knowledge and the ability to make this knowledge clinically relevant.

Discussion and Conclusions: We address these important questions; Is there a difference between near-peer and senior tutors? In which areas does each tutor perform well? Given the choice, which type of tutor would students prefer?

Take-home messages: This updates the knowledge on the relative merits of near peer and senior tutors in PBL.
10GG7 (18504)
Problems perceived by nursing students in PBL

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Background: The curriculum committee of the School of Nursing at Chung Shan Medical University (CSMU) in Taiwan has adopted problem-based learning (PBL) in one of its core nursing courses - Nursing Fundamentals, for the second-year nursing students since 2004. In general, students with PBL follow the "seven jump" procedure in a typical tutorial group.

Summary of Work: A total of 96 2nd-year nursing students answered the structured questionnaire developed by the School of Nursing after studying four PBL case problems during the last eight weeks of the semester-long course of Nursing Fundamentals in 2011. Eighty-five students (88.5%) completed the questionnaire survey.

Summary of Results: In general, PBL is welcomed by nursing students, though some problems perceived by students do exist particularly in a hybrid PBL curriculum system as adopted at CSMU. Students felt a little bit confused and difficult in a hybrid learning system, for example they had limited time for self-learning and had to take traditional examinations for didatic courses during the same period. They also felt problematic in this new learning model itself, for example frequent change members of a small group which is a kind of stress for them to work with a new team again and again; particularly for oriental students they felt embarrassed to actively communicate with others during tutorial.

Discussion and Conclusions: PBL is welcomed by nursing students, and it is a feasible learning model in nursing undergraduate education, though some problems did occur especially in a hybrid curriculum system and in an oriental culture.

Take-home messages: To recognize and to deal with problems perceived by students are important to promote the effectiveness of PBL.

10GG8 (22845)
The “Triple Jump” Method As The Right Assessment Method For The Moodle Platform

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Background: The "Triple Jump" method was developed by the McMaster University in 1974. The medicine students program focused on a "problems based learning" and the assessment of this method was created to evaluate the skills learned with the following steps:
1. First Step ◊ First analysis of the problem (30 minutes).
2. Second Step ◊ Independent research (2 hours).
3. Third Step ◊ Summary (30 minutes).

Summary of Work: During 2010 a new study plan from the Faculty of Medicine of the UNAM was put in place and four subjects were implemented with the Problems Based Learning (Problem Based Learning, PBL) strategy and simulated learning. The work describes the triple jump implementation as a students’ evaluation method from Medical Sciences Integration of the Faculty of Medicine of the UNAM, which was translated and customized for the Moodle educational platform as a tool required for the learning process through the problem based learning.

Summary of Results: 45 per cent Basic Clinic Integration I subject was analyzed belonging to the sixth semester of the school of medicine and in total there were 182 students. The time for answering exams was lower than expected and no problems were present regarding the use of the platform or the procedure learning.

Discussion and Conclusions: The triple jump assessment is designed specifically to cover the learning standards through the PBL, which is efficient and coherent regarding the learning model. The customization of the triple jump assessment for the use of technologies implies a great effort and paradigm liberation in both professors and students. These types of assessments allow a reliable evaluation for the amount of students in our University.

Take-home messages: The translation of the traditional assessment methods to technologies is a challenge since it is not only about the change of an assessment method but also to change the assessment method into a different one.
**10GG9 (20101)**

**Attitude of medical students towards Problem-Based Learning in clinical years**

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**Background:** Multiple learning tools have been used in the clinical year education. Problem-based learning (PBL) is one of the learning strategies that is introduced into the curriculum. Success of PBL in preclinical year has been reported worldwide.

**Summary of Work:** This study aimed to assess attitudes and knowledge of the clinical year students on PBL. The study was conducted among 387 clinical year medical students at Faculty of Medicine, Srinakharinwirot University, Thailand. The self-administered questionnaires were used to determine attitudes and knowledge.

**Summary of Results:** The overall response rates were 76.0%. Regarding the opinion of medical student toward PBL, the majority of them agree that PBL develops their communication skill (91.4%), team working (91.0%), the competence in self-directed learning (91.4%), and enhances the information inquiry skills (89.0%). The majority of the students (76.8%) indicated that they appreciated PBL even though PBL was time consuming (48.9%) and stressful (44.8%). Concerning the understanding of PBL, the medical students were well informed about PBL concepts with a rate 78.9-96.5% yet 76.5% were misunderstanding that the PBL required knowledge from conventional lectures. Compared to other learning tools, the students agreed that the PBL was better than conventional lectures (41.6%), real case patients (25.1%) and report writing (62.8%).

**Discussion and Conclusions:** The result indicated that clinical students have positive attitude toward PBL and that the curriculum should combine the PBL with other learning strategies.

**Take-home messages:** PBL also has a role for learning in clinical year.

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**10GG10 (20974)**

**The influence of group leaders’ maturity and language confidence on the learning outcome of English PBL**

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_Peih-Ying Lu, Kaohsiung Medical University, Medicine, Kaohsiung, Taiwan_

**Background:** In face of globalization, Problem-Based learning (PBL) conducted in English has been recently introduced into the Taiwanese medical curriculum to meet the standard of global education and enhance the learning experiences. However, the effectiveness of learning is largely dependent on group leaders’ maturity and ability in leading the English PBL discussion.

**Summary of Work:** This work investigated the effect of the leaders’ maturity and confidence in English in PBLs for first year Taiwanese medical students. Sixty students were recruited from two English classes and were divided into 7 PBL groups. The PBL scenarios given were based on the class theme-based curriculum and designed to develop the critical thinking and culture competence related to medical professionalism. Each PBL session was recorded and transcribed verbatim. Other data such as participants-observation, survey, interviews were also collected to triangulate the findings.

**Summary of Results:** PBL with leaders of high maturity and confidence have constructive discussion and well-developed cultural competent conclusions. However, as students were given more training on PBL and have gained more experience, the overall learning outcomes of PBL have greatly improved.

**Discussion and Conclusions:** Leaders with relatively high maturity and confidence have constructive discussion and well-developed cultural competent conclusions. However, as students were given more training on PBL and have gained more experience, the overall learning outcomes of PBL have greatly improved.

**Take-home messages:** Though group leaders’ maturity and confidence in English PBL for non-native speaker in general are important in determining the learning outcome of PBL, an early onset training and experience of PBL in general education can help improve the effectiveness of English PBL later on in medical education.
**Team Based Learning: How first year medical students feel about it**

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Kelly Cristina Miranda Estrela, Universidade Federal De Goiás, Student, Goiânia, Brazil  
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**Background**: In recent years, medical schools have sought to adapt its curriculum to the new needs of educational programs. Team based learning (TBL) is a learning tool that uses individual and group work and an immediate feedback in order to create an environment in which students feel responsible for their own learning. In a Brazilian medical school, TBL was used in a pioneering way on first year undergraduate students.

**Summary of Work**: During 6 classes, students learned through TBL method. Before the first class and after each lesson they responded to a questionnaire about their acceptance of the method.

**Summary of Results**: 66.7% of students had never participated in classes with the method. Nevertheless, 90.9% felt this would be useful for their learning. After the first class, 97% considered that TBL contributed to learning and 94.5% would like to continue with it. In the following classes and at the end of survey, 93.9% and 90.6%, respectively, said they had increased their knowledge. However, 43.6% prefer a traditional methodology.

**Discussion and Conclusions**: Due to the lack of knowledge of most students about TBL and the inherent difficulty in group work, low acceptance was expected, which did not happen. Although students enjoyed the method, newly entered students in the university are used to teacher-centered methodologies. This may explain why 43.6% of the students prefer the traditional methodology. However, the acceptance levels of TBL were significant and the innovative methods can be a promising way to improve the teaching-learning process.

**Take-home messages**: Innovative methods can be a promising way to improve the teaching-learning process.

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**Applying the Team-Based Learning teaching strategy in an undergraduate nursing course**

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PKF Gurgel, UFRN, Nursing, Natal, Brazil  
CDFD Pereira, UFRN, Nursing, Natal, Brazil  
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**Background**: Active teaching methodologies have been used as a teaching strategy in many disciplines, such as Team Based Learning (TBL) to increase student participation in their learning process. The study aimed to use the method of TBL in a nursing program and evaluate its effects on learning outcomes.

**Summary of Work**: The study was conducted in the discipline of critical care in undergraduate nursing (RNs—BSN) from a Brazilian Public institution in the year 2013 to 86 students. Three subjects were taught (drowning, burns and patient safety). After implementing the TBL the students were evaluated on their performance with the exam scores, in Clinical practice and OSCE.

**Summary of Results**: The results showed that the final examination score (GRAT) was significantly higher than the initial score (IRAT). It was observed in this study that it has a good effect on learning, especially students with the greatest difficulty learning and significantly influenced the learning outcomes of students in written and practical tests. Students stated that they increased their learning interests with TBL, collaborating with better learning behaviors, including the class compromise and academic performance.

**Discussion and Conclusions**: TBL method requires extra preparation class requiring the students a self-learning and living in an individual responsibility to the teams that belong to the application of acquired knowledge. These learning behaviors are important and beneficial for future professional development of students.

**Take-home messages**: TBL may offer opportunities to student interactions with colleagues, collaborating with the most active in working rapport essential for staff professional nursing practice. TBL should be considered for application in nursing education.
Development of the Dual Training Model for Clinician-Educators at Teaching Hospitals in Japan

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Background: Clinician-educators at teaching hospitals in Japan tend to have little chance to be evaluated for their educational performance. Many medical students in Japan also have few opportunities to experience team-based learning (TBL) because few medical universities use the TBL curriculums. Dual Training Model has been developed and implemented for active learners of both clinician-educators and medical students since 2013.

Summary of Work: The Dual Training Model provides interactive learning sessions for medical students as an informal curriculum in some medical universities in Japan. A clinician-educators group, which consists of five to seven educators from all over Japan, give TBL sessions for 4 to 6 year medical students. Students are required to evaluate the quality of each lectures, and clinician-educators also evaluate their own lectures each other.

Summary of Results: In the model, students experience a variety of valuable TBL sessions about medical knowledge and clinical reasoning. Clinician-educators obtain the chance of lecture and feedback from students and other educators, so they can refine their skills of lecture and provide new and revised sessions in subsequent lessons.

Discussion and Conclusions: The Dual Training Model has provided the opportunity to reflect on the quality of educational performance for clinician-educators in Japan. Assessment of evaluating effects is necessary for this model.

Take-home messages: The Dual Training Model has preserved feasibility and significant educational value for both clinician-educators and medical students.
Preliminary Results of a Pilot Project for Team-Based Learning Application in Clinical Clerkships: In-class learner engagement and student satisfaction

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Background: Team based learning (TBL) is a student-centered active learning method. This study aims to determine in-class learner engagement and student satisfaction with recently started Medical ethics and Dermatology courses performed using TBL methodology.

Summary of Work: An eight-hour course in Medical Ethics and three-hour course in Dermatology clerkships are allocated to TBL. Topics in Ethics course were patient rights, physician rights, informed consent and malpractice while the topic in Dermatology was dermatitis. Classical TBL was implemented with pre-course student preparation, individual and team readiness assurance tests (RAT), objection opportunity for students to test contents, contribution of the instructor to controversial points, and team assignments. In-class learner engagement was determined observing behaviors of the instructor (scored over 7) and students (scored over 10). Independent observers scored behaviors on a validated measure. Student satisfaction with TBL was determined by a feedback form.

Summary of Results: Two course cycles were performed in Ethics and four cycles were performed in Dermatology. There was significant difference between mean individual and team RAT scores in both clerkships in favor of teams. Mean scores of instructor and student behaviors supporting learning engagement in Ethics were 5.345±2.13 (over 7) and 6.29±2.03 (over 10) respectively. The corresponding scores in Dermatology were 6.43±1.4 and 7.98±2.28. Mean student satisfaction scores over 5 in Ethics and Dermatology were 4.66±0.19 and 4.41±0.18 respectively.

Discussion and Conclusions: Both students and instructor seem highly satisfied with the method in which they show high level of behaviors supporting in-class learner engagement.

Take-home messages: TBL seems an appropriate method for clinical clerkships to enhance in-class learner engagement and student satisfaction.
Online Teaching, Unique technique for assessment and feedback

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Presenter: Nibha Hedge*, NHS England, West Midlands Deanery, Birmingham, United Kingdom

Background: Medical education is advancing from face to face to online interactive teaching. Google forms may be used for developing collaborative learning. Since the development of online examinations, new ways are being explored to adopt computerized technology. We present a unique system to conduct online practice teaching.

Summary of Work: Ten sessions of online practice exams were conducted amongst two groups of GP registrars over Nov 2013 and Jan 2014. ‘Single Best Answer’ and ‘Key Feature Problem’ formats were used. Group one consisted of 10 registrars who had failed their FRACGP exams previously and group 2 consisted of 20 GP registrars who are taking their exam in March 2014. Data was used for individual assessment and to provide real time de-identified group feedback through web conference. This was done using their answers and those of the experts by means of mail merge.

Summary of Results: More than 97% candidates in both groups were satisfied with the new technology when compared to traditional paper based practice exams. Individual performance also showed significant improvement.

Discussion and Conclusions: Within the limits of technological difficulties, online teaching using a practice exam format in Google form, combined with immediate feedback with collated data using ‘Mail Merge’, can improve understanding and performance and is a potent learning instrument where distance is a limiting factor.

Take-home messages: Online practice exams using Google form with real time immediate audio-visual peer-to-peer and educator’s feedback is an easy, cheap, effective, and well accepted method for online teaching and provides a popular initiative for future teaching.
Facilitating students’ autonomous e-learning in order to establish the clinical relevance of basic science concepts through exemplary internet searches

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**Background:** The growing interest in e-learning led medical teachers to develop many excellent materials such as animations, videos, virtual patient cases etc, some of which are freely available online. However, these materials are usually used by students only when introduced as components of regular lectures or when specifically directed by their teachers, for example in flipped-classroom settings. Therefore these e-learning materials are selected by the teachers for the students (very much in the same way that reading lists are given) rather than chosen by the students on the basis of their individual learning needs and preferences. We aimed to refresh our lecturing (re: Brown & Manogue 2001, Medical Teacher 23, 231-244) and stimulate students' self-directed learning (Kusurkar, Croiset and Ten Cate 2011, Medical Teacher 33, 978-982) by carrying out model internet searches during our basic science lectures.

**Summary of Work:** Searches for e-learning materials were carried out on Google Images/Google Video Advanced Search during lectures to show how to look for answers related to a specific point or in response to students’ questions. The aim of the search was clearly stated and the rationale of the steps undertaken was presented as a running commentary so that students could understand the search strategy and try similar searches on their own.

**Summary of Results:** Students discovered for themselves the relevance of basic science concepts for clinical practice. Consequently, their academic results were improved as their average course marks increased from 65.85 +/- 10.35 to 72.27 +/- 4.31 (p=0.02).

**Discussion and Conclusions:** Self-directed learning increased students’ academic performance and their intrinsic rather than controlled motivation.

**Take-home messages:** Autonomy-supportive teaching by demonstrating exemplary internet searches during the lectures, encouraged students to seek online e-learning materials that address their learning needs.

10 years of Virtual University for Occupational Health Care in Finland

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**Background:** The Virtual University for Occupational Health Care in Finland (VUOHC) has offered over ten years high-quality training and support for about 800 physicians specializing in occupational health (OH) and their 350 tutor physicians. VUOHC is a nationwide collaborative effort of five medical faculties within the universities of Helsinki, Eastern Finland, Oulu, Tampere and Turku and the Finnish Institute of Occupational Health (FIOH).

**Summary of Work:** VUOHC maintains a web portal (tthvyo.fi) including all information needed for specialization in OH. VUOHC offers about 55 courses in Moodle learning environment. They vary from guided e-learning and blended learning courses to self-study and case based courses. There is also pedagogical training for tutor OH physicians. VUOHC is under constant development by course feedback, user statistics and user surveys.

**Summary of Results:** In ten years the use of VUOHC has become well established. In 2013 about 200 participated in guided courses and each self-study course was visited on average 200 times. Course feedback demonstrates that online assignments support learning. After survey in 2012 VUOHC was regarded as useful service and attitudes for e-learning were positive. The possibility to study regardless of time and place was much appreciated.

**Discussion and Conclusions:** During a decade the cooperation between universities, FIOH and occupational health centres has made VUOHC a successful and active environment. Web-based learning is especially suitable in Finland which is a scarcely populated country with long distances.

**Take-home messages:** VUOHC has systematically developed the training of OH physicians in Finland. The open learning environment has proven to be useful also for other public health professionals.
10HH5 (20706) How reliable is students' estimate of the time elapsed in e-learning?

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Background: In e-learning teacher needs to assess the time resources required for completing a course. One retrospective method is to ask students how much time was needed. How reliable is this estimate by students?

Summary of Work: The need for time in e-learning was investigated on a three week Moodle course of Medical Informatics consisting of 10 compulsory interactive lessons (estimated duration 1 hr each) containing several short (1-4 min) how-to-videos and practical exercises. Our material consists of 3rd year medical students (68 females and 42 males) who were asked to estimate the time in minutes that they needed to complete the entire course. The objective data of time elapsed was collected from the Moodle log for each student.

Summary of Results: The mean of elapsed time in minutes was 454 mins (SD 204) and the mean of estimated time was 429 mins (SD 212) (p=ns). The correlation between the subjective estimate and the objective measurement was reasonable high (r = .66), no sex differences were observed (females .58 vs. males .73, p = ns). 19% of students overestimated the time elapsed at least 20%, 36% of students underestimated it at least 20%, and 45% were accurate within limits of 80% to 120%.

Discussion and Conclusions: Larger proportion of students (36%) underestimated the time elapsed compared to those who overestimated (19%) the time that was needed to complete the course.

Take-home messages: In our data the students were reasonably reliable source of information regarding the time resource needed to complete an e-learning course.

10HH6 (20469) Internet use for academic and non-academic purposes in 4th-6th medical students

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Background: Internet is increasingly used by Thai people. Thai medical students, as well, are increasingly using the internet for both academic and non-academic purposes. Textbook plus medical online knowledge is the present situation in our medical education. This research studied internet use for academic and non-academic purposes of 4th-6th medical students.

Summary of Work: A cross-sectional study, the data were collected from 118 of 166 of 4th to 6th year in the academic year 2013/2014 by using a checklist questionnaire.

Summary of Results: All of them accessed the internet by using smart phones, tablets or notebooks. 67.8% spent 2 to 5 hours per day on the internet. Major internet activities were social media (95.8%), academic purposes (82.2%) and entertainment (45.4%). 52.5% used the internet everyday for academic purposes. 78.8% used a general online search engine for searching medical information. They considered the internet very important (64.4%) and extremely important (27.2%) for medical education. Problems of internet use were low speed of internet (78.8%), accessibility for international medical journals (48.8%) and reliability of information (48.3%).

Discussion and Conclusions: Internet is very important for medical education. Main problems of internet use are low internet speed and accessibility for medical journals, which are extrinsic factors. The reliability of information is an intrinsic problem that resolving by using creditable medical websites.

Take-home messages: Let’s motivate students to use a credible medical online search engine.
Understanding the needs of students undertaking a distance learning research methods module

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Background: The focus of the research is a Research Methods Module which is a postgraduate module that sits in a College of Medical and Dental Sciences. It is included as a compulsory module on a large range of postgraduate programmes across the college and the aim of the module is to equip students with the required skills to carry out their dissertation. The researcher wanted to establish if the Research Methods Module provided the knowledge and skills needs for students to complete their dissertation research and write this up after completion of the module.

Summary of Work: To collect the data, a mixed method triangulation approach was taken. Three different methods of data collection were used.

Summary of Results: The research found that the majority of students chose a mixed method approach to collect their data. Students felt they would have difficulty in a range of tasks related to quantitative research methodology and a number of students felt they would have some difficulty in analysing qualitative data.

Discussion and Conclusions: It is clear that teaching both qualitative and quantitative research method skills has given students the range of skills to mix both of these methods to collect data. Students envisage finding a number of areas related to quantitative research methodology difficult when actually doing their research and writing their dissertations.

Take-home messages: It is important to teach both quantitative and qualitative research methods to postgraduate students. There is a need for further support at the dissertation stage in helping students with areas of quantitative research methodology that students find difficult.

Should I do it online? Medical student perceptions of online social network policy and inappropriate online behaviors

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Background: Inappropriate online behavior incidents have occurred in several medical schools. Though the incidents were not serious in our medical center, proactive act could prevent detrimental ones. Many of the students, a “pro” online user, may fail to apply professional ethical codes to online practice.

Summary of Work: Based on results from our previous study, we start educating clinical year students on online professionalism and online social network (OSN) policy through online and offline communication channels. Perception of the policy and inappropriate OSN behaviors are then examined.

Summary of Results: Students have higher than intermediate level of knowledge on almost all policy items except awareness of Computer Crime Act and regulations governing the conduct of student. Eleven of twelve behavior items are considered inappropriate OSN behaviors. Though considered inappropriate, to befriend a patient online and use of social media during teaching or medical practice are most acceptable. Disparaging comments on medical faculty or colleagues and on medical profession is least acceptable.

Discussion and Conclusions: Students have adequate knowledge on each item policy except on Computer Crime Act and student regulation. Student perceptions on inappropriate OSN behaviors are quite similar to other studies. However, some behaviors are more tolerable and some are less tolerable. The medical education center can provide guidance on appropriate online behaviors based on students consensus obtained from this study. However, with awareness of generation differences, faculty opinion and further discussion on certain incongruous issues are required prior to launching the guidance.

Take-home messages: Education of online professionalism and OSN policy are crucial for proper OSN uses.
The use of Facebook as peer mentoring platform in undergraduate medical education

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Background: Facebook is one of the largest social media networks and widely used by health care professionals at all stages of medical education(1). A central affordance of Facebook allows for extensive exchange between large groups of users(2). We conducted a mixed-methods study to investigate the peer-mentoring elements of undergraduate medical students using Facebook.

Summary of Work: First we agreed on a peer mentoring definition based on relevant literature. Furthermore we extracted and examined all posts in two different Facebook groups formed by first and second year medical students at LMU. On that account we used descriptive statistics to identify relevant posting periods and used a framework approach to analyze these themes. We consequently developed a peer-mentoring coding scheme, which was applied to the extracted posts and comments.

Summary of Results: We extracted and analyzed a total of 2,041 posts and 8,052 comments from two large-scale, closed Facebook-Groups (n=1,378) that were started and used by undergraduate medical students in the first and second preclinical year. Descriptive statistics revealed posting peaks at the beginning of semesters and before exam periods. Thematic analysis of the content revealed that all major categories of peer-mentoring as defined were present in both Facebook groups.

Discussion and Conclusions: Undergraduate medical students at LMU make extensive use of Facebook to organize study related issues including exam preparation as well as social events. Social media platforms like Facebook seem to be effective to provide fast and large-scale peer-mentoring activities. Furthermore we submit that virtual social networks have a large potential to be integrated in formal undergraduate medical curricula.

References:


The use of Facebook: Prevalence and effects of Facebook addiction disorder to medical students in PSU

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Background: Facebook is the most popular social network with over 1 billion active users in the world. Despite of the advantages of Facebook, it also full of hazards. Previous study show 4% of students are Facebook addiction disorder (FAD). There were only a few studies about Facebook usage of medical students. Aim of the study was to know the usage of Facebook and the prevalence of FAD, to evaluate the educational effects of FAD in medical students in PSU.

Summary of Work: Cross-sectional descriptive study, the data were collected by self-reported web-based questionnaire from 1,144 medical students of PSU. The prevalence of FAD was measured using the scoring system by Bergen Facebook addiction scale (BFAS). Discrete and continuous variables were described as percentage, mean. Chi-squared was used to evaluated categorical variables differ between group.

Summary of Results: Response rate was 27.45% (314 medical students). Most subjects were Female (56%), GPAs 3.51-4.00. Most medical students used Facebook daily (88.2%) for 1-2 hours/day (N=277, 38.9%), the reasons of using Facebook were boredom (77.38%), contact people (73.85%) and followed by just fun in using (71.33%). From BFAS we showed 4.14% were FAD. The effects on education in FAD group were their GPAs, spending time on study and they think that they could improve their GPAs if they had more time (P-value <0.05).

Discussion and Conclusions: Medical students use Facebook frequently. Using Facebook to counteract boredom is the greatest reason. The prevalence of medical students who are FAD does not differ with the other study and FAD has effect on education.
**10HH11 (19006)**  
**E-learning in traumatology: From students for students**

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**Background:** The treatment of trauma patients is challenging for young physicians. The faculty of medicine at the University of Bern offers mediadissertations, and this attractive way of creating a work from which other students can profit was the start of an educational video about the so-called trauma-ABC shaped to the needs of 4th to 6th year medical students.

**Summary of Work:** A medical student with prior experience in audio-visual projects, supported by the team of the Education and Media Unit and an emergency physician with a Master of Medical Education, developed an educational video for medical students focusing on one safe way to address the needs of a trauma patient. It follows the well-known ABCDE-structure in trauma, showing in four short videos that the same structure is applicable not only to multiple trauma patients but also to patients with minor trauma.

**Summary of Results:** The instruction videos are launched on the website of the medical faculty of the University of Bern and are also available for the interested public at [http://e-learning.studmed.unibe.ch/chirosurf](http://e-learning.studmed.unibe.ch/chirosurf). Moreover they are used for the introduction of medical students attending a traineeship at the University Hospital in Bern in surgery or emergency medicine.

**Discussion and Conclusions:** The educational video on traumatology for medical students is a useful e-learning tool and a good example for peer teaching.

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**10HH12 (19148)**  
**Reducing reporting error by means of a structured online e-learning module in treadmill stress testing**

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**Background:** Internal Medicine trainee doctors in our institution participate in the running and provisional reporting of treadmill stress tests. These provisional reports are reviewed by a senior supervising Cardiologist, occasionally several days later. Erroneous provisional reporting could therefore lead to delay in treatment. The training of our trainees was previously based on on-the-job observation and informal teaching. We aimed to standardise this training and to evaluate the clinical impact of our efforts.

**Summary of Work:** A comprehensive online e-learning module was developed by four Cardiologists. This comprised 3 slide presentations covering theoretical and practical aspects of stress testing, and 2 formative quizzes. All trainees involved in the reporting of stress tests completed the e-learning module. We used the percentage of provisional reports requiring modification as a marker of clinical impact. We compared this percentage over the immediate 3-month period following the implementation of the module, with the corresponding 3-month period in the previous calendar year.

**Summary of Results:** In the immediate 3-month period following the implementation of the e-learning module, 333 of a total of 2564 (12.99%) provisional reports required modification. In comparison, 257 of 1628 (15.79%) provisional reports required modification in the corresponding 3-month period the previous year. This absolute reduction of 2.8% was statistically significant by chi-squared testing (p=0.011).

**Discussion and Conclusions:** The standardisation of training of trainee doctors in treadmill stress testing by means of a structured e-learning module led to a significant reduction in the percentage of erroneous provisional reports.

**Take-home messages:** Well-designed e-learning modules can have significant clinical impact and may improve patient safety.
MOOC as an Educational Tool for Medical Education Departments

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Manolo Alegre, University of Navarra, Medical Education Department, Pamplona, Spain
Nieves Diez
Cristina Rodriguez
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Presenter: Manuel Alegre Esteban

Background: We have been working on empowering our teachers in order to improve their clinical setting teaching. The Medical Education Department wanted to implement several techniques that facilitate teaching in the run with heavy patient care workload and located along several medical centers and hospitals in our community. In order to achieve this objective we designed a MOOC (Massive Online Open Course) entitled “Teaching in clinical setting”.

Summary of Work: From February 2013 to May 2013 we designed and recorded an online course explaining the basic features of 5 well known teaching techniques (One minute preceptor, Aunt Minnie, SNAPPS, Activated Demonstrations and Bedside Teaching). A practical simulated-video and auto evaluation test of each technique was also provided. A feedback form at the end of the course was also requested.

Summary of Results: The course was opened in December 2013. One hundred and sixty teachers have done the MOOC in the two first months, with a good level of satisfaction (5 points on a six-grade scale). All people registered performed self-evaluation and completed at least the 90% of minutes required.

Discussion and Conclusions: The MOOC is a perfect strategy to reach a high number of physicians and medical teachers interested on implementation their teaching capabilities that otherwise would be difficult to reach.

Take-home messages: MOOC could be a valuable faculty development educational tool for Medical Education Departments.
10II ePOSTERS: Simulation 2
Location: Theatre Room 15, Level 0, MiCo

10II1 (20210)
Minimum frequency of simulation sessions to acquire cross skills in medical students
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Background: Clinical Simulation has proven to be an indispensable tool in the training of medical students and in skills acquisition. That is why Universidad Andres Bello School of Medicine has incorporated it into the training of their students through various undergraduate courses.

Summary of Work: Objective: determine the minimum frequency of simulation sessions required to acquire cross skills in handling medical emergencies. Seventeen medical student interns of Universidad Andres Bello School of Medicine in Vina del Mar, Chile, were faced with seven emergency medical scenarios in a high-fidelity human simulator. They were divided into four groups, receiving the same initial information in each case. At the end of each, a structured debriefing was conducted. The scenarios ran on a computer platform with pre-set responses. Students were evaluated by a common rubric that measured four domains: leadership and teamwork, communication, anticipation of critical events and team clinical reasoning. The maximum possible score was 16 points (100%).

Summary of Results: Achievement average percentage for each scenario (1st to 7th): 46.9 %, 56.3 %, 81.3 %, 75 %, 92.2 %, 93.8 % and 93.8 % respectively.

Discussion and Conclusions: After completing the four scenarios, students perform well (more than 90% non-critical errors) in the management of medical emergencies. Clinical simulation proves to be a significant and objective tool for improving cross skills in medical students.

Take-home messages: Improve the description of the domains of the heading. Form groups of equal size. Rotate the roles in the team.

10II2 (22935)
Does peer-to-peer comparison improve skills acquisition in surgical simulator training?
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Roland W Partridge, Royal Hospital for Sick Children, Department of Paediatric Surgery, Edinburgh, United Kingdom
Iain AM Hennessey, Alder Hey Children's Hospital, Department of Paediatric Surgery, Liverpool, United Kingdom
Julie Struthers, University of St Andrews, School of Medicine, St Andrews, United Kingdom

Background: Simulation in surgery allows for the safe and efficient acquisition of surgical skills away from patients. This is of particular importance given current strict working-time restrictions and emphasis on improving patient safety. Incentivising and motivating trainees to use simulators presents an important educational challenge. Peer-to-peer performance comparison is an established motivational factor in knowledge acquisition in medical training, but little work has been done on its effectiveness in skills acquisition. This study aims to assess the impact of peer-to-peer comparison on skills acquisition in surgical simulator training.

Summary of Work: Medical students were randomised into two groups and had baseline laparoscopic skills assessed. They were then each given a laparoscopic simulator, including software that generates objective performance scores, to take home and use for two weeks. Group 1 had access to their own performance scores, but not that of peers. Group 2 were asked to submit their scores to the study lead after every practise. These were used to generate a graphical 'leader-board' of skills, which was shared peer-to-peer within Group 2 via a private social media page. Both groups returned to have their skills re-assessed at the end of the practise period. Differences in skills acquisition, practise frequency and motivation between groups were assessed.

Summary of Results: Results will be available by April 2014.

Discussion and Conclusions: Conclusions will be available by April 2014.

Take-home messages: Peer-to-peer skills comparison is an exciting concept with multiple applications in medical education and training. This study explores its potential to incentivise and improve skills acquisition in laparoscopic simulator training.
Hypothesis-driven physical examination using a high-fidelity patient simulator in undergraduate medical education in Japan

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Background: Physical examination is one of the most important skills for all clinicians. Although a head-to-toe style comprehensive physical examination is taught to students in many medical schools, it is not suitable for a real clinical situation. Hypothesis-driven physical examination (HDPE) has been proposed as an adequate educational technique for physical examination, and its validity has been verified. In addition, physical findings and status change can be simultaneously programmed into a high-fidelity patient simulator.

Summary of Work: We developed a physical examination session using the simulator for fourth-year students. Students were instructed to perform head-to-toe physical examination in the session from May 2013 to September. Since October 2013, we introduced the HDPE method, in which students were instructed to search for pertinent positive or negative findings of a diagnostic hypothesis. The simulator was programmed to change the status after a certain amount of time had passed. The free description of students for this session was analyzed qualitatively.

Summary of Results: Throughout the program, students felt that the simulator was useful but had difficulty handling the sudden status change. In the subsequent revised program, the use of keywords such as “vital signs,” “differential diagnosis,” and “check the patient carefully” were significantly increased.

Discussion and Conclusions: HDPE using a simulator programmed for a sudden status change has promoted further situational-based learning. There is room for improvement in this model with Team-based learning method.

Take-home messages: Physical examination education applicable to a real clinical situation can be provided using the HDPE method with a high-fidelity patient simulator.

Managing a national training program: Facilitators and barriers

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Margaret Bearman, Monash University, HealthPEER/NHET-Sim, Melbourne, Australia
Presenter: Clare Byrne*, Monash University, Clayton, Australia

Background: Health Workforce Australia (HWA) is coordinating clinical training reform approaches across Australia. As part of its Simulated Learning Environments agenda, HWA has funded the National Health Education and Training in Simulation (NHET-Sim), a large scale national educator training program.

Summary of Work: The NHET-Sim program educates participants on how to deliver teaching using a range of simulation modalities, including manikin, simulated-patient and virtual environments. Participants complete core and elective modules, with some electing purely online pathways, although most attend workshops. The scale of such a broad national approach requires significant educational administration, particularly with respect to workshops.

Summary of Results: Between December 2012 and February 2014, over 2000 educators have completed the NHET-Sim program, with 170 workshops conducted across all Australian states and territories. The facilitating factors to running successful workshops has included: strong local champions, HWA’s support and integration with its other programs, a dedicated administrative team with an understanding of healthcare systems, a train-the-trainer co-teaching approach for local faculty and a multi-pronged approach to marketing. The barriers have included: IT systems which are not designed for workshop administration; short term nature of work contracts; and a reliance on personal networks to gain access to some environments.

Discussion and Conclusions: The local networks formed by NHET-Sim are an integral part of the program; but this type of educational administration can pose challenges for institutional systems generally focussed on awards courses.

Take-home messages: A large scale workshop program requires a dedicated administration team with the flexibility to adapt to local environments.
Comparing different types of feedback in scenario based simulation education

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Takanori Hiroe, Kyoto University School of Public Health, Department of Biostatistics, Kyoto, Japan

Background: It is well known that scenario based simulation education is one of effective way to learn how to do in the crisis. Usually the feedbacks have been guided by the rich-experienced person. However, the debriefing without instructors which is called “self-debriefing” could be another way to make feedbacks more reinforced. It leads learners to cognize their ability more independently. Our research question was how the result varies between “self-debriefing” and “instructor-debriefing”.

Summary of Work: Study design: prospective, randomized and controlled study.
Subjects: the 4th grade medical students and the new PGY1 residents in Hawaii.
Method: we set the four different emergency scenarios. The 124 participants were divided into 35 groups (19 experimental groups and 16 control groups). They all worked through scenarios. At the end of the each case, after the brief overview by the instructor, the participants of experimental group did the debriefing by themselves. By contrast, the participants of control group did the debriefing at the bedside with the instructor. The form of the debriefing was global rating score.

Summary of Results: In the experimental group, the sum of the team performance score was improved (first case score=12.64, last case score=15.12, p=<.0001).In the control group, the score was also improved (first case score=12.43, last case score=14.79, p=0.007).

Discussion and Conclusions: This is because as they repeated the case scenario with mannequin, they became capture the situation more clearly, and work through the scenario more specificity even without instructor-guided debriefing.

Take-home messages: We could say that the “self-debriefing” is one of practical assessment process in the scenario based simulation education.

Satisfactory professional benefit from simulation-based training in acute medical conditions

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Background: The aim of this study is to investigate the learning outcome of three different setups using the time between simulation-based training for Danish medical interns.

Summary of Work: 57 Danish medical interns underwent two days of simulation-based training in acute medical conditions using the SimMan 3G simulator (Laerdal Denmark, Copenhagen). Between simulations interns participated in a priority exercise challenging their ability to prioritize patients. They also observed other interns simulations at the simulation ward or observed the simulations in the debriefing room. A questionnaire was used to evaluate the self-reported learning outcome.

Summary of Results: To be team-leader at simulations received 5.7 points of 6.0 possible with a significant better learning outcome than any other positions (p<0.001). To assist the team leader received 4.8 points. The priority exercise received 4.6 points with no significant difference between this and assisting the team leader (p=0.15). To observe simulations in the debriefing room or in the simulation ward received 4.2 and 4.1 point respectively, without significant difference between the two functions (p=0.95)

Discussion and Conclusions: A very good self-reported learning outcome are received when participating in simulation based training. The learning outcome can be increased by introducing a priority exercise and reduce the time spends as an observer.

Take-home messages: By reducing the time spent observing other interns performing simulations a higher learning outcome can be achieved.
### SIMON goes Tübingen: A student-built ambulance simulator

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Stephan Zipfel, University of Tübingen, Department of Internal Medicine 4, Psychosomatic Medicine, Tübingen, Germany

**Background:** Medical errors in emergencies can have serious consequences for patients. Realistic simulations may reduce the incidence of medical errors. In combining modern medical equipment and a limitation of space, a simulation ambulance offers the possibility to create complex training scenarios including the exercise of team and communication skills.

**Summary of Work:** In a student-run project, an ambulance simulator (“SIMON”) was implemented in the DocLab in Tübingen. Apart from coordinating the project, the students acquired the funds needed.

**Summary of Results:** The ambulance simulator is designed as an indoor installation and includes state-of-the-art medical equipment. The project was primarily financed by the “Tübinger PROFIL” with additional support from the Department of Anesthesiology and Intensive Care Medicine. Collaboration with industry sponsors allowed the ambulance to be equipped with a respirator, a defibrillator and an ultrasound unit. A lifelike mannequin placed on a stretcher and an in-house programmed video-feedback-system enable the simulation of realistic emergencies and subsequent video debriefing.

**Discussion and Conclusions:** The student-built ambulance simulator “SIMON” enables the simulation of complex scenarios for medical students in Tübingen. This enhances curricular teaching and allows for innovative teaching formats. For example, realistic emergencies can be broadcasted into lecture theaters or incorporated into interactive teaching sessions like the “Sectio chirurgica”. The new ambulance simulator “SIMON” may improve the medical education of future doctors and can thus provide a better preparation for clinical work.

**Take-home messages:** The DocLab in Tübingen now has a modern indoor ambulance simulator, a project that was carried out by students.

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### Hybrid simulation in emergency gynaecological teaching for undergraduate medical students, preparedness for work through synthesis of knowledge and skills

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Lisa Kirk, University of Bristol / University Hospitals Bristol NHS Foundation Trust, Obstetrics and Gynaecology, Bristol, United Kingdom

**Background:** Medical students are often taught specific clinical skills in isolation. Those skills then need to be synthesized with their knowledge and applied to assess, admit and manage patients as a junior doctor.

**Summary of Work:** How confident do undergraduate medical students feel performing all the tasks associated with assessing and managing an emergency patient? An unrehearsed hybrid simulated gynaecological emergency clinic utilized a mix of standardized patient scenarios and high fidelity simulators. The tasks required of the student synthesize those skills required to manage a stable patient as a junior doctor. The practical procedures were those specified in the General Medical Council's Tomorrow's Doctors document. These practical procedures were integrated into the hybrid simulated scenario. Students had to demonstrate their performance of these procedures. Prior to undertaking the session the students self-assessed their confidence in performing procedures (visual analogue scale). Self-assessment was repeated after the session.

**Summary of Results:** On average the students felt 18% more confident in their own abilities to perform the range of tasks that were required of them. Increased confidence levels were independent of gender.

**Discussion and Conclusions:** Using a hybrid simulated scenario uses both practice based learning and experiential learning to improve student's confidence about their preparedness for working life as a doctor.

**Take-home messages:** Students need to be able to understand and demonstrate their ability to synthesize the skills and knowledge they have gained as undergraduates in order to work as a doctor. Working as a doctor requires synthesis of knowledge and numerous skills in order to care for patients safely and effectively.
Developing a practical skills curriculum for medical students using a simulator-based medical education center

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**Background:** The current Romanian medical teaching system confronts with several problems including lack of targeted courses for practical skills development and no links between education and health market needs.

**Summary of Work:** Starting with the academic year 2011-2012 we opened the first simulation center in Romania. Within our curriculum, 2 modules were developed for teaching and assessing practical skills: Basic practical skills (3rd year – the basic module) and Training in the practical skills center (6th year – the advanced module). Both modules were mandatory and took a week to complete (2 ECTS credits, 25 hours -5 hours/day). Final aim was to improve medical training in our university and to prepare the future graduates for general practice. Before and post module evaluation forms were used to assess the improvement in practical skill level. Available simulation equipment consisted in improved technology, task trainers and low/mid/high fidelity mannequins.

**Summary of Results:** All relevant examinations, maneuvers, medical procedures were registered in a log-book which served also as an assessment tool. Average performance improved significantly in written scores from premodule (64.57%) to postmodule (86.33%, P < .048). The evaluation forms showed that practical skills, teamwork and the multidisciplinary management of acute medical and surgical situations were the main assets our students gained during these 2 modules. Junior students (3rd year) showed the biggest improvement during the module.

**Discussion and Conclusions:** This significant change in medical students training was feasible incorporating modern educational theory (simulation). The development of a new curriculum must take into account introducing an interdisciplinary training and a corresponding practical skills development.

Reliability, Validity Evidence, and Pass/Fail Scores of the Training and Assessment of Basic Laparoscopic Techniques Technical Test

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Jeanett Strandbygaard, Juliane Marie Centre, Rigshospitalet, Gynecology and Obstetrics, Copenhagen, Denmark
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Lars Kange, The Capital Region of Denmark, Centre for Clinical Education, Copenhagen, Denmark

**Background:** Surgical skills should be practiced on simulators to overcome the initial, steep part of the learning curve. However, practical and economical issues counteracts the implementation of simulation-based training and tests. We invented the Training and Assessment of Basic Laparoscopic Techniques (TABLT) which is a high quality training and assessment tool that is inexpensive, easy to set up and based on content relevant for basic laparoscopic skills.

**Summary of Work:** Sixty surgeons and surgical trainees were recruited from departments of gastrointestinal surgery, obstetrics and gynecology and urology. All participants performed the TABLT test twice. The second attempt was rated on-site and afterwards by a blinded rater using video recordings.

**Summary of Results:** The TABLT had a high inter-rater reliability showing a intra class correlation coefficient (ICC) of 0.99 (p<0.001). An ANOVA test showed a significant difference between the groups of different level of experience with a p<0.001. There was a correlation between the laparoscopic experience of the surgeons measured in number of procedures and the test score with a Pearson’s r value of 0.73 (p<0.001). A pass/fail level was established using contrasting groups methods.

**Discussion and Conclusions:** The TABLT is a reliable and validated assessment tool for basic laparoscopic skills. The scoring system has a high inter rater reliability.

**Take-home messages:** High quality assessment of laparoscopic skills in low fidelity trainers is now available for novice trainees in all surgical specialties. The TABLT is inexpensive and easy to implement in either a new or an existing course.
ABSTRACT BOOK: SESSION 10
WEDNESDAY 3 SEPTEMBER: 0830-1015

10II11 (22706)
A systematic review of cognitive load measures in simulation-based training

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Background: Simulation is increasingly being used to teach complex procedural skills to medical trainees. Whether trainees learn effectively from simulation is thought to relate to how much mental effort, or cognitive load, they experience. Direct application of cognitive load theory in this domain has however met with mixed results. We conducted a systematic literature review to better understand how cognitive load has been measured across simulation contexts.

Summary of Work: We developed a systematic review protocol in accordance with PRISMA quality standards. A total of 5042 unique records were retrieved from 7 databases: MEDLINE, EMBASE, CINAHL, PsycInfo, ERIC, Web of Science, and Scopus. Search terms represented both the phenomenon of interest (e.g., cognitive/mental: load, workload, effort, demand) and the context (e.g., patient simulation, space simulation, computer simulation, computer assisted instruction). Study selection, data extraction, and data synthesis are ongoing.

Summary of Results: Cognitive load has been measured in diverse populations including medical and health professionals, military pilots, and university students. Measurement techniques include literature-based rating scales, physiological measures (e.g., heart rate, pupil dilation), and secondary task performance. Further analyses will examine the relative frequency of the different types of measures along two primary dimensions: self-report versus observed and retrospective versus concurrent. Preliminary analyses suggest that retrospective, self-report measures are the most frequently used across simulation contexts.

Discussion and Conclusions: The measurement of cognitive load has been reliant on retrospective, self-report data. Triangulation with concurrent and observed measures is required to more fully understand how cognitive load influences learning processes. Further research to investigate physiological and secondary task cognitive load measures in simulation-based procedural skills training is warranted.

Take-home messages: Accurate and reliable cognitive load measures are necessary to inform instructional design decisions for simulation-based procedural skills training.
The association between medical students’ admission scores and their clinical performance

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Presenter: Kyong-Jee Kim*, Dongguk University School of Medicine, Gyeonggi-do, Republic of South Korea

Background: This study aims to identify whether medical students’ admission scores are associated with their clinical performance as a preliminary study for identifying predictors of medical students’ clinical performance.

Summary of Work: Two cohorts of graduate-entry students at Sungkyunkwan University medical school (n = 40) was studied. Correlation analysis was performed to investigate relationships between their admission scores and their clinical performance examination (CPX) scores. Admission scores consisted of undergraduate GPA, statements of purpose, interviews, and the Korean Medical Education Eligibility Test (MEET) scores. The CPX was conducted in the fourth year in their four-year medical program, which composed of history-taking, physical examination, patient education, and patient-doctor relationship.

Summary of Results: The student’s written essay (e.g., statement of purpose) score was significantly correlated with his/her physical exam and patient-doctor relationship scores in CPX (p < .05). Student communication skills score assessed in the interview was significantly associated with his/her patient-doctor relationship score in CPX (p < .05). Neither students’ undergraduate GPA nor MEET scores were significantly associated with their CPX scores.

Discussion and Conclusions: Student performance in written essays and interviews for medical school admissions are more strongly associated with their clinical performance than with their academic achievement in undergraduate GPAs or medical school admission tests. A multivariate analysis with a larger sample is suggested to develop a model for predicting medical students’ clinical performance.

Take-home messages: Medical educators need to pay attention to student performance in written essays and interviews in student selection as they are associated with the student’s clinical performance.
**10JJ3 (21337)**

**Assessing Non-Cognate Attributes In Medical School Applicants Using Situational Judgement Vignettes**

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**Kelli Kennedy**, Drexel University College of Medicine, Office of Educational Affairs, Philadelphia, United States

**Barbara Schindler**, Drexel University College of Medicine, Philadelphia, United States

**Background:** The assessment of medical school applicants for non-cognate attitudes and values, in addition to the traditional knowledge/skill set, has been identified as an important component to the admissions process. Interviewing >1000 applicants/year poses challenges to acquiring this data.

**Summary of Work:** Some of these attitudes and values were assessed by an essay written by applicants on the interview day in response to a vignette/scenario in an area of situational ethics or professionalism. Each essay was scored as “exemplary, acceptable or of concern” by an Admissions Committee member who did not interview the applicant. Essays receiving “exemplary or of concern” scores were discussed during the Admissions Committee meeting at the time that the applicant was reviewed.

**Summary of Results:** Each year, ~8-10% of applicant essays were discussed at committee. About 10% of the essays discussed at committee resulted in a decision to reject an otherwise acceptable applicant. Another 25-50% of essays discussed resulted in the decision to hold rather than accept the applicant or hold at a lower level. A smaller number (1-3%) of students were upgraded from hold to accept status based on exemplary values or judgment as revealed in the essay.

**Discussion and Conclusions:** In a survey of Admissions Committee members, 90% felt that the essay revealed new and valuable information about the applicants, particularly in the areas of professionalism, ethics, maturity and empathy. The essay has been a useful adjunct evaluative tool for the past 4 years.

**Take-home messages:** The interview day essay represents one way to assess non-academic attributes of applicants, using minimal resources.

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**10JJ4 (20884)**

**The Cost of MCAT Preparation: Findings from a Medical Student Survey**

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**Sarah Wright**, Faculty of Medicine, University of Toronto, Faculty of Medicine, Undergraduate Medical Education, Toronto, Canada

**Mahan Kulasegaram**, University of Toronto, Faculty of Medicine, Undergraduate Medical Education, Toronto, Canada

**Mark Hanson**, University of Toronto, Faculty of Medicine, Undergraduate Medical Education, Toronto, Canada

**Background:** The MCAT is variously but commonly used for admission to Canadian medical programs. A variety of preparation activities are available to students but little is known about the proportions who engage in such activities or their associated costs. The purpose of this study was to investigate preparation methods for the MCAT and their costs.

**Summary of Work:** Incoming first-year medical students at the University of Toronto were questioned about their preparation for the MCAT. A total of 184 students (71% response rate) responded to questions related to preparation time, materials, and cost estimations.

**Summary of Results:** Total costs per student were approximately $3,300 with direct costs (material and preparation, registration, exam taking) and indirect costs (opportunity cost of lost income due to studying) representing $1,950 (59%) and $1,350 (41%), respectively. 52% of students enrolled in general preparatory courses. Of the course takers, 88% reported spending $1000 or more and 32% reported that parents had funded their course. 67% of students reported preparing over the summer. Of those who typically held a summer job, 54% reported having to reduce hours or not seeking employment at all to prepare for the MCAT.

**Discussion and Conclusions:** This study demonstrates that a large proportion of medical students have engaged with various forms of MCAT preparation, indicating a perception that significant preparation for MCAT is necessary.

**Take-home messages:** Resulting in high direct and opportunity costs, this outcome questions whether the MCAT is compatible with diversity goals (especially socioeconomic status) stated in the Association of Faculties of Medicine of Canada’s Future of Medical Education in Canada MD project.
Differences in final examination performances referring to admission criteria at Hannover Medical School

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Volkhard Fischer, Hannover Medical School, Dean of Studies Office, Hannover, Germany

Background: In Germany, admission to medical schools is regulated by law. There are different access criteria for applicants: 20% are selected by overall GPA, 20% are selected by waiting-time, that is time since high-school diploma and 60% by GPA combined with additional selection criteria. Since 2006, Hannover Medical School is using a selection interview as additional criterion. Currently, the data of final examination performances is available for the first two cohorts, for whom the new admission procedure was applied.

Summary of Work: By using ANOVA we analysed whether the final examination-grades differ significantly between the admission groups. The period of study as well as drop-out-rates were evaluated with regard to the admission groups.

Summary of Results: Only in one cohort students selected solely by GPA have significantly better marks than students selected by waiting-time. Regarding drop-out-rates, preliminary results show no differences between students admitted by selection process and waiting-time, but between those selected by GPA and the other groups – without a clear systematic. Unexpectedly, students admitted by waiting-time graduate more often within the scheduled time than students admitted by GPA or by selection procedure.

Discussion and Conclusions: Our data don’t confirm common assumptions about study progress referring to different admission groups. Admission groups differ partially in examination performances, students selected solely by overall GPA tend to have better final examination grades than students selected by the other admission criteria – but they aren’t graduating faster and have no lower drop-out-rates in principle.

Take-home messages: Common assumption that better school grades lead to more successful study can’t be confirmed in all aspects.

A study about correlation between psychometrics test as a tool for student selection and first year academic performances in medical school

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Background: An aspect of medical school admissions rarely investigated is correlation between the student selection attributes and student academic performance in medical school. We present data to correlate psychometrics test and first year academic performance to know the effect of the student selection tools and student development.

Summary of Work: This research aims to evaluate the ability of psychometrics test to predict academic performances in medical school especially grade point average or GPA score of first year students. Pre-admissions data were matched with GPA score for first year students who entered UNISBA Faculty of medicine in 2012. Correlations were used to select variables with Spearman correlation test analysis.

Summary of Results: 160 students participated. Psychometrics test correlated positively with GPA score of first year students of medical school. Significant correlations and moderate relationship was revealed with p<0,001 (p≤0,05) and correlation coefficient (rs = 0,31).

Discussion and Conclusions: Predictive validity data provides further evidence that Psychometric tests are useful for medical student selection.

Take-home messages: Psychometric tests predict first year medical student performance
The relationship between selection scores and course outcomes for undergraduate medical students

**Annette Mercer**, The University of Western Australia, Perth, Australia
Margaret Hay, Monash University, Melbourne, Australia
Katrina Simpson, Monash University, Melbourne, Australia

**Background:** The selection processes into undergraduate medical courses at The University of Western Australia (UWA) and Monash University utilise three components: an academic score, an aptitude test and an interview. The academic score is the Australian Tertiary Admissions Rank, a composite score based on performance in state-wide examinations; and the aptitude test is the Undergraduate Medicine and Health Sciences Admission Test (UMAT). The UMAT is widely used in Australia and New Zealand and represents aptitude tests used for medical selection. A version of UMAT called the Health Professions Admission Test (HPAT) is used in Ireland. The interview used at each university is specific to the institution, UWA using a structured interview with a focus on communication skills and Monash a multiple mini interview.

**Summary of Work:** Data were collated for students who entered the courses from 2002 to 2012 consisting of demographics, entry scores and measures of performance in the course. The parts of the UMAT: logical reasoning and problem solving, understanding people and non-verbal reasoning were entered as separate variables. Growth curve modelling was undertaken, to determine the profiles of the selection components across academic years as predictors of outcomes in the course.

**Summary of Results:** Each of the three components predicted outcomes at different stages in the courses, as the nature of the courses changed from pre-clinical to clinical to pre-internship. As expected, the academic score was the strongest predictor, but it diminished in intensity over time. The interview score increased in intensity and was strong in the clinical years. The parts of the UMAT varied.

**Discussion and Conclusions:** The three components all serve a valuable purpose in their inclusion in selecting medical students.

**Take-home messages:** Aptitude tests and interviews make a valuable contribution to the selection of medical students.
Is the effect of personality traits in a traditional selection interview mediated by overall impression of interviewers?

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Background: Selection of medical students is a complex and controversial process. Usually, a two-stage approach is used: measures of previous academic achievement and assessment of interpersonal skills by interview. Studies suggest personality traits to be associated with the interview final score; however, how the overall impression affects the rating is not well known.

Summary of Work: The score of the second phase of the admission process of our graduate students is the mean of 3 independent interviewers’ scores obtained through a structured interview. Interviewers also rated their overall impression about applicants which did not enter to final score. In this context, we administered the 60-item NEO Five Factor Inventory (NEO-FFI) to 189 graduated applicants before the interview selection from 2011 to 2013. It is a self-report measure designed to assess high order personality traits of extraversion, conscientiousness, neuroticism, agreeableness and openness to experience.

Summary of Results: Extraversion and “Overall impression” had a significant positive association with final interview score, respectively \( r=0.19 \) (CI95%: 0.05:0.33) and \( r=0.85 \) (CI95%: 0.80:0.88). However, after adjustment only “overall impression” remained significantly associated, explaining 68% of the extraversion effect over the final interview score.

Discussion and Conclusions: Overall impression mediates the effect of extraversion in the interviews and also had a strong relationship with the final interview score.

Take-home messages: Interviewers' overall impression of applicants is more important than their personality traits in a traditional selection interview.

Character assessment as a tool for medical school selection

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Background: This medical school is moving towards character-based selection of applicants. A list of 12 characters, based on Peterson & Seligman’s ‘Character Strengths and Virtues’ was combined with 4 additional skills (time management, public performance, organisational skills, self-directed study skills).

Summary of Work: Applicants invited to admissions interview completed a self-evaluation of their own personal characters from the list of 16 items, selecting four strengths and one weakness. The interview panel conducted the interview along standard lines, but also assessed each applicant’s strengths and weaknesses, blinded to the applicant’s self-evaluation. Offers and rejections were recommended based on global impression.

Summary of Results: Applicants reporting flexibility, initiative or humility as strengths had the highest chance of receiving offers (Odds Ratio 3.62, 2.65 and 2.37 respectively), while those who reported public performance, leadership or flexibility as weaknesses had the lowest chance of receiving offers (OR 0.563, 0.629 and 0.746 respectively). Mean agreement between interviewers on applicants’ strengths was more common in those with offers compared to those rejected (95% CI 0.54 to 1.93, \( p<0.0005 \)).

Discussion and Conclusions: The most significant personal quality identified was ‘flexibility’ which, as a strength is a positive indicator of interview success, while as a weakness it is predictive of rejection. Moreover, a strong impression of an applicant’s character at interview, evidenced by increased agreement between interviewers, appears to be associated with selection; agreement on strengths predicts applicant success, while agreement on weaknesses predicts rejection.

Take-home messages: Flexibility is the most significant character identified, having a strong bearing on the likelihood of applicant selection.
SESSION 11: Simultaneous

Sessions

Wednesday 3 September: 1045-1230

Location: Gold Plenary, Level +2, MiCo

11 PLENARY 3: Pursuit of Excellence in Evaluation in the Health Sciences

Ronald Harden, AMEE, Dundee, United Kingdom
David Newble, School of Medicine, Flinders University, South Australia
Richard Reznick, Faculty of Health Sciences, Queen’s University, Canada

The National Board of Medical Examiners (NBME) established the John P Hubbard Award in 1983 in special tribute to the late John P Hubbard, MD who served as the chief executive of NBME for 25 years. This award recognizes individuals throughout the world who have made a significant and sustained contribution to the assessment of professional competency and educational program development at any level along the continuum of medical education and delivery of healthcare. This session will feature the work of three recipients of the Hubbard Award and consider the impact of their work on assessment worldwide.
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