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<td>The perfect Postgraduate Training Program (PGTP) – how far are we? An AMEE Postgraduate Committee Symposium</td>
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<td>The place of surgery in the undergraduate curriculum</td>
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<td>Faculty Development in the Health Professions: Best Practices and Future Trends</td>
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### Symposium
- Practitioner research: ethical dilemmas of insiders
- ‘Flipped Classroom’ Session
- AMEE Fringe 1
- Teaching and Learning
- Selection 3 – Widening Participation
- Postgraduate Education 1
- Reflection
- Interprofessional Education 1
- Computer Based Learning
- Community Oriented Medical Education
- Curriculum Mapping
- The Student as Teacher
- The Angry Risk Taker: Enriching health professions education by understanding the relationship between emotions and cognitive processes
- Vicky R LeBlanc
- Engaging through stimulation: reframing education for a 21st century world
- Professor Roger L Kneebone
- Researching Identities in Medical Education: Divergence and Convergence across Theoretical and Analytical Perspectives
- Social accountability: medical students as leaders for sustainable healthcare
- Faculty Interprofessional Education: Creating Alignment

### Workshop
- Evaluating the Quality and Value of a Complex Educational Intervention in a Complex Clinical Environment: Impacts of a Morbidity, Mortality and Improvement Conference
- The AMEE Fellowship – Promoting Scholarship and Community
- IOSCE: An Exciting New Twist on an Old OSCE
- Young medical educators’ workshop: Finding the right mentor in Medical Education
- Innovations and features for the next generation of medical education learning environments
- Transforming your program to be competency-based: An interactive workshop to explore strategies and solutions
- What makes a medical school academic? A quality assurance initiative by AMSE
- Continuing Medical Education: Putting Theory into Practice for Curriculum Development
- Sustainable care is quality care! Harnessing the sustainability agenda to enhance the teaching of quality improvement (QI) in healthcare.
- Item analysis for the stat-a- homophobic
- Mobile Learning for Healthcare Educators
- Evaluation of the Teacher
- Team Based Learning/ Learning Anatomy
- Written Assessment
- Leadership and Management
- Education Programmes/Transitions/Education Environment
- Curriculum Development
- Clinical Teaching – the context
- Student Stress and Wellbeing

### Tuesday 8 September

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| 0830-1015     | 6A      | Plenary  | The Angry Risk Taker: Enriching health professions education by understanding the relationship between emotions and cognitive processes  
Vicky R LeBlanc |
| 0915-0950     | 6B      | Plenary  | Engaging through stimulation: reframing education for a 21st century world                                                
Professor Roger L Kneebone |
<p>| 1045-1230     | 7A      | Symposium| Researching Identities in Medical Education: Divergence and Convergence across Theoretical and Analytical Perspectives |
|               | 7B      | Symposium| Social accountability: medical students as leaders for sustainable healthcare                                           |
|               | 7C      | Symposium| Faculty Interprofessional Education: Creating Alignment                                                                 |</p>
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<td>Symposium The discourses of simulation education: embracing untapped potential</td>
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**1600-1730 Session 9 Simultaneous sessions**

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SESSION 1: Plenary 1
Sunday 6 September 2015: 1730-1850

#1A Plenary: Mindfulness as an antidote to chronic stress and burnout: Do we have the courage?
Location: Clyde Auditorium

Aviad Haramati*, Director, Center for Innovation and Leadership in Education, Professor of Integrative Physiology, Department of Biochemistry and Molecular & Cellular Biology, Georgetown University Medical Center, USA

Reports from various sources suggest that chronic stress and burnout is prevalent in the medical profession, affecting close to half of primary care practitioners. This trend may begin earlier with the observed decline in empathy during medical student training and alarming rates of burnout in medical and other students in the health professions. In this plenary presentation, Aviad Haramati will review published outcomes on interventions using mindfulness approaches to reduce stress and burnout and improve wellbeing. A physiologic framework will be provided to explain why mindfulness appears to be effective. He will also share his perspective on why it is essential to incorporate mind-body techniques into the training curriculum for all health professionals—something that will require both skill and courage.
In increasingly dynamic and technical workplaces, including medical environments, continuous learning is a requirement. The objective of learning in such cases is not merely to ensure regulatory compliance or to sit through training sessions, but to transfer actual and relevant new knowledge into practice. Hence the need is not only for systems that deliver and assess learning, but additionally, to project that capability into the working environment, both in order to provide performance support, but also to identify and recommend training needs. In this talk Stephen Downes will outline the development of the technology behind the Learning and Performance Support Systems program, a set of applications that create a personal learning environment that can track individual performance, support personal learning, and integrate learning resources from a range of providers, applications and services into a single integrated learning platform.
Session 3: Simultaneous Sessions
Monday 7 September 2015: 1000-1200hrs

#3A Symposium: Medical specialty choice and workforce
Location: Clyde Auditorium

Lokke Gennissen*, Erasmus Medical Center Rotterdam and Leiden University Medical Center, the Netherlands
Karen Stegers-Jager*, Erasmus Medical Center Rotterdam and Leiden University Medical Center, the Netherlands
Sophie Velthuis*, Erasmus Medical Center Rotterdam and Leiden University Medical Center, the Netherlands
Jacqueline Bustraan*, Erasmus Medical Center Rotterdam and Leiden University Medical Center, the Netherlands
Jennifer Cleland*, University of Aberdeen, UK
Marc Soethout*, VU University Medical Center Amsterdam, the Netherlands

Medical workforce training and planning is in crisis across the world. We are failing to produce sufficient doctors who are trained and fully ready for work across countries, specialties and localities required to meet patient and societal need. The reasons for this are complex, associated with individuals (e.g., burnout, preferences), systems and other macro-factors (e.g., generational expectations, inflexible training pathways). The presenters are well-known for their work on this topic. They are drawn from a number of countries, each with different selection and training systems, but yet facing similar problems with workforce planning. In this symposium, novel research perspectives on the issues associated with medical careers decision making will be discussed.

#3B Symposium: Revisiting Miller’s Pyramid – from “What we know” to “who we are”
Location: Hall 2, SECC

Yvonne Steinert*, Canada
Richard Cruess*, Canada
Sylvia Cruess*, Canada
Lambert Schuwirth*, Australia
John Norcini*, USA

For almost 25 years, Miller’s pyramid has been invoked to support theories and approaches to assessment and clinical competence in medical education. Miller proposed a hierarchy of learning whose base is Knows and then proceeds to Knows How, Shows How and Does. Recognizing the importance of professional identity formation in the health professions, we would like to propose that a fifth layer be added to the apex of the triangle: Is. The goal of this symposium is to revisit Miller’s pyramid and discuss the possibility of adding another layer related to professional identity formation. To achieve this objective, we will review Miller’s pyramid and how it has been used; discuss the addition of Is by linking it with professional identity formation; describe ways of incorporating identity formation into an educational framework; and discuss methods of assessing progress towards a professional identity, moving from what our learners “know” to who they “are”.

#3C Symposium: Clinical Clerkships: Does the Emperor have no clothes?
Location: Lomond Auditorium

Debra Klamen*, Southern Illinois University School of Medicine, USA
Heeyoung Han*, Southern Illinois University School of Medicine, USA
Reed Williams*, Southern Illinois University School of Medicine, USA
Anna Cianciolo*, Southern Illinois University School of Medicine, USA
Ashley Satorius*, Southern Illinois University School of Medicine, USA

Published critiques of clinical teaching highlight the opportunistic, idiosyncratic nature of what medical students learn. Curricular innovations to improve clinical teaching would benefit from theory on how complex, practical skills are learned. This theory suggests that deliberate practice and expert-novice mentoring provide a roadmap for success and that the current clinical milieu in the US is at odds with the learning needs of medical students. Our panel will discuss a new, theory-based clinical curriculum model funded by the Josiah Macy Foundation to address these problems. This new curriculum features a range of instructional strategies that optimize learning while embracing the reality of current clinical workplace environments. Aspects of curriculum design, implementation and evaluation will be discussed.
How personal factors and teaching context affect teachers’ conceptions of learning and teaching, in student-centred medical education: a qualitative study

Johanna CG Jacobs*, VU University Medical Centre & Vrije Universiteit, Research in Education & LEARN!, Amsterdam, Netherlands
Scheltus J Van Luijk, Maastricht University Medical Centre, Resident Education, Maastricht, Netherlands
Cees PM Van der Vleuten, Maastricht University, School of Health Professions Education, Maastricht, Netherlands
Rashmi A Kusurkar, VU University Medical Centre & Vrije Universiteit, Research in Education & LEARN!, Amsterdam, Netherlands
Gerda Croiset, VU University Medical Centre & Vrije Universiteit, VUMc School of Medical Sciences & LEARN!, Amsterdam, Netherlands
Fedde Scheele, St Lucas Andreas Hospital & Vrije Universiteit, Obstetrics & Gynecology, Amsterdam, Netherlands

Introduction: Teachers’ approaches of teaching affect students’ learning approaches and results (Gibbs & Coffey 2004). Both personal factors of teachers (including conceptions, perceived autonomy, work engagement, and motivation) and teaching context influence teaching behaviour (O’Sullivan & Irby 2011). Previously we found differences in teachers’ conceptions between two medical schools with student-centred curricula. To obtain more insights on how teaching behaviour can be improved, our research question is: which institutional, departmental and personal factors can be identified in relation to differences in teachers’ conceptions of learning and teaching?

Methods: Based on a purposeful sampling one researcher conducted individual interviews with teachers from the undergraduate curriculum. The study was conducted in 2011-2012, in two medical schools with a different tradition in student-centered medical education, in the Netherlands. The participants were interviewed about their perception of the teaching environment, regarding medical school and curriculum (macro level), department and educational context (meso level) and personal factors (micro level). All interviews were audiorecorded, transcribed verbatim and summarized for member checking. We used a template analysis. Two researchers coded the first two interviews together to obtain consensus. The next two interviews were coded separately and discussed afterwards. Subsequently, the first researcher coded the rest of the interviews. Sampling continued until theoretical saturation was achieved. Qualitative data analysis software (Atlas-ti) provided a sorting of quotations, which were summarized and discussed with the research team.

Results: Saturation was reached after 13 interviews. We arranged our results in personal factors and contextual factors (department, educational context, medical school and curriculum). Large individual differences existed between teachers, in both medical schools. However, common themes for personal factors were ‘agency’, ‘experience with PBL (as student or teacher)’, ‘personal development’, ‘motivation and work engagement’ and ‘high content expertise combined with late PBL experience’. In contextual factors/department the themes were ‘leadership style of department chairs’ and ‘affordances and support’. Followed by contextual factors/educational context: ‘leadership style of course coordinator’, ‘support and relatedness’ and ‘students’ characteristics’. And in contextual factors/medical school and curriculum: ‘tradition, curriculum change’, ‘leadership style Dean / Program Director’, ‘support by educational department’ and ‘management and finances’.

Discussion: In the personal factors, agency by involvement in educational management and development was important. Being involved in a discourse about learning and teaching, apparently resulted in inspiration and challenges, and subsequently a change in conceptions. Secondly, experience with PBL as student or starting teacher was mentioned. By experiencing the student-centred approach, teachers naturally developed a student-centered repertoire. Thirdly, motivation and work engagement were high for all teachers, they appreciated the interaction with students. In the contextual factors (departments, educational context, medical school and curriculum) leadership appeared to be very important at all levels, but especially for department chairs. We advocate an adequate selection and more leadership training for department chairs. Furthermore, it should be realized that after a major curriculum shift, many years are needed to establish a concomitant shift in teachers’ conceptions.

Conclusion: Several personal and contextual factors affect the partly implicit teachers’ conceptions of learning and teaching. The leadership style of department chairs is important with respect to teachers’ conceptions of learning and teaching, and deserves more attention in faculty development activities.

Understanding how residents’ preferences for supervisory methods change throughout residency training: a mixed-methods study

Francisco Olmos-Vega*, Javeriana University, Anaesthesiology Department, Bogotá, Colombia
Jeroen Donkers, Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands
Renée Stalmeijer, Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands
Diana Dolmans, Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands

Introduction: Effective clinical supervision (CS) is of paramount importance in postgraduate training as it has been linked to positive effects on patient outcomes and trainees’ educational-related outcomes (1). As a result, guidelines suggest that CS should be provided at all levels of training. However, it is not clear how to solve the tension between providing ongoing CS to assure patient safety throughout the residency training process, while still encouraging increasing resident autonomy. Cognitive apprenticeship (CA) provides a comprehensive set of teaching methods (modelling, coaching, articulation, exploration) that could help to solve this tension. The aim of this study was to describe residents’ preferences with regard to the use of the CA teaching methods by their supervisors, and to explore differences in preferences between junior, intermediate and senior residents.

Methods: A mixed methods design with concurrent collection of quantitative and qualitative data was used. 301 residents from all Javeriana University residency programmes were invited to participate. Each resident was asked to fill in a Maastricht Clinical Teaching Questionnaire (MCTQ) (2), which is based on the CA teaching methods, to rate the relevance of each teaching method to their learning process according to their current level of training (junior, intermediate or senior). Furthermore, residents were asked to indicate their most preferred teaching method and explain why (open-ended question in questionnaire). One-way ANOVA tests were run for each CA teaching method comparing the means for each level of training. Through crosstabs the ranking of each teaching method was calculated. Thematic analysis of the answers to the open-ended questions sought to explore the rationale behind the rankings for each level of trainee.

Results: 211 residents (70%) completed the questionnaire. Residents perceived all CA teaching methods as important or very important for their training process, regardless of their level of training. Analysis of the most preferred teaching method indicated that Junior and intermediate residents preferred teaching methods aimed at modelling and coaching whereas senior residents preferred teaching methods aimed at stimulating self-directed learning (articulation and exploration). Thematic analysis highlighted the great differences in rationales for preferring one teaching method for different training levels. For example, junior residents felt modelling to be important to acquire skills rapidly, whilst senior residents described modelling to be important as a way to compare their own performance with that of the supervisor.

Discussion and Conclusions: Results suggest that CS should follow a developmental trajectory using different configurations of CA teaching methods for different levels of residency training. Highlighting residents’ preferences on clinical teaching strategies expanded the understanding of supervision during workplace learning in residency. Residents have strong preferences with regard to use of the CA teaching methods regardless of their level of training. Reasons behind these preferences differ according to level of training, suggesting that the CA model is a helpful framework to better structure CS during all levels of residency training, and could be used to solve the tension between on-going CS and increasing resident autonomy.


Overcoming the barriers to educating junior doctors working in the clinical environment

Benjamin Vowles*, NHS Lothian, Medical Education Directorate, Edinburgh, UK
Simon Edgar, NHS Lothian, Medical Education Directorate, Edinburgh, UK

Introduction: The General Medical Council (GMC) is responsible for overseeing the postgraduate education of doctors in training in the UK and is currently in the process of reviewing the standards set out in Tomorrow’s Doctors (2009) and The Trainee Doctor (2011). All NHS trusts and health boards have a duty to ensure these standards are met, whilst addressing the ever increasing healthcare needs of the population, all in a climate of financial austerity. The GMC identifies the “Learning Environment and Culture” as one of its 4 key framework themes, with healthcare providers expected to provide a safe educational environment for both doctors and patients, where learning is part of the culture, educational governance is prioritised and safe and effective care for patients is delivered (GMC review of education and training standards). In view of this, upcoming guidance we sought to identify barriers to producing a clinical environment that supports learning for postgraduate trainees in our health board and explored ways to overcome these.
Methods: A literature review was performed to identify themes that informed a series of semi-structured interviews. We identified 3 clinical departments in our health board across a spectrum of performance in relation to the GMC NTS over the last 3 years and conducted interviews with 2 foundation year doctors (PGY1 & 2), 2 senior registrars (PGY 7-10), 2 consultants and 1 non-clinical manager in each department. Interviews continued until saturation of themes was achieved. Data was analysed with pattern-matching techniques and thematic analysis with triangulation and occurred alongside data collection.

Results: We identified 9 key themes that were felt by participants to be barriers to education and training in the clinical working environment: 1) Lack of time; 2) Opportunities for learning; 3) Physical Environment; 4) Workload; 5) Factors affecting the learner; 6) Factors affecting the teacher; 7) Organisational Factors; 8) Training System; 9) Supervision & Feedback. The extent to which these factors were felt to be important varied between trainees and teachers, trainees of different levels and between non-clinical and clinical staff. Proposed solutions to these challenges were grouped in the following themes: 1) Development of teachers; 2) Development of learners; 3) Improved organisation of teaching activities; 4) Teambuilding; 5) Improving climate of organisation.

Discussion and Conclusions: It is inevitable that the busy working environment in healthcare will raise significant numbers of barriers and challenges to individuals and organisations responsible for education and training. Whilst many of the themes identified will be unsurprising to practising clinicians, defining the challenges we face is an important first step in the process of creating an environment that is equally safe for learners and patients. Our data also identifies potential solutions that could facilitate improvements in the learning for postgraduate trainees of different levels and between non-clinical and clinical staff. Proposed solutions to these challenges were grouped in the following themes: 1) Development of teachers; 2) Development of learners; 3) Improved organisation of teaching activities; 4) Teambuilding; 5) Improving climate of organisation.

References: GMC – Review of education and training standards (not yet published)

#304 (23722)
Assessing the perceived effectiveness of an undergraduate medical education innovation: Students’ views of the McGill Longitudinal Family Medicine Experience

Karen Willoughby, McGill University, Family Medicine, Montreal, Canada
Miriam Baillat, McGill University, Family Medicine, Montreal, Canada
Marion Dove, McGill University, Family Medicine, Montreal, Canada
Peter Nugus, McGill University, Montreal, Canada
Yvonne Steinert, McGill University, Montreal, Canada
Leonora Lalla, McGill University, Montreal, Canada

Introduction: Following international trends, Canadian medical schools have recently included more longitudinal, community-based clinical experiences early in the medical school curriculum. Little is known however about the perceived effects of these undergraduate innovations from the point of view of Canadian students. What is more, there is a dearth of publically-available reliable and valid questionnaires that allow the comparison among different cohorts of students over time or across multiple medical schools. We aimed to fulfil those research gaps by focusing on the McGill Longitudinal Family Medicine Experience (LFME), a course in which first-year students are paired with a community family physician throughout one academic year. More particularly, we aimed to answer the following research question: What are first-year medical students’ perceptions of the effects of the LFME course during its first year of implementation?

Methods: After conducting an extensive literature review, we created an exploratory 34-item questionnaire called the LFME Survey – McGill Student Version. For each item, students responded using a 7-point Likert scale (1=strongly disagree, 7=strongly agree). All 187 first-year medical students at McGill University were invited to complete this questionnaire online using fluidsurveys.com at the end of their first academic year. Participating students provided informed consent and participation was voluntary and anonymous. Mean scores for each item were calculated and a factor analysis was conducted to explore construct validity. Cronbach’s alpha for all items was 0.93, indicating good reliability.

Results: One hundred and twenty first-year students (i.e. 64% of those enrolled) responded to the questionnaire. Eight factors were initially identified and in combination explained 69% of the variance: 1) overall satisfaction with the course 2) satisfaction with preceptor 3) knowledge 4) affective learning 5) clinical skills 6) teaching and feedback 7) professional identity and professionalism, and 8) interest in primary care. The composite scores for all the above factors were above 4.5, indicating that participants perceived that the LFME had positive effects on these dimensions. Examples include: 88% felt the LFME was an appropriate and valuable educational experience, 80% felt their preceptor was a good role-model, 84% felt the knowledge and skills learned were relevant for a career in medicine, 54% felt more confidence in their clinical skills, 52% felt they had sufficient time with their preceptor for teaching or discussion, 67% felt the LFME positively reinforced their commitment to be a physician, and 28% were more interested in pursuing family medicine as a result of the LFME.

Discussion and Conclusions: The present study developed a new tool to assess students’ perceptions of the effectiveness of a new longitudinal, community-based early clinical experience course at McGill University. Our results indicate that along with similarly structured pre-clerkship courses, the LFME
#3D5 (23730)

Surgeons’ motivation to teach: a grounded theory study of teachers at a university-based hospital

Curtis R Budden*, University of Alberta, Department of Surgery, Edmonton, Canada
Ksenia Svechnikova, University of Alberta, Department of Surgery, Edmonton, Canada
Jonathan White, University of Alberta, Department of Surgery, Edmonton, Canada

Introduction: The teaching of surgery is an essential part of medical education. Few studies have examined the factors which motivate surgeons to teach surgery. The objective of this qualitative study was to explore the reasons which surgeons identify as motivations for their involvement in education.

Methods: Semi-structured interviews were conducted with 15 surgeons at a large Canadian University. Each surgeon had been identified as an excellent teacher by analysis of teaching evaluation data. Interviews were recorded and transcribed, and transcripts were analyzed using a grounded theory approach. Memo writing was utilized and then open, axial and selective coding to explore the key themes pertaining to the motivations described. A framework was developed to describe the concepts and motivating factors expressed by the participants.

Results: Surgeons in the study reported being motivated by five main factors: (1) a sense of responsibility to teach future physicians (2) watching students develop into competent practicing physicians and playing a role in their success (3) fostering positive lifelong professional relationships with learners (4) the need to maintain and expand one’s own knowledge base (5) an intrinsic enjoyment of teaching. Factors associated with surgeons becoming disengaged from teaching included a lack of time, having disinterested learners, and being overwhelmed by too many learners.

Discussion and Conclusions: This study has established the major factors which motivate our best surgical educators. We plan to use this information to engage more surgeons in teaching, and to conduct further studies to identify and disseminate the best practices of surgical educators at our school.

#3D6 (23748)

A Critical Discourse Analysis of 50 years of the journal ‘Medical Education’

Cynthia R Whitehead*, University of Toronto, Women’s College Hospital, The Wilson Centre, Centre for Ambulatory Care Education, Family and Community Medicine, Toronto, Canada
Cristian Rangel, University of Toronto, The Wilson Centre, Sociology, Toronto, Canada
Tina Martimianakis, University of Toronto, Sick Kids Hospital, The Wilson Centre, Medicine, Toronto, Canada

Introduction: As the journal, Medical Education, approaches its 50th anniversary, the medical education community has the opportunity to reflect upon its journey over the past half-century and its contributions to the field. We undertook a critical discourse analysis of the journal over this time period, examining what sorts of issues captured its attention, and what ideas were considered important at different times. In so doing, we considered the historical and social contingencies that shaped the journal to bring to light tensions between certain values, and examined assumptions that underpin educational practices that are currently taken for granted.

Methods: We used a Foucauldian approach and critical historical lens in this research project, attending to the use of language, and its effects on practices and power relations. We focused on the contexts in which texts were used, including how they represented ideas and how language connected seemingly disparate concepts. Given the size of the body of data (more than 12,000 articles) we used a systematic cluster sample in which all articles from specific years were identified as individual units for analysis. Articles from the first five years (1966/67-1971) and most recent three years (2012-2014/July) were selected as individual units of study. We also selected all articles from every fifth year of the journal (1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011). Within this dataset, we focussed particular attention on the editorials and commentaries. These were coded by an RA; the PI and graduate student then analyzed them discursively, looking for statements, keywords and metaphors.

Results: Many recurrent themes emerged from the data. There was a continued focus on improving the tools, techniques and practices of the educational trade. Topics such as selection, curriculum, assessment, students, teaching strategies appeared regularly, while at the same time there are repeated expressions of concern about the ability to manage the medical education enterprise in a rigorous and scientific manner. Three key discursive areas identified were: 1. Objectivity and the nature of medical education knowledge; 2. Universality vs. Local Context; and 3. The Academy vs. the Community:
Places and spaces for medical education. In each area, there was a tension between the desire to standardize and recognition of the limits of standardization.

**Discussion and Conclusions:** Medical schools must demonstrate their accountability to governments and society and show that they are fulfilling their societal mandate. Creating metrics and measures, be they OSCEs, competency milestones, or validated scales of compassion or interprofessionalism, is one way this is done. However, the tensions we showcase in this research highlight that there is also clear recognition that not all important aspects of medical education can be standardized. The journal ‘Medical Education,’ by providing space and voice to multiple stakeholders, has played a key role in engaging the medical education community in the development of objective measures while at the same time allowing continued questioning of these standards and measures in order to maintain nuance, expand possibilities and avoid excessive rigidity.
Borderline Groups: are they a figment of our imagination?

Godfrey Pell*, University of Leeds, Leeds Institute of Medical Education, Leeds, UK
Matt Homer, University of Leeds, Leeds Institute of Medical Education, Leeds, UK
Richard Fuller, University of Leeds, Leeds Institute of Medical Education, Leeds, UK

Background: Most standard setting procedures focus on the ability / performance of the “borderline” group, defined through expert judgements of assessors which are then combined into a descriptor. These descriptors apply at station/item level, but can we use whole test results to better define this group?

Summary of Work: Our work analyses the profile of OSCE candidates at different stages within a 5 year programme, using result over the past 3 years. We looked specifically at those candidates whose marks are in the critical pass / fail region in both the aggregate (whole test) score, and individual station scores. Within stations, we compare measures of spread of checklist scores between overall OSCE grades.

Summary of Results: Our results indicate that the chief characteristic of those candidates whose aggregate OSCE mark is in the critical ‘borderline’ region is usually one of higher case specific-variation compared to other candidates – in other words, they are more erratic station-by-station in their performance.

Discussion and Conclusions: These higher levels of within station variation (and low between station correlations) make it difficult to generalise about the borderline candidate’s performance across non-assessed topics. This work suggests that institutions should ensure appropriate conjunctive rules to limit compensation between OSCE stations – for example, through setting a minimum station pass profile. Further, sequential testing provides an appropriate test format that allows assessment of borderline candidates across a wider range of topics than the more consistent, better performing, candidates.

Take-home messages: Medical schools must take into account this high level of variability of borderline candidates when designing their assessment systems and passing rubrics.

Examiners’ perception on how numerical scores impact feedback during a formative OSCE

Lynda Stroud*, University of Toronto, Toronto, Canada
Matthew Sibbald, University of Toronto, Toronto, Canada
Ryan Brydges, University of Toronto, Toronto, Canada
Heather McDonald-Blumer, University of Toronto, Toronto, Canada
Kevin Eva, University of British Columbia, Vancouver, Canada
Rodrigo B. Cavalcanti, University of Toronto, Toronto, Canada

Background: Formative assessment requires effective feedback. Few studies have explored the perspectives of feedback providers. We examined faculty’s perceptions of how provision of scores, concurrently with comments, influences effectiveness of feedback.

Summary of Work: Faculty-examiners (n=60) were randomized to provide feedback to internal medicine residents (n=184) as comments with or without numerical scores, during a 5-station formative OSCE. Feedback was provided for 4 minutes immediately after each station, in one of the two conditions. After the OSCE, examiners rated whether the presence of a score interfered or enhanced the effectiveness of feedback using a 5-point scale (1 = markedly interferes, 3 = neutral, 5 = markedly enhances) and provided written explanations for their ratings.

Summary of Results: Of 60 examiners, 29 provided scores and comments, and 31 comments alone. On average, the influence of scores on feedback was perceived as neutral to negative (2.7/5), however, response range was broad (range 1-4; interquartile range 2-4). Examiners who provided comments alone perceived that scores interfere more with feedback compared to examiners who provided both scores and comments (2.4 vs 3.1, p=0.003). Examiners’ written explanations reflected perceived effects of scores on examiners and learners.

Discussion and Conclusions: Overall, faculty-examiners perceived scores to have a neutral impact on feedback effectiveness; responses ranged widely, however, no examiner strongly agreed that scores enhanced feedback. Perceptions correlated with recent feedback interactions, in that those providing only comments reported more frequently that scores interfere with effective feedback.

Take-home messages: OSCE-examiners have diverging opinions on how scores affect feedback, which seem influenced by recent experiences in providing feedback.
#3E3 (28154)
Cognitive load predicts ultrasound simulator performance for novices but not for experts

Sara Aldekhyl, University of Toronto, Department of Medicine, Toronto, Canada
Rodrigo Cavalcanti, University of Toronto, HoPingKong Centre for Excellence in Education and Practice, Toronto, Canada
Laura Naismith*, University of Toronto, HoPingKong Centre for Excellence in Education and Practice, Toronto, Canada

**Background:** Simulation performance metrics such as time to task completion and proficiency imperfectly predict transfer to clinical practice. This study aimed to identify simulation metrics that might better inform performance assessment and predict transfer of skills in point-of-care ultrasonography (PCUS). In addition to clinical ultrasound experience, we hypothesized a relationship between cognitive load and simulator performance.

**Summary of Work:** Twenty-nine medical trainees and clinicians at the University of Toronto with a wide range of PCUS experience answered a demographic questionnaire. Participants performed 6 targeted ultrasound studies based on clinical vignettes on a ultrasound simulator. We scored image acquisition performance on a 3-point scale and participants reported cognitive load (Paas scale) after each scanning case. We analyzed results using population-averaged repeated-measures models, wherein observations were clustered by participants.

**Summary of Results:** Simulator performance was positively correlated with practice level, prior ultrasound training, and clinical ultrasound experience. High cognitive load was negatively associated with performance among novices, $F(1,81) = 14.74, p<.0005$. Experts achieved high performance despite reporting variable cognitive load. A population averaged model of performance including ultrasound training and cognitive load as fixed effects provided best overall fit.

**Discussion and Conclusions:** Cognitive load was a significant predictor of simulator performance for ultrasound novices, but not for experts. Combination of prior ultrasound training and cognitive load level provided more sensitive metrics to predict ultrasound-simulator performance.

**Take-home messages:** Including cognitive load in simulator-assessments helps differentiate novices from experts within simulation environments, and may serve as a better predictor of skill-transfer to clinical practice.

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#3E4 (27739)
Exploring feedback in context at medical school though Video-Reflexive Ethnography

Lynn Urquhart*, University of Dundee, Medical Education Institute, Dundee, UK
Charlotte Rees, University of Dundee, Centre for Medical Education, Dundee, UK
Jean Ker, University of Dundee, Medical School, Dundee, UK

**Background:** Recent research suggests that the perceptions of those involved in feedback ultimately influence its success. However, to date, most related research has relied upon surveys and interviews conducted after the event, out of context meaning that we have limited understanding of the why students and tutors feel the way they do.

**Summary of Work:** A video-reflexive ethnography (VRE) methodology was employed comprising two phases: Video observation (VO) followed by Video-reflexive focus groups (VRFGs). In the VO phase, teaching episodes were filmed in two sites of medical teaching (the simulated setting and the medical workplace) at one medical school, in order to explore feedback practices in context. Then, through VRFGs, the perceptions of participants including students and tutors were sought by viewing, then discussing, excerpts from the observational footage. Students’ and tutors’ VRFGs were conducted separately in order to explore the “feedback gap”. Data were analysed using Framework Analysis.

**Summary of Results:** Context influenced feedback practices through Who, What, When and Where feedback was given. Context influenced feedback perceptions though participants’ perceived primary purpose of the setting as well as through the cultural lens of the setting. Finally, there were two key areas in which the “feedback gap” was seen; in the purpose of feedback and in the recognition of feedback.

**Discussion and Conclusions:** These findings will be discussed in terms of existing research, and implications for improving the feedback process shall be presented.

**Take-home messages:** Feedback is contextually bound and thus must be understood in context.
Can borderline performance in a third year OSCE exam at medical school predict performance in future assessments?

Joanne Harris*, Imperial College London, Faculty of Medicine, London, UK

Background: Performance in high stakes objective structured clinical examinations (OSCE) is known to have predictive validity for future practical exams. Those students failing a third year OSCE are more than 6 times as likely to fail future practical assessments. Candidates who fail often have additional clinical support for assessments in future years. However it is not known if candidates with a borderline pass mark are also at an increased risk of failing future exams.

Summary of Work: Third year OSCE results from 2009-2011 (n=1137) at one London medical school were studied to identify candidates who had failed (n=43) and who had passed with a borderline mark (n=81). Their performance was tracked in later assessments.

Summary of Results: 21/43 (49%) of those failing the OSCE failed another exam in later years. This compares with the overall failure rate of 8% for all candidates. 81 candidates (7% of total) passed the OSCE with a borderline mark. Of these candidates, 29/81 (36%) failed at least one practical exam in a later year.

Discussion and Conclusions: Failing candidates are often given extra support after examinations as they progress into later years of medical school. Candidates who pass with a borderline mark may not be offered this support and yet are still at high risk of failing. The third year OSCE exam has a high predictive validity for future exam performance.

Take-home messages: Borderline passing performance often goes unnoted but can predict failures in assessments at medical school in later years. Long term remediation could be given to borderline candidates to help them progress at medical school.

Optimizing surgical teaching while minimizing operative time: Is it possible to achieve both?

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Background: The surgical teacher faces competing goals: to minimize operative time for the sake of patient safety and to optimize teaching, which increases operative time, but is necessary to produce future surgeons who can operate safely. Teaching and operating take on a unique appearance in the operating room,1,2 which is a high-stress, fast-paced environment. Our objective was to gain a deeper understanding of how time pressures impact surgical teaching by analyzing videos of live surgical teaching and conducting subsequent interviews with teaching surgeons.

Summary of Work: We filmed 5 surgical cases involving attending surgeons teaching resident and fellow surgeons at a University teaching hospital. We transcribed participants’ utterances, body movements, actions, and gestures, and a description of the scene or context. In follow-up interviews, attendings and trainees watched video clips of their teaching case and answered open-ended questions about their surgical teaching methods and clarifying questions specific to teaching incidents captured on film. Using a grounded theory approach, we examined transcripts of both the cases and the interviews for themes related to the speed of the case and how timeliness affected surgical teaching. Through constant comparison, emerging themes were compared with fresh data, and the codes were further refined. Once common themes emerged and reliable ways of recognizing them were developed, participant responses were independently coded for examples by 2 authors (GS, EL). Data collection ceased once no new themes were discovered. This study was designated as exempt by the University of Pittsburgh Institutional Review Board.

Summary of Results: Surgical teaching was often performed rapidly and without interruption. Teaching surgeons employed a wide array of teaching modalities to maintain the rapid progression of their teaching cases: 1) they spoke with economical language to communicate their teaching intentions, 2) they used specialized physical teaching actions to substitute for verbal explanations (“teaching with their hands”), 3) they cooperated, often wordlessly, with their trainees on microsteps of the surgery. Teaching surgeons also taught their trainees how to complete a case quickly, emphasizing principles of surgical flow, and modeling how to be a good surgical assistant.

Teaching surgeons only slowed down a surgical case in specific instances, when careful instruction would emphasize the potential jeopardy of a surgical step, and for purposes of granting a trainee independence
over a portion of the surgery. Teaching attendings value a surgical case that moves quickly out of concern for patient safety, which can be negatively impacted by a prolonged case, and out of a desire to finish early. We will present film clips showing how the fast pace of surgery impacts teaching.

**Discussion and Conclusions:** Timeliness is a major concern for teaching surgeons and influences both their teaching methods and the pedagogic content. Teaching surgeons have dual and often competing responsibilities to perform a safe surgery and teach their surgical trainees, thus teaching during surgery has a very unique appearance. We suspect the rapidity and brevity of surgical teaching can only be captured on videotape.

**References:**
#3F1 (26979)  
Multiple choice exams of medical knowledge with open books and web access? A validity study  
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**Background:** Open book tests have been suggested to lower test anxiety and promote deeper learning strategies. In the Aarhus University medical program, ¼ of the curriculum assess students’ medical knowledge with ‘open book, open web’ (OBOW) multiple choice examinations. We found little existing evidence about the validity of OBOW multiple choice exams of medical knowledge. Based on modern validity theory, we find the most problematic validity assumptions in this setting to be related to ‘extrapolation’ and ‘decision’, i.e.: to the assumptions that: 1) the test tasks require the competencies developed in the course, and 2) there are no skill-irrelevant sources of variability (e.g. information seeking skills) which bias the interpretation of test scores as measures of level of subject expertise), and 3) students with no/very low levels of subject expertise will not pass this test and progress in the course. The aim of this study was to examine aspects of validity (extrapolation and decision) for an OBOW multiple choice examination of medical knowledge.  

**Summary of Work:** In early February 2015, 71 non-experts students (medical and other) completed the same electronically administered OBOW multiple choice test of medical knowledge as 178 expert medical students did in June 2013. Following the test, the non-experts were surveyed on their subject expertise, their test strategy, and the usefulness of the OBOW format in completing the test. Differences in test scores, aberrant response patterns, and pass/fail rates for the groups will be compared.  

**Summary of Results:** The results will be available for and discussed at the AMEE 2015 conference.

#3F2 (26509)  
Computer-based summative assessment of clinical reasoning in clerkships: A mixed-method comparison of key feature problems with case-based multiple choice questions  
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**Background:** It is yet unclear if there are differences between using electronic key feature problems (KFPs) or electronic case-based multiple choice questions (cbMCQ) for the assessment of clinical decision making.  

**Summary of Work:** Fifth year medical students were exposed to clerkships which ended with a summative exam. Assessment of knowledge per exam was done by 6-9 KFPs, 9-20 cbMCQ and 9-28 MC questions. Each KFP consisted of a case vignette and three key features (KF) using “long menu” as question format. We sought students’ perceptions of the KFPs and cbMCQs in focus groups (n of students=39). Furthermore statistical data of 11 exams (n of students=377) concerning the KFPs and (cb)MCQs were compared.  

**Summary of Results:** The analysis of the focus groups resulted in four themes reflecting students’ perceptions of KFPs and their comparison with (cb)MCQ: KFPs were perceived as (i) more realistic, (ii) more difficult, (iii) more motivating for the intense study of clinical reasoning than (cb)MCQ and (iv) showed an overall good acceptance when some preconditions are taken into account. The statistical analysis revealed that there was no difference in difficulty; however KFP showed a higher discrimination and reliability (G-coefficient) even when corrected for testing times. Correlation of the different exam parts was intermediate.  

**Conclusions:** Students perceived the KFPs as more motivating for the study of clinical reasoning. Statistically KFPs showed a higher discrimination and higher reliability than cbMCQs.  

**Take-home messages:** Including KFPs with long menu questions into summative clerkship exams seems to offer positive educational effects.
#3F3 (24472)
Utility of Situational Judgement Tests (SJTs) as a summative assessment

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Background: SJTs were used to assess aspects of Professionalism in a graduate entry medical program. It is believed that this is the first use of SJTs as a summative assessment tool. Van der Vleuten’s 1996 five-element framework for determining utility of assessment methods is used to analyse the experience.

Summary of Work: Medical students sat three SJTs over their final semester. A standard-setting process was devised to determine a cut score for each paper using a modified Angoff method. Individualized feedback reports were delivered to students electronically. SJT scenarios were discussed as preparation and students wrote new items based on their experiences.

Summary of Results: Reliability was optimized by incorporating wide sampling of content and balanced testing of key domains to deal with content specificity. Validity was promoted by involving junior doctors in the question review process but could be improved by including student-created questions and undertaking post-test item analysis. Educational impact of SJTs on students’ learning was positive. They appreciated feedback but requested actual answers to questions. Acceptability of SJTs as an assessment tool was high as reported by staff and students.

Costs were minimised by using scanable mark sheets and computerised feedback, however, staff time to generate and review questions is significant.

Discussion and Conclusions: Van der Vleuten’s utility of assessment model was useful for reflecting on the introduction of SJTs as a summative assessment and providing direction for further improvement.

Take-home messages: SJTs can be used in assessment of professionalism. Final year students and staff view them as relevant to junior doctors. Standard-setting is feasible and feedback is important.

#3F4 (25529)
Will Changing the Testing Medium Affect Performance?

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Background: The American College of Physicians (ACP) annually offers an international examination in internal medicine to residents. Approximately 25000 residents in three years of training (PGY1, PGY2, and PGY3) take the test. Around 432 programs in North America and 24 programs in Europe and Asia participate in this program. Although residents at all levels of training take the examination, it is mainly aimed at second year residents to assess their knowledge in internal medicine at the midpoint of their training. This identifies areas of medical knowledge deficiencies requiring remediation and helps guide preparation for the board certification examination that is generally taken after residency training is completed.

Summary of Work: Problem: Until 2013, the test was administered in paper & pencil format, and in 2014 it was administered on computers via web. We’re investigating if the change in administration has affected properties of the test and test performance. Our questions are: Items on the 2014 web-based test were calibrated and linked to calibrations of their paper & pencil versions. Item difficulties, discriminations and fit statistics are compared. The reliability of the web-based test and its content coverage are compared to equivalent pencil versions.

Summary of Results: Did the reliability change? Not significantly; Did item difficulties or discrimination change? Individual items: yes, in toto, not much. Was content coverage the same? Yes; Was effect on performance different for European/Asian residents from North American candidates? Yes, but no big differences.

Discussion and Conclusions: Some properties changed, not others details in presentation.

Take-home messages: When medium changes, essential properties and performance don’t.
Enhancing discrimination: the impact in students grades

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Background: Multiple choice examinations should discriminate students based on their knowledge. In order to have a good quality assessment, poor discriminating questions can be eliminated to improve the discriminating power of the examination.

Summary of Work: The objective of this work is to determine the effects of using a two-parameter Item Response Theory (IRT) model on ensuring the discriminative value of a physiology’s examination and to evaluate its influence in the approval rate, mean score and higher scores of the tests. 2nd year medical students were submitted to a final examination of physiology discipline. After taking the test, the students had access to it and freely contested all the questions they wanted. Then, the claims were analyzed and, if found appropriate, questions were eliminated or the key was changed. Afterwards, two-parameter IRT model was applied to each test. MCQs with factor loading lower than 0.2 were eliminated, and final scores readjusted. To compare differences before and after the elimination, paired sample t-test and McNemar test were used.

Summary of Results: The difficulty and discrimination parameters increased after the MCQs elimination. The students’ mean grade increased and the higher was the grade the higher was the difference after the elimination of the questions. The approval rates also increased after the elimination of poor discriminating questions.

Discussion and Conclusions: Two-parameter IRT model enhances the discriminative value of an examination. We demonstrated that the application of this model do not reduce approval rate, mean score and higher scores of the tests.

Take-home messages: Improving discrimination is not disadvantageous for students and rewards high-achieving students.

The accuracy of Angoff ratings by item difficulty

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Background: The Sydney Medical Program has conducted Angoff standard setting from 2012-2014 for Year 1 and Year 2 involving 16, 27 and 28 clinicians each year and a total of 326 questions.

Summary of Work: Correlations were examined between Angoff scores and performance of the total cohort and a Minimally Competent (MC) sub-group (defined using IRT Rasch scores). Differences in Angoff scores and actual performance were investigated through one-way ANNOVAs for three levels of item difficulty (defined by Rasch logits <-0.5 and >0.5).

Summary of Results: Angoff scores had a low to moderate correlation with the actual performance of the total cohort and MC students for Year 1 and 2 for 2012-2014 (r=0.37 to 0.55). Improved predictive accuracy was found for moderately difficult items between 2013 and 2014. Performance was significantly different according to item difficulty for the total cohort and the MC sub-group (p<0.05). However, Angoff scores were not consistently significantly different by item difficulty (p>0.05). Angoff scores for easy items under-estimated MC performance by 9%-23% and over-estimated performance on hard items by 7-23%. Differences between MC students and the total cohort increased by item difficulty; approximately 7% lower for easy items, 12% for moderately difficulty items and 15% for hard items.

Discussion and Conclusions: Angoff score accuracy varied by item difficulty in that they were less accurate for hard and easy items. Guidelines for Angoff standard setting according to item difficulty should be provided to prevent regression to the mean.

Take-home messages: Angoff calibrations should use feedback on prior Angoff accuracy and item difficulty to improve rater training and predictions.
#3F7 (27306)
Four years of MCQ results reveal consistent patterns in certainty and safety, insightfulness and foresightfulness

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Background: Insightfulness and foresightfulness can be inferred from responses to MCQs as, respectively the certainty in correctness and avoidance of options that might be unsafe, certainty safety response questions (CSRQs). This investigation is an analysis of lower stakes summative assessment results found over several years’ cohorts.

Summary of Work: CSRQs were used as part of the assessment package for 329 Year 5 medical students over 4 years, 2011-2014. Incorrect responses had been classified by safeness by an expert panel. Analyses compared response certainty, safety and student performance groupings overall and across years.

Summary of Results: Comparing 2011-12 with 2013-14, there was no difference in proportions of responses (correct, unsafe, unsafe of incorrect), for performance groupings (low scorers, below standard scorers, above standard scorers, excellent scorers) and certainty (low, moderate, high). As certainty in responses increased, the mean proportion of all responses correct increased and the mean proportion incorrect and unsafe decreased. Similar patterns were seen for the whole cohorts and performance groupings. As certainty in responses increased, the proportion of incorrect responses that were unsafe increased. This pattern was only seen for the above standard groupings.

Discussion and Conclusions: Across four years all student groups, including those below standard, demonstrate insightfulness, with increasing correctness with certainty. Although those scoring above standard have insightfulness, they have less foresightfulness with more unsafe decisions, when incorrect, as their certainty increases.

Take-home messages: CSRQ format provides consistent results on cohort insightfulness and foresightfulness. Lower performers do have insightfulness. Those just above standard have limited foresightfulness.

#3F8 (28263)
Effects of Gaming and Guessing on Script Concordance Test Scores

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Background: In an SCT, examinees are asked to judge the effect they think a new piece of clinical information has on a proposed hypothesis. Answers are collected using a Likert scale (ranging from -2 to +2, with ‘0’ indicating no effect), and compared to the answers of a reference panel of ‘experts’. It has recently been argued, however, that SCT may be susceptible to the influences of gaming and guesswork. This study aims to address some of the mounting concern over the response process validity of SCT scores.

Summary of Work: Using published datasets from 3 separate SCTs, we computed the score a hypothetical student would obtain on each of the tests if he 1) guessed random answers and 2) deliberately answered ‘0’ on all test items.

Summary of Results: A simulated random guessing strategy led to scores at least 2 SDs below mean scores of actual respondents. A simulated ‘all 0’ strategy led to scores at least 1 SD above those obtained by random guessing. In one dataset, stepwise exclusion of items with modal panel response of ‘0’ to 10% of the total number of test items yielded hypothetical scores around 2 SDs below mean scores of actual respondents (similar to guessing).

Discussion and Conclusions: Random guessing led to lower scores than those obtained by actual respondents. An ‘all 0’ strategy, however, demonstrated evidence of artificial score inflation. Our findings pose a significant threat to the SCT’s validity argument. ‘Testwiseness’ is a potential hazard to all testing formats. We found that limiting the proportion of SCT items with a modal panel response of ‘0’ to no more than 10% of the total number of test items mitigated the effects of the ‘all 0’ strategy.

Take-home messages: Gaming and guesswork pose a legitimate threat to the validity of script concordance testing, but can be mitigated through diligent item construction.
### #3G Short Communications: Patient Safety

**Location:** Argyll II, Crowne Plaza

#### #3G1 (27493)

Bridging the gap between patient safety and specialty residents’ training: compliance with the standards for Medical Professional Education (MPE) of the Joint Commission International (JCI)

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**Background:** In July 2013, the University Medical Center (UMC) Utrecht has been awarded international accreditation on quality of care, research and education by the Joint Commission International (JCI). From January 2013 a set of standards is applicable that includes medical education and human subject research into the standards required in Academic Hospitals.

**Summary of Work:** From December 2012 to May 2013 our efforts respecting assurance of patient safety and quality of care delivered by residents targeted JCI’s MPE standards. Activities included planning and writing policies, partnering with the institutional Central Council of Residency Training; approval of policies by the board of directors; involving, advising and educating program directors, medical staff, residents and others concerned; monitoring progress and feeding results back.

**Summary of Results:** UMC Utrecht was able to demonstrate compliance with MPE standards. Documented and implemented policies concern: authorization under the condition of the required level of supervision of residents, based on their competency to provide (elements of) clinical services; documenting supervision in the electronic medical record; staff development participation required to supervise and oversee residents; requirements for the resident educational file.

**Discussion and Conclusions:** Patient safety and quality of care are top priorities for hospitals and health care workers. This applies even more to Academic Hospitals training specialty residents: “What is learned in the cradle is carried to the tomb”. Moreover, workplace learning harbors an apparent tension with quality and safety of care calling for appropriate measures.

**Take-home messages:** Patient safety and quality of care delivered under residency training programs may receive a boost in academic institutions striving for accreditation with applicable standards.

#### #3G2 (26062)

Emergency Medicine residents’ perceptions of interprofessional communication in the emergency department: implications for training

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**Background:** Successful interprofessional (IP) collaboration limits medical errors but is dependent on effective IP communication, especially important in providing team-based emergency care. The purpose of this study was to assess EM residents’ perceptions of, and barriers to, optimal IP communication in the emergency department. The goal was to develop an understanding of this issue in order to better teach IP communication in EM.

**Summary of Work:** After informed consent, fourteen EM residents (PGY1-4) participated in four moderated focus groups, using a questioning method. Discussions were audiotaped and transcribed. Transcripts were qualitatively analyzed and coded for emerging themes.

**Summary of Results:** Preliminary results indicated four barriers to residents’ IP communication: i) insufficient knowledge of other professionals’ expertise and skills, ii) rapidly changing care teams diminish relationship building, iii) time pressure related to work flow and high patient acuity, and iv) lack of role models. Residents indicated that IP communication is learned primarily through trial and error and observing other professionals, but expressed a preference for this topic as part of their formal curriculum.

**Discussion and Conclusions:** Barriers to effective IP communication in the ED are inherent in the system, but can be exacerbated by a lack of formal training. Residents in this study indicated that IP communication is not learned as part of the formal curriculum, but rather through experience.

**Take-home messages:** Teaching IP communication as a component of coordinated, safe patient care should be included in formal training curricula.
Effects of teamwork on diagnostic accuracy, data acquisition and confidence

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Background: Wrong diagnoses because of faulty reasoning contribute substantially to medical error. The potential benefit of collaboration on clinical decision making is largely unknown. We investigated the effect of working in pairs on diagnostic accuracy, the amount and relevance of ordered diagnostic tests and on the calibration of confidence to diagnostic accuracy.

Summary of Work: 88 senior students were randomized to diagnose six clinical cases on a PC in isolation or in pairs. Their diagnostic accuracy, type and number of ordered diagnostic tests and time to diagnosis were compared to the diagnostic processes of 20 medical experts. Additionally, students’ prior knowledge and confidence in their diagnosis was recorded.

Summary of Results: Pairs correctly diagnosed one more case than individuals (4 vs. 3; p = .004, d = .78) despite acquiring a similar number of tests. Tests were of comparable relevance as indicated by expert acquisition rate. Pairs needed twice as long to select diagnostic tests in the experiment but tests would take less time in reality. Prior knowledge was similar between pairs and individuals. Pairs were more confident in their diagnosis but showed no enhanced miscalibration. Members of pairs differed to a greater extent in their confidence ratings when being incorrect than when being correct.

Discussion and Conclusions: Working in pairs reduces the rate of diagnostic error without increasing diagnostic effort. Benefits thus seem to arise from enhanced information processing in teams. Reflecting on their personal confidence may point members of teams towards an increased probability of a diagnostic error.

Take-home messages: Working in pairs reduces diagnostic error without increasing diagnostic effort.

Critical reflection on video case studies. A qualitative study

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Background: Patient safety knowledge is fundamental for health-care professionals. Improvement of patient safety, however, will not occur with knowledge acquisition alone. Based on transformative learning theory, a certain level of reflection is needed, to transform knowledge to practical application. In this work, we analyze, how students apply novel knowledge, gained from eLearning applications, to written analytical assignments.

Summary of Work: After completing an eLearning class on theories and concepts of teamwork, third year medical students were asked to analyze a 5-min video-case-study of a resuscitation team. In shared text documents, students reflected on potential teamwork improvements. We developed a coding system based on Mezirow (1997), Moon (2004), Saunders (2009) and applied qualitative content analysis (Mayring 2003) to 20 such documents to identify levels of reflection and understand how students apply novel knowledge.

Summary of Results: Two main categories of learners were identified: Analytic reflectors observe even subtle improvable behavior-patters, reflect on potential underlying reasons for sub-optimal actions and unerringly identify theoretical concepts to solve the problem. Descriptive reflectors notice similar behavior, but miss subtle problems. Compared to analytic reflectors, they fail to identify specific, theory-supported solutions. Clearly operationalized patient safety concepts like “closed-loop-communication” are frequently identified, even by descriptive reflectors. Analytic reflectors additionally use more complex concepts (e.g. team orientation) to draft solutions.

Discussion and Conclusions: Our data suggest, that novel knowledge is best applied by deep reflections, which can be triggered by eLearning. Close tutorship could help to support students with more superficial reflection.

Take-home messages: Students use analytic and descriptive reflection to apply novel knowledge in assignments.
#3G5 (25046)
Diagnosing procedural incompetence: error-based checklist vs. conventionally-constructed checklist

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Background: We previously reported that high checklist scores did not preclude procedural incompetence (commission of few serious procedural errors resulted in only minimal lowering in scores)(1). We hypothesized that checklists constructed based on procedural errors may better identify incompetence. This study seeks to compare an error-based checklist with a conventionally-constructed checklist in identifying procedural incompetence.

Summary of Work: A 15-item error-based checklist for lumbar puncture (LP) was constructed based on input from 13 experts in 4 Canadian academic centers, using a modified Delphi approach over three rounds of survey. Procedural ratings on 18 video-recorded LP performances on simulators using the error-based tool were compared with a conventional 21-item checklist (1). Pass/fail decisions were based on global assessment. Diagnostic accuracy was estimated using area under the curve (AUC) in the Receiver Operating Characteristic analyses.

Summary of Results: Internal consistency and inter-rater reliability was higher for the conventional tool than the error-based tool (alpha = 0.79 vs. 0.35) and [ICC 0.99 (95% CI 0.98-1.00) vs. 0.92 (95% CI 0.69-0.98), respectively). However, the accuracy of the error-based tool for incompetence was higher (AUC 0.85, 95% CI 0.67-1.00; vs. AUC 0.11, 95% CI 0.00-0.28).

Discussion and Conclusions: Despite higher internal consistency and inter-rater reliability, the conventional checklist was less accurate at diagnosing procedural incompetence. An error-based checklist was superior at identifying procedural incompetence.

Take-home messages: For procedural assessments where it is important to identify incompetence, we recommend the use of error-based checklists.


#3G6 (25975)
Patient Safety Education for Medical Students: Participatory and Project-based Learning

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Background: Patient safety awareness is becoming an essential competency for all healthcare providers. Medical students as future doctors should be educated to ensure safe health care.

Summary of Work: The essential topics and learning activities were selected by a group of 15 medical teachers. The topics included 1) concept of patient safety; 2) risk management and human factors; 3) hospital system; 4) doctor as healthcare leader; 5) continuous quality improvement. These topics were learned through participatory activities (role play, case-based discussion) with multidisciplinary team. One month later, medical students were assigned to work in group and to spend 2 months for developing and implementing projects to ensure patient safety in 4 disciplines. Finally, they presented their projects and outcomes after implementation to the hospital administration board for discussion and commentary.

Summary of Results: Forty-eight final year medical students, 3 pharmacists, 2 nurses and 15 medical staff participated. The students applied their understanding of the topics thought by creating 4 patient safety projects; “Stat Medication Alert Card”, “Correct Laboratory Results”, “Medication Reconciliation” and “Emergency Response”. After implementation, all 4 projects showed positive results including decreased time lapse of stat medication administration (25 vs 6.9 minutes), no incorrect laboratory report, complete medication reconciliation and timely emergency response (within 4 minutes). The students reflected that they learned about teamwork, how to identify and solve the problem systematically and were more aware of patient safety while providing medical services.

Discussion and Conclusions: Participatory and project-based learning were effective and can be used to educate medical students about patient safety. Application of knowledge to real clinical settings can be benefit both students and hospital services.
#3H Short Communications:  
Selection 1: Approaches  
Location:  Argyll III, Crowne Plaza  

#3H1 (27142)  
Computer-based Situational Judgment Testing: universal and predictive for personal skills of medical students  

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Background:  Both Multiple Mini Interviews (MMI) and Situational Judgment Tests (SJT) are recognized as reliable tools assessing personal characteristics of medical school applicants. However, large applicant numbers make MMIs infeasible. To increase access, we assessed personal attributes by applying Computer-based Assessment for Sampling Personal characteristics (CASPer)-based SJT assignments using short videos, a selection method showing high correlation with MMI outcomes.  

Summary of Work:  During selection across three applicant cohorts, 791 applicants to Maastricht University’s Medical School were evaluated using CASPer-based SJT assignments assessing personal attributes. We applied a combination of videos from McMaster University (presented in English with Dutch subtitles) and from Maastricht University (presented in Dutch). The scores on these video-assignments were compared and related to performance on non-cognitive elements of the bachelor programme of selected students.  

Summary of Results:  Our study revealed that CASPer-based SJT assignments (i) from McMaster and Maastricht University had comparable mean z-scores, (ii) scores did not correlate with pre-university GPA (-0.12), and (iii) scores correlated significantly (0.71) with study performance on non-cognitive elements of the bachelor programme. Overall internal consistency based on z-scores for individual assignments was 0.74, 0.71 and 0.76 for the three cohorts, respectively.  

Discussion and Conclusions:  CASPer-based SJT results are predictive for personal skills of medical students during their bachelor. Furthermore, CASPer-based SJT assignments can be applied universally indicating possible resource saving.  

Take-home messages:  1) CASPer-based SJT assessment during selection has predictive value for personal skills of medical students. 2) CASPer-based SJT assignments can be exchanged between medical schools.

#3H2 (26796)  
Emerging evidence on widening access by assessment of non-cognitive attributes for selection to medical and dental training in the UK  

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Background:  In medical and dental admission, it is important that specific populations are not disadvantaged. Situational judgment tests (SJT) have been proposed as useful complements to existing medical exams for broadening the skills measured and ensuring diversity in selected applicants. Although prior research has found evidence that SJTs provide valid assessment of (inter)personal characteristics, their potential for increasing diversity remains largely unexplored. Therefore, this study focused on the potential diversity benefits of SJTs relating to socioeconomic status (SES) in the UK Clinical Aptitude Test (UKCAT).  

Summary of Work:  Data came from three cohorts (2012: N =13,826, 2013: N = 15,454, and 2014: N = 23,884) who completed the UKCAT. SES was operationalized by obtaining information on parents’ occupational status (High SES vs. Low SES).  

Summary of Results:  As expected, cognitive ability test scores were higher for applicants with high SES (d = .37 in 2012, .35 in 2013 and .29 in 2014). The effect of SES on SJT scores was only d = .11 (in favor of the high SES group) in 2012, d = .20 in 2013 and d = .07 in 2014.  

Discussion and Conclusions:  These results suggest that the addition of an SJT to the UKCAT has promise in widening diversity and balancing out effects of cognitive ability tests because SJTs do not seem to disadvantage students from low SES groups. Future research is needed to test these findings with other SJTs internationally.  

Take-home messages:  SJTs are a promising addition to medical and dental admissions processes in the UK.
7 years of conscientiousness in health care professionals

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Background: The Conscientiousness Index (CI) is an objective scalar measure of a major personality factor which, applied to medical students, correlates with independent measures of professionalism by staff, and, separately, independent measures of professionalism by peers. It appears to be stable, and is predictable by written personal quality assessments of personality factors. It is relatively low cost to administer, and allows input from a wide range of events and settings. It is known from the wider literature on work psychology that Conscientiousness is the single strongest predictor of workplace performance, and an expanding body of research confirms that this is true in health care also. We have now used it as a research tool, formatively, and most recently in a summative settings.

Summary of Work: We now have 7 years of experience on use of the CI, including pre-clinical and clinical students in different settings, and doctors and allied health professionals in training. This wider experience has allowed us to generalise our experience, but also raises important issues of context, and practical difficulties that may arise in particular settings.

Summary of Results: We aim to present further data from these diverse settings, and review the general usefulness, and challenges, of the CI as a tool for exploring professionalism in health care education settings.

Discussion and Conclusions: Measures of conscientiousness may be used as a selection tool, either for entry into health care professions (as part of ‘Values Based selection’ principles) or for identification of the need for targeted remediation; this will appeal to employers and educators alike.

Assessing the interpersonal skills of potential doctors through use of filmed scenarios: their inclusion in selection processes for medical courses

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Background: In the near future, the Australian Undergraduate Medicine and Health Sciences Admission Test (UMAT) is to be delivered on-line. With the move towards delivering tests online, it seems timely to explore better and perhaps more accurate ways to assess interpersonal skills (Section 2, UMAT), than by relying on reading skills. The Australian Council for Educational Research (ACER) which produces the UMAT, has been exploring the potential for presenting test stimulus as filmed scenarios, rather than written paragraphs of text.

Summary of Work: We hypothesized that the filmed scenarios more accurately reflect the type of interpersonal scenarios that occur in real life, and therefore help in more accurate measurement of interpersonal skills. The research then investigated differences in outcomes for test questions based on stimulus presented in both filmed and text form. A second trial is underway to explore further the performance of the different type of items.

Summary of Results: In the first trial test on 160 UMAT candidates, half sat the filmed version of the test and half sat the paper-and-pencil version of the test. An item-by-item comparison suggests three possible ways that test items performed: i) more ‘verbal’ kinds of items were easier on the paper version ii) more ‘visual’ kinds of items were easier on the computer version and iii) some items had a similar pattern of answering for both paper and computer.

Discussion and Conclusions: The valid, reliable assessment of interpersonal skills is an increasingly important consideration in medical courses.

Take-home messages: The data provided by this research informs the accurate measurement of interpersonal skills in medical selection processes.
#3H5 (25800)
Development and validation of the Cambridge Personal Styles Questionnaire for the assessment of non-academic qualities

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**Background**: The purpose of this study was to develop and validate the Cambridge Personal Styles Questionnaire (CPSQ), with the aim to create an advanced instrument for the assessment of non-academic qualities in undergraduate medicine and healthcare contexts.

**Summary of Work**: CPSQ is based on the Five-Factor Model (FFM) of personality and qualitative research which helped identify effective behaviours associated with student performance. A series of online personality-based questionnaires were designed and trialled over four years with 4,000 volunteers. An advanced response format was designed to reduce ‘faking good’ a desirable profile. Research studies were conducted on the reliability and construct validity of the final version of the questionnaire.

**Summary of Results**: Analyses demonstrate that the final assessment comprises thirteen scales. It has strong internal ($\alpha = .82$ to .90) and test-retest ($r=.84$ to .92) reliabilities. The advanced response format produced a range of scores. Construct validation studies confirm relationships to the FFM, student study skills, as well as aspects of Emotional Intelligence (Multiple R = .70).

**Discussion and Conclusions**: The completed assessment is able to demonstrate a high standard of reliability and construct validation. CPSQ scoring and reporting is mapped against a competency framework of key behaviours for example: Caring & Compassion; Self-Management and Coping with Demands. There is on-going research to investigate relationships between CPSQ and student performance. In conclusion CPSQ is ready for live piloting. It offers an objective way to measure non-academic qualities for selection and professional development.

**Take-home messages**: To ensure assessment validity and usefulness start with a good understanding of which behaviours contribute to course and professional success.

#3H6 (25673)
Investigating candidates’ preparation for the BioMedical Admissions Test (BMAT)

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**Background**: BMAT is used by a number of UK and international institutions to select students to medicine, biomedical sciences and veterinary science, alongside criteria such as examination results and interviews. As BMAT assesses thinking skills, application of scientific knowledge, and writing, preparation should have positive impact on candidates’ school studies and not impose financial barriers on accessing the test.

**Summary of Work**: This study explores how successful BMAT candidates prepared for the test and whether there were differences by gender or school type. A questionnaire was distributed to all 1st year undergraduates in BMAT institutions and responses analysed.

**Summary of Results**: Within institutions, participants were representative of their whole year group in terms of BMAT performance. The results show that the majority of candidates used free materials on the BMAT website, or low-cost options such as the official BMAT preparation book. Only 7% paid for commercial preparation that focussed specifically on BMAT.

**Discussion and Conclusions**: Candidates who attended a commercial course reported doing more self-study on average, making coaching gains difficult to estimate. Some differences in preparation help and activities were evident between gender and school types. In this sample of respondents who form a special subset of successful BMAT test-takers, school help and commercial coaching did not appear to replace self-study. The development and successful launch of new free preparation materials will be discussed.

**Take-home messages**: Candidates prepare in a wide range of ways for BMAT. However, from this study, it can be concluded that there are simple low-cost ways to prepare for BMAT that have a positive impact on test-readiness.
Shall I be or shall I pretend? Personality traits in the admission process to a medical school

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Background: There’s a growing interest about personality traits in medical education research mainly related with performance and health. Relatively to medical selection, we can choose to study either the impact of personality on each available selection tool, either the impact of the integration of personality assessment on the medical selection final decision.

Summary of Work: 74 graduate applicants were admitted to the Faculty of Medicine of the University of Porto (FMUP) in the academic years of 2012/2013 and 2013/2014. 69 (93.2%) answered the 60-item NEO Five Factor Inventory (NEO-FFI) a self-report measure designed to assess high order personality traits of extraversion, conscientiousness, neuroticism, agreeableness and openness to experience, in two moments: during application and after being enrolled at FMUP. The score of each trait ranged from 1 (disagree) to 4 (agree).

Summary of Results: Relatively to the conscientiousness trait, if in the first assessment the mean was of 44.59 it decreased significantly in the second assessment to 42.60 (p=0.02). No significant differences were found for the openness to experience, extraversion, agreeableness and neuroticism traits.

Discussion and Conclusions: If the openness to experience, extraversion, agreeableness and neuroticism traits seem to be relatively stable in the two assessment moments, the conscientiousness trait that has been highlighted as an important trait on medical school progression and as physician, looks like it can be pretended.

Take-home messages: Personality assessment as an independent selection tool to medical school admission of graduate students is not a reliable measure.
#31 PhD Reports: PhD 1
Location: Alsh 1, SECC

#31 (23697)
Evaluating Clinical Trainees in the Workplace. On Supervision, Trust and the Role of Competency Committees

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Introduction: Clinical supervision entails supervisors’ decision-making about how much independence to afford trainees to promote learning and ensure quality patient care. The concept of trust can explain how individual trainees experience increasing levels of autonomy in the workplace and how programs can ensure trainees’ development of competence for unsupervised practice. Informed by sociocultural learning theory and workplace learning, we examined how trust is operationalized to guide decisions about clinical supervision and trainee autonomy. With mounting enthusiasm for competency-based education and entrustable professional activities (EPAs), this work advances understanding of how trust can align clinical supervision with learners’ readiness.

Methods: This thesis used multiple methodologies to characterize trust within clinical supervision. A literature review on trust in the context of supervision, evaluation, assessment, and interpersonal relationships yielded a conceptual model of the factors that interact to determine a supervisor’s trust in a trainee for clinical practice(1). Using a phenomenographic approach, we explored how clinical supervisors perceive and experience trust in their residents in the inpatient setting. Our conceptual model informed two quantitative, empiric studies describing the identification and implementation of EPAs within a training program. Further qualitative work examined entrustment at the program level through interviews with residency program directors to explore how clinical competency committees use resident performance information to make decisions about residents’ readiness for advancement.

Results: This work characterized the process of entrustment as affected by five interacting factors: supervisor, trainee, supervisor-trainee relationship, context and task. We showed how individual supervisors develop trust in residents informed by observation, inference, and information gathered from the team and patients. Judgments of trust yielded outcomes defined by supervisors’ changing roles, residents’ enhanced independent care provision, and improved team functioning. Implementation of EPAs within a program enhances supervisors’ and learners’ shared focus on key clinical activities and prompts specific, actionable feedback. EPA implementation also raises logistical challenges that call for strategies for feasible use in a large training program. Our study of group decision-making about trainees’ readiness for unsupervised practice suggests that trust is approached from the perspective of identifying inadequate performance. Clinical competency committees are commonly oriented toward a problem identification model rather than a model supporting each trainee’s individual development of competence.

Discussion and Conclusions: This work reinforces the importance of trust as a concept that inherently influences clinical supervision. Information about trust from these studies, including its antecedents, accelerators and barriers, can guide development of a training environment enriched with intentionally selected learning experiences and supervision provided at the leading edge of trainees’ competence. EPAs can successfully structure assessment if implemented with sound measurements based on supervisors’, trainees’, and educational leaders’ shared understanding of trust. This work provides design principles for operationalizing assessment based on trust. Our 5-factor model can be used to identify potential sources and threats to validity of entrustment decisions. Our findings indicate needs for both individuals and groups. Individuals need education in the use of trust in supervision and groups need education on group process as well as robust synthesized data.


#31 (23619)
Early learner engagement in the clinical workplace

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Introduction: Recent calls for medical education reform have advocated for curricular designs that are learner-centered and integrate classroom knowledge with experiential learning, achieved through workplace learning experiences. Yet, integrating early learners in the clinical workplace is difficult and rarely are they invited to participate in workplace activities. Patient contact in the initial years of medical education remains largely one of observation. We conducted a series of studies to identify legitimate workplace roles and activities for pre-clerkship students and determine how faculty can foster their engagement in the clinical workplace.
Methods: We conducted semi-structured interviews with pre-clerkship student and faculty volunteers at student-run clinics and asked them to describe student roles in these clinics. We performed open and axial coding of the transcripts using the sensitizing concepts of workplace learning and communities of practice. Using data from the student-run clinics and additional student focus groups and faculty interviews, we defined entrustable professional activities (EPAs) appropriate for pre-clerkship students. We initially identified key activity domains and mapped each domain to pre-clerkship objectives, graduation competencies, and resident-level EPAs. We then developed full EPA descriptions for each domain and conducted local, national, and international workshops to verify appropriateness of EPA content and supervision level. Finally, we conducted semi-structured interviews with faculty identified as excellent clinical teachers teaching multiple levels of learners. We explored their approach to teaching different level learners and development of their approach. We performed thematic analysis of the interview transcripts using open and axial coding.

Results: We interviewed 22 students and 4 faculty from the student-run clinics. Students had legitimate roles in direct patient care and clinic management. Clinic features supporting this included defined scopes of practice and limited presenting illnesses. Five EPAs of narrow scope were developed for early learners: 1) information gathering, 2) information integration for differential diagnosis, 3) healthcare team communication, 4) information sharing with patients, and 5) resource identification. We interviewed 19 clinical teachers. Teachers used sequencing as a teaching strategy by varying content, complexity, and expectations by learner level. They initially selected learning activities based on learner level, then adjusted for individual competencies over time. They used sequencing to promote both learner education and patient safety. Teachers cited on-the-job experiences and trial-and-error as key informers of their teaching practices. They moved from being teacher-centered to being more learner-centered as their clinical and teaching confidence increased, and requested focus on the developmental trajectory of clinical teachers.

Discussion and Conclusions: Pre-clerkship students are capable of participating in patient care activities of narrow scope, characterized by five EPAs where entrustment was characterized by supervision where the supervisor was outside the room but immediately available. This requires excellent clinical teachers who employ sequencing to ensure developmentally appropriate and patient-safe activities, and teachers need development to evolve these skills. We expanded application of EPAs to early learners. With these clearly defined workplace expectations and practical strategies for faculty to engage all levels of learners in workplace activities, we can optimize early learner capabilities and contributions to patient care and realize the intended goals of early clinical experiences.
Discussion and Conclusions: Students need to experience both external and internal authenticity to make learning meaningful. Supervisors must plan for both students’ learning and patient care. They must challenge and support students by allowing them to take care of their own patients as independently as possible while working with peers, and also allow patients to actively participate. An explicit pedagogical framework based on patient-centeredness, peer-learning and teamwork creates the prerequisites for experiences of external and internal authenticity.

References:

#314 (23443)
Impact of peer pressure on accuracy of reporting vital signs: A comparison between nursing and medical students

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Introduction: Hierarchical relationships and poor communication between nursing and medicine have long been known; yet, their direct influence on procedural skills have yet to be considered. Given the ubiquity of collaborative practice in healthcare and the importance of communication to patient care, it is critical to examine social factors impeding this communication amongst interprofessional team members. Drawing on the theory of conformity from social psychology (1), one specific social challenge to interprofessional care may be the influence of peer pressure within the team. For example, in order to maintain collegial working relationships, health professionals may change their behaviors to match the behaviors of others, even when they know these behaviors may negatively impact patient safety. There is now empirical evidence of this phenomenon in medical education (2). The objective of this study is to determine if nursing students are likely to report inaccurate information in response to subtle social pressures imposed by medical students on a vital signs procedural task.

Methods: Second year medical (n = 60) and 3rd year nursing students (n = 44) took vital signs readings from a patient simulator. In a 45-minute simulation exercise, three actors, posing as medical students, and one nursing student participant took three rounds of vital signs on a high fidelity patient simulator. In one of the rounds, the three actors individually stated the same incorrect vital sign values. The same procedure was repeated with actors posing as nursing students, and one medical student. In the post study interview, the participants were asked why they did or did not report the same incorrect values as the actors.

Results: A two-way analysis of variance revealed that nursing student participants (M = 2.84; SD = 1.24) reported a higher number of incorrect vital signs than did medical student participants (M = 2.13; SD = 1.07), F(1,100) = 5.51, p < 0.05 (Cohen’s d = 0.61). Primary reasons nursing students provided for conforming were self-doubt and challenges with the medical hierarchy, and those reported by medical students included expectations of professional norms as well as fear of evaluation.

Discussion and Conclusions: The empirical findings from this study suggest that social pressure may prevent nursing and medical students from questioning incorrect information within interprofessional environments, potentially affecting quality of care. Despite the importance of interprofessional communication, these critical skills are not typically taught and modeled in health professions education. If students are making clinical decisions based on the consensus of the group and have not learned effective communication skills on a) how to safeguard against conformity, and b) how to engage in respectful and joint clinical decision making and c) how to assertively manage conflicting or inaccurate information during multidisciplinary teamwork, this could have major implications for patient safety when they become members of the health professional workforce. This work will lay the foundation for the future study of conformity within a clinical context amongst practicing physicians and nurses. Replication with clinicians, different clinical skills, and complex team decision-making are called for, given this compelling initial evidence.


#315 (23598)
Peer influence in clinical workplace learning: A study of medical students’ use of social comparison

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Introduction: In clinical workplace learning, many different people like patients, residents and staff, make important contributions to students’ professional development(1). In this variety of social processes little is known about the influence students may have on one another’s development. This research about students’ use of social comparison – the tendency to compare one’s own experiences with those of similar others(2) – seeks to fill this gap.
Four coherent studies aimed: 1) to introduce social comparison into the field of medical education by investigating students’ tendency to compare with peers, 2) to examine the influence of social comparison on students’ estimates of future performances, 3) to address how social comparison is actually used in authentic settings, and 4) to unravel the relation between social comparison and student distress.

**Methods:** Study 1) Participants (n=437) completed two questionnaires measuring their comparison behaviours to examine four hypotheses derived from social comparison theory. Analysis: t-tests. Study 2) Participants (n=321) in this experimental study, estimated their own future performances after comparison, in a written comparison situation, with a peer who had completed the rotation the participant was required to undertake next. Analysis: ANOVA. Study 3) In this qualitative study, twelve participants kept audio diaries in which they recorded their experiences of comparison with peers during a four-week period. Analysis: constructivist grounded theory. Study 4) Participants (n=301) completed questionnaires measuring their comparison behaviours and levels of distress, to contrast the comparison behaviours of low-distress students with those of high-distress students. Analysis: MANOVA.

**Results:** Study 1) Students substantially did compare. They preferred comparison with peers more than with residents or staff, and their responses to social comparison were more often stimulating for learning than discouraging. Study 2) Social comparison influenced students’ estimates of their future performances. The effect depended on the performance level and gender of the comparison peer. Study 3) Peer comparisons were about students’ abilities to perform tasks, to interact with patients and staff, and about matters of the self. The comparisons helped them to get a better understanding of their current position and showed them where they had got to and could get to in the near future. Study 4) All students frequently compared themselves, but the tendency to compare was less apparent among low-distress students, like they were less negative in the interpretation of their comparisons.

**Discussion and Conclusions:** This research emphasizes the role of peers in workplace learning which tends to be overlooked. Peer comparison is a significant feature of the processes that helped students to give meaning to their current stage of development, appraise their progress and find out what helps them move forward. Educators are urged to be aware of students’ tendency to make comparisons with peers and the consequences of them doing so. Like it is recommend to make students aware of their comparison behaviours and inform them about the pros and cons of the comparison process. Finally, a better understanding of the influence of social comparison may be relevant to contemporary social learning theories and development of professionalism.


#316 (23329)

**Integrating Workplace Learning, Assessment and Supervision in Health Care Education**

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**Introduction:** Workplace learning has increased in popularity over the last decades and clinical workplaces remain important learning environments in health care education. Modern theories conceptualise workplace learning as a self-regulating continuous process of competency development. Nevertheless, workplace learning in the field of health care education is featured by discontinuity: many programmes include short periods of training in different disciplines; learning processes are often separated from assessment processes; and it is difficult to achieve continuity in supervision, both within and across workplaces. The question therefore is how workplace learning can be organised in such a way that ongoing competency development is optimally stimulated throughout the workplace learning curriculum. The following three research questions were put forward in this thesis: 1) How can learning, assessment and supervision in the workplace be integrated with the aim to support a continuous developmental process? 2) What are the implications for the design of workplace learning?; and 3) What is the effect on summative assessment?

**Methods:** Answers to the research questions were based on four consecutive studies and one theoretical paper, all published in peer review journals. Two qualitative studies used a content analysis approach to explore students’ and clinical supervisors’ perceptions on how an integrated workplace learning instrument facilitated learning, assessment and supervision in practice. A subsequent mixed-method study explored how two reflective writing activities stimulated reflection at different degrees of granularity during workplace learning. A cross-sectional and retrospective-longitudinal correlation cohort study was used to investigate the relationship between reflection and performance and how reflection contribute to competency development. These studies provided the empirical evidence for designing a workplace learning model.1 The studies were conducted in the context of undergraduate Midwifery education (Belgium).
**Results:** We have shown that it is possible to integrate the numerous components of workplace learning into an evidence-based and feasible workplace learning model: the ‘Integrated learning Assessment and Supervision Competency Framework’. The results make clear that promoting continuous competency development requires an integration of competencies, learning (reflection and feedback on performance and on competency development), assessment (self-, formative and summative assessment), and supervision (observers, learning guides and assessment committee). The model is featured by a programmatic view on the workplace learning curriculum and a focus on the conditions to support continuous learning. An integrated model has important implications for the design of the workplace learning programme. The latter needs to be revised in such a way that a formative reflection and feedback continuum is established, active involvement in learning and supervision is encouraged, and collaboration in learning is facilitated. The results suggest that these effects on formative learning are valuable for summative assessment. A twofold assessment strategy (assessment of competencies and professional competence) creates an assessment continuum at the workplace.

**Discussion and Conclusions:** Respondents noted important barriers to the positive effects of an integrated model on the learner’s developmental process. Successful implementation rely on the extent to which essential conditions are met. This research provides new perspectives on continuous workplace learning in the context of a discontinuous workplace learning environment.

**References:**

#3J1 (28049)
“Difficult clinical cases” as perceived by undergraduate students during their internship year: quantitative analysis according to CanMEDS roles

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Background: During internships students frequently witness situations in which routine clinical algorithms are not satisfactory to solve the problem. This forms a challenge for clinical teaching, since there is often no time, or awareness, to work up these situations, thereby missing important teaching opportunities. Only little is known about the nature of respective situations and how they are related to CanMEDS roles. For our study we intentionally defined the term “difficult clinical case” in a broader fashion, including potential underlying causes outside the specific medical problem (e.g. communication within teams, resource shortages, ethical dilemmata). With better insight into how these problems are perceived by students, we might be able to design more adequate preparation for internships and provide information for clinical teachers in regard to CanMEDS roles.

Summary of Work: The University of Zurich implemented a learning format to reflect physicians’ roles within the 6th year of undergraduate training (total cohort: n = 256). As a fundamental element of this course each student submits a “difficult clinical case” of 150-300 words from his own internship experience (to contribute to the thematic basis of the course). We performed qualitative analysis of 20% of these case vignettes (n=52), in respect to the seven CanMEDS roles.

Summary of Results: The collected material showed a wide distribution of “difficult clinical cases”, reaching from “palliative dilemmata” over “legal issues” to “interprofessional conflicts” and “hierarchy conflicts”. Most important CanMEDS roles which were identified as leading theme in these vignettes were “professional” (39.6% of cases), “communicator” (34.0%), and “collaborator” (13.2%).

Discussion and Conclusions: “Difficult clinical case” vignettes from internships may serve as a rich resource to identify teaching gaps and opportunities. They may provide a basis to design preparation formats for students before their internships. They may also provide information for clinical supervisors, which topics they should discuss with their trainees.
Using arts-based observational skills training, modelling and simulation to teach clinical observation in dermatology

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Background: Systematic observation of paintings can be used to develop clinical observation skills (Dolev et al. 2001; Bardes et al. 2001). Accurate sensory discrimination in both visual and tactile domains is crucial for effective clinical reasoning in dermatology.

Summary of Work: We have developed a workshop in collaboration with art educators for a Dermatology attachment for Year 5 medical students. Teaching methods to develop skills in visual and tactile observation in dermatology examination include: drawing and touch exercises to focus observations; describing artworks; exploration of tactile perception with textured objects; modelling textures and lesions; learning terminology with simulated examples; and describing models with various dermatological conditions. We evaluated how useful the workshop is in improving observation skills through: (i) a qualitative evaluation of students’ experiences, (ii) a thematic analysis of written descriptions of simulated lesions and (iii) a quantitative analysis of frequency of palpation of the lesion.

Summary of Results: Students enjoy the session and many find it useful for their learning. Written descriptions of lesions, before and after the workshop, show greater level of accuracy and of details about texture, colour and distribution. Students palpated the lesion more frequently after the workshop.

Discussion and Conclusions: Students appreciate learning in a creative and engaging manner that encourages thinking afresh, exploration of perception, and challenges their preconceptions. Students say they will approach dermatology examination with more attentive and deliberate visual and tactile observation, analysing skin lesions in a more thoughtful and systematic manner.

Take-home messages: Arts-based teaching could be used to develop students’ clinical reasoning in other specialties through improving their observation skills.

“Task-based learning” during the new implemented clinical year: An innovative approach for 6th year students at the Medical University of Vienna

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Background: A hospital based clinical year as a new 6th year of training was implemented in August 2014 at the Medical University in Vienna. 640 students have to spend 48 weeks in accredited hospitals across Austria and abroad. The total time is divided to Internal Medicine, Surgery and Electives each lasting 16 weeks.

Summary of Work: In order to standardize the clinical education, we developed a special clinical logbook and portfolio for students which is monitored by clinical mentors. Based on written objectives, the portfolio includes a standardized educational program with particular predefined clinical tasks, e.g. writing case reports, preparing discharge letters and concrete referrals for further examination and prescriptions and giving state-of-the-art presentations. Each clinical task is defined by explanatory notes in order to achieve harmonization with regard to their fulfilment in different disciplines and hospitals. Critical reflection on clinical reasoning is requested as well.

Summary of Results: The implementation of this task-based learning educational program is still an ongoing process. Evaluations are in elaboration and cover questionnaires gained from students and mentors and include also feedback from the workplace.

Discussion and Conclusions: Our standardized task-based learning program is expected to provide a useful and well accepted tool. This is to be proven by a detailed analysis of the continuously harvested evaluation data at the end of the academic year.

Take-home messages: Based on written objectives definition of particular clinical tasks can compromise a meaningful educational program within a clinical logbook and portfolio.
Theories of truth and training diagnostic competence

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**Background:** In the past decades, quite a few studies on students’ and experts’ clinical reasoning have been published. Several authors have reported that diagnostic errors are often a consequence of biases or overreliance on intuitive thinking. Usually, the correct diagnosis of cases in these studies is determined by expert consensus. Surprisingly, questions how experts arrive at their diagnoses, or what criteria are used to determine the correctness of a diagnosis, are rarely asked.

**Summary of Work:** There are two broad views on “true” (correct) diagnoses. According to coherence theories, correctness is determined by rationality of the reasoning process: A diagnosis will be correct when the underlying reasoning is logical, consistent, and sound. Correspondence theories, on the other hand, emphasize the empirical accuracy of a diagnosis: does the patient indeed suffer from this particular disease?

**Summary of Results:** Application of these different criteria to assess correctness may lead to different outcomes – different truths, different correct diagnoses; hence, this has ramifications for assessing diagnostic performance and, by implication, for teaching clinical problem solving.

**Discussion and Conclusions:** Teachers who emphasize the importance of diagnosing authentic patients in fact aim at training students’ “correspondence competence,” whereas teachers who emphasize sound clinical reasoning (avoiding biases and overreliance on intuition) aim at training students’ “coherence competence.” Both competencies are important, but they cannot be trained by the same instructional format.

**Take-home messages:** It is important that clinical teachers are aware of the difference between coherence and correspondence competence in diagnostic decision making and design training sessions in accordance with the competency they want to train.

Educating the view of nudity: How to sensitize students to the nude patient

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**Background:** Preparing students in how to examine a nude patient is recognized as complex. The literature recommends use of patient simulators and practicing examination between student peers. During 2012 a workshop was implemented for educating third year students to confronting patient nudity. The evaluation of this educational initiative is presented.

**Summary of Work:** In our medical school a curricular thread exists about the body with a biologic, humanistic and anthropologic perspective. During third year students take a course in which they are exposed to nude actors simulating patients. Three focus groups involving a total of 22 students were done to evaluate the course. The sessions were recorded, transcribed and its narrative content analyzed using a deductive-inductive methodology.

**Summary of Results:** The course was evaluated identifying strengths, weaknesses and student perceptions. It provides information that remains in the subconscious and reappears during complex situations in clinical practice. It is a space for students to overcome fears and develop a sense of empathy for the patient and his nudity.

**Discussion and Conclusions:** Patient nudity is a neglected topic and this activity offers students a space for reflecting. The exposure to nude simulated patients has the biggest impact and is considered the key element in the activity. The purpose of sensitizing the student to the nude patient is achieved.

**Take-home messages:** Students require a controlled exposure to complex situations that they will encounter in clinical practice and require confronting nudity and reflecting on it in a protected environment.
Transferring high quality care of the elderly into the clinical workplace: Barriers and facilitating factors

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Background: General practitioners face many complex situations when providing care for the elderly. In order to deal with these situations efficiently and effectively, an integration of different competencies is needed. Specifically designed learning environments based upon whole-task learning can help medical students to master and integrate these competencies progressively (Van Merriënboer & Kirschner, 2013). This study aims to identify the factors that students perceive to be facilitating and/or hindering the transfer of learning from such a learning environment into the workplace.

Summary of Work: Semi-structured interviews were conducted. The principle of data saturation was applied. The interviews were coded by two independent researchers and analysed using the method of thematic analysis.

Summary of Results: The barriers and facilitating factors that were identified as influencing the transfer of learning were grouped into: elements in the classroom (e.g. lack of feedback), the clinical workplace (e.g. the supervisor’s behaviour) and students’ motivation. Students’ underlying conceptions of learning appeared to vary between learning places.

Discussion and Conclusions: Despite the focus on whole-task learning environments, students did not find the application of knowledge, skills and attitudes in the clinical workplace easy. This study has contributed to a deeper understanding of students’ experiences of variables that influence the transfer of learning. Future research is necessary to investigate how the perceived barriers can be avoided.

Take-home messages: The transfer of learning can be enhanced by focusing on three different levels, namely elements in the classroom (e.g. teachers’ behaviour), elements in the clinical workplace (e.g. supervisors’ behaviour) and students’ characteristics.

Effective supervision in surgical training: a phenomenological analysis of trainees’ experiences

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Background: Good supervision is thought to improve trainees’ well-being and enhance their clinical performance. However, the quality of supervision of surgical trainees in the UK is believed to be highly variable. It is therefore essential that those responsible for commissioning training are aware of the fundamental characteristics of effective supervision. The aim of this study is to identify these characteristics based on the lived experiences of surgical trainees.

Summary of Work: An email invitation was sent to all eligible surgical trainees in the Severn & Peninsula Deanery, following which seven agreed to participate in the study. Through the use of semi-structured interviews, the participants’ experiences of good supervision were explored. Using a reductive process, themes relating to the components of effective supervision were identified.

Summary of Results: A number of themes emerged, many of which have strong theoretical groundings: relationship with trainee; training awareness; humanism; training in theatre; contextualised learning; feedback; mentoring; and role modelling.

Discussion and Conclusions: A supervisor must have the ability to foster a good relationship with trainees and be sympathetic to their needs. Having a structured approach to teaching procedural skills during which the learning material is contextualised and constructive feedback provided is also imperative. Mentoring and role modelling provide suitable conduits by which many of these qualities can be demonstrated.

Take-home messages: Effective supervision is a multidimensional endeavour and good supervisors are required to adopt a variety of roles. It is important for training bodies to be aware of this when planning supervision arrangements for surgical trainees and when considering the training needs of potential supervisors.
#3K  Short Communications: Flipped Classroom

**Location:** Boisdale 1, SECC

**#3K1 (25728)**

Favoured pre-class preparation and associated learning strategies in a flipped classroom curriculum

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**Background:** A prerequisite for a successful flipped classroom curriculum is that students come to class well-prepared. The aim of this study was to explore which study materials entice students to prepare for in-class activities and how their mode of preparation relates to their learning strategies.

**Summary of Work:** Weblectures, clearly delineated texts in books and iBooks, online formative tests, scientific papers and additional readings were available for 40 students to prepare for in-class activities in two flipped classroom courses of a medical master programme. Students filled out weekly online questionnaires and a Motivation and Strategies for Learning Questionnaire about their use of study materials and their learning strategies, respectively. Descriptive statistics and correlation analyses were performed to determine to which extent materials were used and how preferences for study materials related to learning strategies.

**Summary of Results:** In both courses students reported that their pre-class activities were often limited to watching weblectures and reading defined texts. Watching weblectures correlated positively with the learning strategies "elaboration" and "regulation of study effort", but not with "organisation". No other reproducible correlations were found.

**Discussion and Conclusions:** The preferential use of weblectures and defined texts may be explained by the fact that students regard these sources as sufficient for active in-class participation. The neglect of other course materials may reflect students' perception of limited study time or students' habitual approach to learning acquired in previous courses.

**Take-home messages:** Weblectures and reading defined texts in (i)books are preferred sources for preparation but only weblectures help students to elaborate and regulate study effort.

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**#3K2 (25807)**

Flip your medical classroom, good practice recommendations

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**Background:** In a flipped classroom (FC) students perform lower levels of cognitive work at home, predominantly using weblectures, while class time is used to actively apply the acquired knowledge, supervised by teachers. Our aim was to develop good practice recommendations for FC in medical education.

**Summary of Work:** Four courses were flipped and the FC set up was iteratively refined based on student evaluations and questionnaires. Thereafter, good practice recommendations were collaboratively defined in a focus group with teachers and students.

**Summary of Results:** Recommendations for pre-class preparation include: limit pre-class work in volume and source diversity, delineate mandatory and optional work, use clear weblectures, provide overview and enough time for students to prepare. To facilitate the alignment and transition from pre-class to in-class work use worked examples or formative assessments, because the level of understanding achieved by watching a weblecture should not be overestimated. In-class recommendations include: use patient cases to apply knowledge in class, address complicated issues, and finish with a short recapitulation of main issues. In addition, time and support for teachers are crucial as is communication about the philosophy of FC.

**Discussion and Conclusions:** Our ongoing process of collaboratively developing good practices for FC in medical education yielded recommendations in three domains: general educational principles that proved crucial in FC, specific FC recommendations such as investment in clear weblectures and recommendations pertaining to change management, such as communication, time and support.

**Take-home messages:** Implementing FC requires solid educational basics, FC specific support and change management skills.
A Flipped Classroom for Neuroscience, The Pros and Cons

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Background: We have developed a Flipped Classroom for 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. There is an online mid-term and final exam. Our most popular in class session is when the student goes into the gross laboratory and actually handles human brains, and they also prefer chalk talks. The course runs for 14 weeks with 2 sessions per week. The student is required each week to begin the week by reviewing before class a brief online prerecorded PowerPoint presentation with audio or a video that introduces the student to the topic of the week. In addition each week there are two required 75 minute, in-class presentations on Tuesday and Thursday. The in-class presentation is a combination of a PowerPoint lecture, blackboard chalk talk, or an in class problem solving presentation with a case history for the students to analyze and determine where in the central nervous system is the lesion and what caused the lesion. There are weekly in-class lectures and the student is required to take weekly online a self-assessment quiz. Our most popular in class session is when the student goes into the gross laboratory and actually handles human brains, and they also prefer chalk talk.

Summary of Results: This Neuroscience Course we believe better engages the student and develops more completely their understanding of the functions of the central nervous system.

Discussion and Conclusions: Small group sessions with required pre-class sessions and weekly self-assessment quizzes make learning Neurosciences enjoyable.

Take-home messages: Flipped Classrooms require sufficient preclass materials for their success.
Reversed order: student activity first and lecture last

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Background: When students return to university for continued education, there must be challenges. When becoming a specialized primary care nurse in Sweden, students learn to examine common skin diseases and prescribe pharmaceuticals to treat them. The traditional teaching approach is to first have a medical doctor give one or two lectures and to perhaps, later, have discussions in small groups before an exam.

Summary of Work: To give students the opportunity to be more active, we reversed the above order of learning methods. The students first had to find facts about skin diseases themselves and write a text to be discussed in a seminar. In this new arrangement, the students had to seek knowledge themselves before meeting the expert in a lecture.

Summary of Results: All 23 students in the course were asked to voluntarily write about their learning experience in the above reversed order. Their mean age was 38 years and mean time working as a nurse was 7 years. A content analysis was conducted by two researchers. Findings showed that students learn when they: seek knowledge themselves and write it down, practice trusting in their own conclusions and arguing for and against various claims, and are prepared with knowledge of their own when they meet the expert.

Discussion and Conclusions: Students value seeking knowledge on their own, writing it down and discussing among themselves before meeting the expert.

Take-home messages: Students learn better when they are active. Experiment with letting students engage in their own activity and learning before the experts come to tell their versions of truth.

Challenges and opportunities of blended learning expected and experienced by teachers

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Background: Literature on blended learning often reports students’ experiences, but little is known about teachers. This study explored the relation between teacher expectations of blended learning and experiences when actually teaching a flipped classroom.

Summary of Work: After attending a workshop on blended learning 87 university teachers filled out a questionnaire about expected opportunities and challenges of blended learning for both students and teachers. Eight other teachers, who had taught a flipped classroom, were interviewed about the gains and drawbacks of this type of education. Two researchers individually clustered and coded the questionnaire answers and codes were discussed until consensus was reached. The set of codes was then used to analyse the interview data.

Summary of Results: Surveyed teachers expected the following opportunities for students and teachers: time saving, better results, monitoring progress, autonomy, interaction, motivation and personalised and qualitatively improved education. Expected challenges were reduced class time and technical problems for students and teachers, more discipline and workload for students and changing didactic techniques for teachers. Most anticipated opportunities and challenges were experienced when teaching a flipped classroom. Improved interaction, increased time and workload for both students and teachers and students’ (lack of) discipline were frequently mentioned.

Discussion and Conclusions: The majority of expectations concerning blended learning corresponds to flipped classroom experiences. Interviewed teachers did not mention monitoring students’ performance and personalised education.

Take-home messages: The flipped classroom does provide the expected opportunities. The main challenge to successfully implement a flipped classroom is increased workload for both students and teachers.
#3K7 (27204)

Students' perspective of the flipped classroom

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Background: Students at the School of Medicine of the University of Buenos Aires attend the Family Medicine course in their last years. Usually, they receive traditional classes including lectures and individual and group activities. Experience with flipped classes is scarce in Argentina.

Summary of Work: In 2014 we redesigned the course into a flipped classroom model. Forty students received the flipped course (FC) between March and June. A self-administered survey was conducted to evaluate the students' satisfaction with this teaching strategy in comparison with traditional classes (TC). The questionnaire consisted of 7 questions exploring the following dimensions: integration of contents, room for questions, availability of material, need of previous reading, teacher as tutor, interaction among teachers and students. A 5-point Likert scale was used.

Summary of Results: All the 40 students responded the survey, 80% were female, 25 to 28 yrs old (average age 26 yrs old). The average scores for was FP and TC were 3.9 vs 2.5 (integration); 4.6 vs 2.7 (room for questions); 4.6 vs 2.5 (availability); 4.4 vs 2.5 (previous Reading); 4.3 vs 1.6 (role of the teacher); 4.7 vs 1.7 (interaction with teachers); 4.5 vs 1.9 (interaction with other students). All p values were <0.05. Cronbach’s Alpha 0.9.

Discussion and Conclusions: Most of the students expressed a high level of satisfaction with the FC strategy compared with the traditional model, including aspects related to opportunities to clarify concepts, higher possibility of content integration, better communication with teachers, and developing skills to work in groups.

Take-home messages: Students valued the flipped classroom model more than the traditional classroom.

#3K8 (28015)

Flipping a Clinical Module: Jumping the Hurdles

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Background: Previous work highlighted students’ feelings of isolation and being overwhelmed by online content. Therefore in restructuring the Year 4 Paediatric module we wished to develop a new course that represented a true integration between online classroom and ward – blended teaching not blended delivery.

Summary of Work: The course was modified to restructure the teaching week and divide learning content into topics. New content was planned to complement existing talks creating an integrated online provision. Key to this was flipping lectures, putting didactic elements online freeing the face-to-face session for in-depth discussion.

Summary of Results: An early hurdle was the difficulty scheduling clinicians to attend the recording studios. The solution was to take cameras to the hospital site allowing clinicians to fit recording with their daily schedules. Tight timelines meant juggling recordings with building online content. Training a F2 doctor to do recordings freed time for development. Problems with consent and variable quality of historic media were addressed by the F2 doctor filming new materials and consenting on the wards.

Discussion and Conclusions: The new course includes seven flipped lectures. An emphasis on integration between online and face-to-face content reflects a truly blended approach. A clearer, better signposted course and enhanced clinician engagement in the teaching process are some of the positive outcomes.

Take-home messages: An evaluation is being undertaken currently through focus groups with both students and teachers and this data will be available for the conference.
Google Glass™, a valuable tool in education?

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Background: Google Glass is a head mounted computer with multiple capabilities, including a screen visible in the user’s field of vision, allowing interaction that isn’t normally possible.

Summary of Work: We have started an educational program, Virtual Medics, to help determine areas in which Glass will have added value. Having conducted the first interactive surgical teaching session using Glass, live to over 13,000 people in 112 countries, our program has grown from interactive broadcasts, to recordings and clinical skills. Barts and The London School of Medicine and Dentistry is the first outside of the US to embed Glass into the curriculum. We’ve received good feedback when used for reflection in both high-level postgraduate prehospital and undergraduate communication training. New projects include auditing of A&E trauma calls and building an interactive library of OSCE videos.

Summary of Results: Live surgical teaching has been met with positivity by students (69% prefer it to being unscrubbed, 35% to scrubbed and 93% want it in the curriculum). Communication, clinical skills and prehospital trauma moulage uses have been well received, particularly for reflection upon human factors.

Discussion and Conclusions: Students and Trainees have responded well to the educator’s point-of-view, and appreciate the educational benefits when combined with interactivity allowed by the screen. Work needs to continue in determining areas in which Glass can add value, and to further embed those we have already found.

Take-home messages: Glass gives a superior point-of-view teaching resource, while also allowing interactivity with students, providing a unique opportunity to bring the operating theater or classroom to the student.
Towards a common surgical training program: from basic surgical skill to advanced procedures

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Background: Over 30 years, the different surgical specialty programs had extensively used virtual and experimental resources to accomplish their training tasks. To reach a consensus, different surgical departments were requested to establish a common training program with gradual surgical skill levels of complexity.

Summary of Work: The program was divided into common basic skill level (1st-year residents), medium level to approximate at complex procedures (2nd-year residents, and consolidation level in same procedures (3rd-year residents). The learning scenario was shared between residents and teachers from different surgical specialties. The schedule of daily activities allowed teachers of each specialty to train other specialties-residents. Each level was conducted with a first-step e-learning, followed by simulation training and testing of learning by solving exercises in virtual training room and experimental theater.

Discussion and Conclusions: The training program allows improving the learning curve of the residents in a secure environment, and to establish a common criterion of teaching quality in surgery. The review process of the common training program has defined several improvement areas, such as the competency assessment and a more efficient use of resources.

Take-home messages: The design of training activities focused on common training allows to knowledge integration from multidisciplinary areas in medical education.

Methods of Effective Clinical Teaching in Surgical Specialty

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Background: Effective clinical teaching in surgical specialty is a challenge due to variable contributing factors. To increase student satisfactions and improve overall teaching standards in the surgical specialty, changes has been implemented to deliver effective clinical teachings in the surgical undergraduate curriculum.

Summary of Work: Changes were implemented to the surgical undergraduate curriculum in collaboration with the University of Glasgow from September 2010. The progress of the changes made were monitored through national student survey in Scotland annually from 2010 to 2014. All the consultants in the surgical department were interviewed and only four out of twelve consultants were genuinely interested and included in the dedicated teaching activities for medical students.

Summary of Results: Over a period of 4 years from 2010 to 2014, student feedbacks were collected through a national student survey in different departments. The level of overall student satisfaction are colour coded ranging from the lowest satisfaction of red, orange, white to highest satisfaction, green. In 2010, the overall student satisfaction in surgery department, WIG is in the orange category. In 2014, the overall student satisfaction improved to green category after the implemented changes.

Discussion and Conclusions: Efficacy in surgical-based clinical teachings can be improved with dedicated teachers, an organised teaching team, introduction of teaching fellow and learner-focused teachings via consultants feedbacks. WIG has clearly demonstrated with these recommended changes in the practice of teaching delivery is achievable despite busy surgical-based clinical settings.

Take-home messages: Identifying enthusiastic teachers and setting up a dedicated teaching team would effectively maximise learner-focused teaching whilst minimising disruption in busy clinical settings.
Development of emotional competency under integration of surgical and psychological sciences: Dealing with stress, burnout and self-reflection in the undergraduate curriculum

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Background: Surgeons exhibit a risk of suffering from psychosocial distress-symptoms between 18 and 82%. Consequences are health risks, an increased risk of treatment errors and affects clinical reasoning. Main aim is to establish a didactic concept to train stress reduction and emotional competencies among students.

Summary of Work: A new course was initiated integrating psychological and surgical teachers. According to the FAIR principles, it was designated to show the relevance of being part of a team, to manage and to communicate. Learning goals: 1. Name/explain risks among surgeons (regarding the “demand-control-model”); 2. Name/explain alternative behaviour; 3. Define surgeon’s attitude; 4. Plan for behavioural changeDidactic concept: Frame A: Background information and watching videos on the objective; (e.g. youtube. medizinilie; generation y shift); Plenary part: Risk for a surgeon; Individual part: Individual risk; Plenary: Theory on health behavior (HAPA); Individual: Integration of aspects in practice; Plenary: The omniscient doctor vs. human imperfection; Frame D: Change of individual behaviour

Summary of Results: Most students’ results showed satisfying improvements concerning knowledge about certain health-behaviour risks, risk-perception and strategies minimizing these risks (e.g. utilization of social support referring to the HAPA-model).

Discussion and Conclusions: The results are encouraging for a further development of this concept.
Medical students’ career intentions for surgery: a study of demographic and curriculum influences

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Background: Medical students’ career intentions toward surgery have been shown to be influenced by a number of factors including gender, mentorship, and work-life balance concerns. A revised curriculum was implemented aiming to improve self-directed learning and encourage integration of basic science and clinical practice. The aim of this study was to examine the differential impact of programme curricula (traditional versus revised) and student demography on career intentions for surgical or non-surgical specialties.

Summary of Work: The comparative cohort study involved the comparison of two classes (class of 2012 and 2013) under different undergraduate medical programme curricula at The University of Auckland. Measures included type of curricula, demographic characteristics and career intention.

Summary of Results: 16% of study participants reported a career intention for surgery, 39% a non-surgical specialty, and 45% were unsure of specialty. Gender was found to have a significant impact on career intention. 60% of students who reported an intention for surgery were male and 40% were female. In comparison, those with an intention for non-surgical specialty or unsure of career intention were predominantly female (59% and 56%, respectively). There were no significant main effects with respect to career intention and a revised curriculum.

Discussion and Conclusions: Consistent with previous studies, an association between gender and the career intention for surgery was demonstrated. However, a significant proportion of students were unsure of their career intention. No significant association between type of curriculum and career intention was found.

Take-home messages: While medical students’ career intentions for surgery are not associated with changes in curriculum, the association with gender remains consistent.

Dream Team: An undergraduate surgical talent development project

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Background: Dream Team is an extracurricular surgical talent development project founded at Aarhus University Hospital in 2009. It contains: 1) A weeklong course, where app. 20 students acquire basic surgical skills and laparoscopic techniques. The course is completed with a final individual test. 2) Identification of the 8 best medical students from the week-course, who will enter a 4-month mentorship program at a surgical department. During the mentorship the students will be in the operation room at least once a week and participate as their skills allow.

Summary of Work: This study presents the structure of the Dream Team and the students’ evaluation, gender and grades will be analyzed. Furthermore, this study discusses the values of the Dream Team, based on existing literature in expertise, talent and giftedness within surgery, academia, music and sport.

Summary of Results: 168 students participated in the week-course and 68 participated in the mentorship course. The selected students evaluated the week-course and the mentorship and evaluations were mostly positive. The gender difference in the project doesn’t correlates with the gender difference at the medical school.

Discussion and Conclusions: Dream Team differs from similar pre-graduate programs as it selects the most talented students. However, further research is needed in order to evaluate the selection into and learning in the mentorship. Throughout the study a consistent positive evaluation was noted.

Take-home messages: The extracurricular project differs from similar skill acquisition projects, as it aims to identify and develop only the best students. This study presents an evaluation and analysis of the project.
#3M Short Communications:
Curriculum Evaluation

#3M1 (27443)
Value of faculty feedback to inform program evaluation of a curriculum pilot

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Background: AO Trauma piloted a new competency-based curriculum for surgeons managing pediatric orthopedic trauma in an intensive 5-day course, incorporating a range of program evaluation approaches. According to Kern’s 6-step approach to curriculum development (Kern DE, et al, 1998), formative program evaluation, e.g. by soliciting qualitative feedback from faculty, provides the opportunity to attain specific suggestions for improvement of the performance of the program and to detect unexpected strengths and weaknesses in the curriculum.

Summary of Work: The design of the program evaluation included the deliberate and systematic collection of feedback from 12 faculty members, both in informal discussions at the end of each course day and with the implementation of a questionnaire.

Summary of Results: Feedback was provided on content, congruence of outcomes and instructional methods, faculty support, and logistics. Analysis of the results will be translated directly into iterative improvement of the curriculum. More than half the faculty expressed willingness to collaborate on a faculty support package, such as developing educationally sound cases for small group discussions.

Discussion and Conclusions: Not only did the intervention provide crucial information to guide further development of the curriculum, but also added value by gaining the buy-in and support for the curriculum of these key faculty members.

Take-home messages: 1. Feedback from faculty provides particularly valuable qualitative evaluation data for curriculum improvement, as according to Kern; 2. Added value is the buy-in and specific support that faculty can offer.

#3M2 (27645)
At what level our recent graduates feel competent on revised curriculum outcomes: a graduation survey to improve curricular practice

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Background: The undergraduate program outcomes of Yeditepe University Faculty of Medicine were revised in the year 2013, after an evaluation period which included the opinions of internal and external stakeholders of medical education. 47 program outcomes were defined under seven roles namely; (1) physician at primary health care level, (2) leader and manager at primary health care level, (3) advocate of health for community and individuals, (4) ethical medical practice, (5) communicator and collaborator with all stakeholders, (6) researcher and scholar in medicine, (7) effective career manager.

Summary of Work: The aim of this study is to assess the self-perceived competency level of recent medical graduates on revised curriculum outcomes and improve the curricular practice at weak points. A questionnaire including socio-demographic variables and 47 items related to competencies were applied to all 50 graduates. The graduates rated each item on a ten point categorical scale from least to highest competency level. This study is the first application of a longitudinal study.

Summary of Results: The internal consistency of questionnaire was high (Cronbach’s Alpha 0.974). The average scores of competencies under the role of researcher and scholars were the highest (7.41±1.72327) while the graduates feel least competent in the leadership and managerial role competencies (5.69±1.97134).

Discussion and Conclusions: We conclude that the results should be considered in the continuing revision process of undergraduate medical education program as a whole.

Take-home messages: Graduates surveys aiming to obtain students ratings of their competency levels, are important instruments in evaluating undergraduate medical education.
Persona driven redesign of Education and Training system

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Background: The National Healthcare Group (NHG) is undergoing change to improve the accessibility, affordability and quality of healthcare through population health. The NHG leadership has identified a need to redesign the way education and training takes place in order to prepare the current and future workforce to meet the challenges of healthcare delivery.

Summary of Work: We describe a Persona driven user-centred design methodology to understand the interactions between the education system and users in the current state. Personas were created through a series of workplace observations and individual interviews with staff, faculty, students and patients. Information was extracted from the interviews to create a Journey Map demonstrating the challenges faced by staff, faculty, medical students and patients posted to the hospital.

Summary of Results: Through the use of Personas and Journey Maps, the team was better able to understand the individual users and stakeholders in the education and training system, as well as the challenges and needs they faced. Analysis identified ward rounds and clinics as important locations where unique challenges arose when faculty and students interacted with the clinical environment.

Discussion and Conclusions: The use of user-centred design principles to create Personas and Journey Maps of students experiences offers an interesting way to understand the challenges students and faculty face in the process of undergraduate medical education. We intend to repeat the process for the medical residents, nursing and allied health students to better understand the unique challenges faced by these learners. This will enable us to create a future state that is aligned to the needs of both faculty and learners.

Take-home messages: The use of user centred design through the creation of personas and journey maps provides a insightful methodology to redesign educational systems and processes.

Fulfilling the curriculum gap and understanding a culture: why do so many medical students attend extra revision courses?

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Background: Students attend medical school for up to 6 years and pay a significant amount on tuition fees. Despite this, there is a culture to attend extra fee-paying revision courses, outside the working week. This is a large industry and one that casts several questions on the current undergraduate curriculum, and a need to define the pushing and pulling factors towards these courses.

Summary of Work: We delivered 2 out-of-hours weekend courses for students preparing for finals: a mock examination consisting of circuits with patient volunteers; and a small group revision course covering taxing topics. We evaluated: 1. Student motivations to attend each course. 2. Which course preferentially served to improve confidence in each domain and deliver on the students’ needs.

Summary of Results: Both courses were over-booked and attended by 47 students. Motivating factors were similar for each course. Themes included: feeling ill-prepared for exams; inadequate exposure to patients with signs; presentation practice; curriculum gaps; understanding of how examinations run; and a desire to have near peer teaching. There were significant improvements in confidence in all domains for both courses, however this was more pronounced for those attending the revision course.

Discussion and Conclusions: We address an important issue and served to understand further what the missing ingredient is from medical school that drives students to book extra courses.

Take-home messages: There are clear merits of mock and revision courses and universities may need to understand further the pushing and pulling factors that are driving students to attend these extra courses.
#3M5 (28135)
Limits of Kirkpatrick-type frameworks for evaluating impact of medical education

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Background: Kirkpatrick's four level evaluation model, and the more recent frameworks grounded on this model (e.g., Moore, 2008), have had a major influence on evaluation practice in medical education. Although it has successfully encouraged greater emphasis on educational outcomes beyond participant reaction and learning, this framework, like any evaluation model, has its limitations. It is based on a number of assumptions that may not hold in many situations, reducing its utility as a universal framework for outcomes evaluation.

Summary of Work: This presentation will review Moore's (2008) framework as an example of a Kirkpatrick-type approach, discuss the framework as a theory of causation, identify several key assumptions (e.g., the change process begins with the educational intervention, change is effected through a focus on the individual learner, change consists of the application of scientific evidence, practice change is a suitable criterion for evaluating the worth of any educational intervention), and examine evidence that challenges these assumptions.

Summary of Results: Alternative evaluation frameworks, such as Pawson and Tilley’s (1997) Realistic Evaluation and Chen’s (1990) Theory-Driven Evaluation, can be used to complement Moore’s framework.

Discussion and Conclusions: A framework that rests on assumptions that are not universally valid can lead to mistaken judgements about the value of an educational activity and perpetuate misunderstandings about how educational interventions contribute to change in clinical practice.

Take-home messages: Step-wise evaluation frameworks may neglect useful insights regarding the contribution educational activities make to changing behaviour.

#3M6 (23575)
Satisfaction of the graduates from Royal College of Surgeons of Ireland-University of Bahrain RCSI-UOB; Feasibility and Psychometric analysis for the graduate survey

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Background: To assess the satisfaction and preparation levels of graduates of the Royal College of Surgeons of Ireland University of Bahrain (RCSI UOB).

Summary of Work: The graduate survey was administered to four groups of graduates of the RCSI UOB who graduated between the years of 2010-2014. The graduate survey assessed five major domains and was comprised of 49 items. The RCSI UOB opened its doors in 2004, with the first class graduating in 2010.

Summary of Results: Out of 599 graduates, 153 responded to the graduate survey. The total mean response rate of the graduate survey was 26%, including 102 females, 44 males, and 7 students who did not indicate their gender. 49 students graduated in 2012, and 53 students graduated in 2013. Of these graduates, 83 were working in Bahrain at the time of survey administration, 11 in the USA; the total number of countries where graduates were working was 14. Reliability analysis found high internal consistency for the instrument (with a Cronbach’s α of 0.97). Factor analysis showed that the data on the questionnaire decomposed into five factors, which accounted for 72.3% of the total variance: future performance, career development, skills development, graduates as collaborator, and communication skills.

Discussion and Conclusions: The survey results found that graduates of the RCSI UOB program are generally satisfied with their experience at the university and feel well-prepared to join the field and to compete with graduates of competing universities.

Take-home messages: Graduates of the RCSI UOB program are generally satisfied with their experience at the university.
#3M7 (26131)
Final-year medical students’ reflections on their clinical learning experience in urban and rural settings

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Marietjie de Villiers, Stellenbosch University, Centre for Health Professions Education, Tygerberg, South Africa

**Background:** The potential for rural clinical training to provide transformative learning experiences for undergraduate medical students has been previously described. A five year evaluative study tracked successive cohorts of medical students who opted to spend their final year at a rural clinical school. A three-dimensional model, comprising ‘person’, ‘participation’ and ‘place’ was developed to explain the students’ experience. It was then decided to explore the applicability of the model for students at the urban academic hospital.

**Summary of Work:** Building on the cohort analyses of the rural students, four focus group discussions were conducted with final-year urban trained students (n=37) to explore their perceptions of their clinical learning experience. Transcribed data were analysed thematically. Using the model as framework, emerging themes were mapped according to the three dimensions.

**Summary of Results:** The urban trained students were generally appreciative of their learning opportunities, but were critical of the quality of their clinical exposure. Key themes were workload; optimalisation of time; the role of preceptors; differences across disciplines and concern for the patients.

**Discussion and Conclusions:** Each of the themes could be situated within the model, but provided an interesting counterpoint to the rural clinical school findings. There were instances of similarity, such as students’ empathy with patients and appreciation for generative relationships, and difference, in their responses to the environment. The results yielded important insights into transformative learning in both rural and urban settings.

**Take-home messages:** Research into students’ clinical learning during extended rural placements can provide useful frameworks to explore and compare experiences in more conventional urban settings.

#3M8 (27899)
Factors perceived to prepare health science graduates for work in Uganda - a case study of recently-qualified pharmacy graduates

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Daniel Semakula, Makerere University, College of Health Sciences, Kampala, Uganda
Michael Ross, The University of Edinburgh, Centre for Medical Education, Edinburgh, UK

**Background:** Work-based training has a positive effect on graduates’ transition into employment and practice. Under-preparedness for work, among university graduates, may lead to incompetency, and employer dissatisfaction. This study aimed to explore the factors perceived to prepare health science graduates for work in Uganda.

**Summary of Work:** Semi-structured interviews were conducted among recently-qualified (< 2 years of work experience) pharmacy graduates working in various health settings of Uganda. Thematic analysis was conducted using NVIVO 10. Institutional ethical approval was granted.

**Summary of Results:** Eleven (n=11) participants, including six males and five females, of average age 26 years (min, 24, max 28), were interviewed. The majority (72.2%, n=8) of participants were working in community pharmacies. They had attended one of the three pharmacy schools in Uganda. Most pharmacy graduates felt moderately prepared for work. Preparedness was perceived to be situational and dependent on the work setting. Experiential, work-based learning, and direct supervision, during undergraduate training, were perceived to enhance graduates’ preparedness for work.

**Discussion and Conclusions:** This study revealed that supervised, work-based learning, during undergraduate pharmacy training, is perceived to better prepare graduates for practice. These findings are comparable to other studies which suggest that graduates feel better prepared for employment if they have trained in similar work settings.

**Take-home messages:** Institutions of higher education in developing countries, such as Uganda, need to recognize the importance of work-based learning for undergraduates in training, so as to better prepare them for practice.
#3N  Short Communications: Student Characteristics
Location:  Carron 2, SECC

#3N1 (25997)
“Diving in the deep end”: postgraduate medicine attracts learners with a ‘deep’ approach
Kylie J Mansfield*, University of Wollongong, Graduate School of Medicine, Wollongong, Australia
Lyndal Parker-Newlyn, University of Wollongong, Graduate School of Medicine, Wollongong, Australia
Gregory Peoples, University of Wollongong, Graduate School of Medicine, Wollongong, Australia

Background: Deep approaches to learning are beneficial for academic success. We previously reported that postgraduate medical students use deeper learning approaches than undergraduate science students, possibly due to science curricula rewarding a shallow approach. The aim of this project was to compare the learning styles of medical school applicants to current science and medical students.

Summary of Work: The study process questionnaire (SPQ) was administered to University of Wollongong (UOW) science students, medical students, and applicants selected for medical school interview. Survey results characterised study process as deep or shallow and were compared across the groups (ANOVA).

Summary of Results: The learning approach of science students was shallow compared to medical students (P<0.0001). Applicants’ approach was similar to medical students’ with a high score for deep and lower scores for shallow learning strategies. In the applicant group, those who reported deeper approaches to learning tended to achieve higher interview scores. There was a corresponding correlation between lower interview score and shallow strategy (P=0.003).

Discussion and Conclusions: These findings demonstrate students who interview for medicine at UOW have a deeper learning approach than those studying science, and their overall approach is similar to those accepted into the course. Perhaps age and life experience facilitates a deeper learning approach; other admissions processes may select applicants with these characteristics. Further study to link learning styles, applicant characteristics and selection tools is planned.

Take-home messages: There is something inherently different in the students applying for medicine that predisposes them to have a deeper learning style.

#3N2 (25580)
Identifying and addressing bias in medical students
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Ricci Harris, University of Auckland, Te Kupenga Hauora Maori, Auckland, New Zealand
Donna Cormack, University of Auckland, Te Kupenga Hauora Maori, Auckland, New Zealand
Elana Curtis, University of Auckland, Te Kupenga Hauora Maori, Auckland, New Zealand
Cameron Lacey, University of Otago, Maori & Indigenous Health Institute, Christchurch, New Zealand
James Stanley, University of Otago, Department of Public Health, Wellington, New Zealand

Background: Health professionals’ beliefs and attitudes (bias) can influence healthcare interactions and clinical decision making, and contribute to racial and ethnic inequalities in health. Medical education has an important role to play in addressing the impact of these biases and reducing health care inequities. This paper presents work undertaken as part of an international project that seeks to improve indigenous health through advances in medical education. It focuses on the measurement of implicit and explicit bias among medical students, and reports the rationale, process and implications for medical education.

Summary of Work: We undertook a literature review focusing on the role of bias in health care disparities, tools for measuring bias and educational interventions to address bias. We undertook a survey of final year medical students at the two New Zealand medical schools, which sought to elicit their feelings, attitudes and beliefs about Māori (the indigenous population) and Māori health.

Summary of Results: Implicit and explicit biases are important contributors to health professional practice and clinical decision making. A valid and acceptable tool was developed to measure bias and its expression.

Discussion and Conclusions: Measuring, addressing and monitoring explicit and implicit bias and associated clinical decision making is an important aspect of cultural competence curricula in medical education.

Take-home messages: Bias among health professionals can contribute to racial and ethnic inequalities in health care. Measuring bias can provide an important basis for interventions in medical education curricula, and for longitudinal monitoring of bias and its expression in clinical practice.
#3N3 (27554)
Higher cognitive skills correlated with first semester grade point average

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Usha Satish, SUNY, New York, USA
Mantosh Dewan, SUNY, New York, USA

**Background**: Medical student attrition is an important problem and the majority of attrition is due to poor academic performance. Previously, we found that three higher cognitive skills (HCS): crisis response, information management, and task orientation, had moderate to high correlations with first semester grade point average (GPA) in second semester volunteers; however, by second semester approximately 10% of matriculates had attrited were not assessed. The purpose of this study was to determine if HCS measured at matriculation correlated to first semester grade point average achieved four months later.

**Summary of Work**: 105 matriculating students at a US-style medical school completed a required computer simulation to assess their higher cognitive skills in scenarios that did not require medical knowledge. Student performance was measured on seven HCS: basic activity level, task-orientation, information management, initiative, breadth of approach, strategy and crisis response. Performance on these measures was correlated to first semester GPA.

**Summary of Results**: When correlated to first semester GPA, HCS with a Cohen’s effect size between small and moderate included basic activity level ($r=0.12$), task orientation ($r=0.10$), information management ($r=0.15$), breadth of approach ($0.25$), and crisis response ($0.13$).

**Discussion and Conclusions**: Crisis response, information management, and task orientation remained positively correlated in this non-volunteer cohort that had not yet experienced any attrition; however the correlations were weaker than in our pilot study. Breadth of approach emerged as a potential predictor in this cohort.

**Take-home messages**: Higher cognitive functions, as measured by computer-based simulations, deserve further study to determine their value in predicting early academic performance in medical students.

#3N4 (23972)
The resilience factor: How to persist in a challenging environment

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**Background**: During the last few years an increasing number of members have requested workshops concerning stress and stress management. Partly because there is a time limit in Denmark for becoming a specialist and partly because the the learning environment is perceived increasingly more competitive and less supportive.

**Summary of Work**: Consequently we have developed a workshop about resilience factors in order to look at the factors that may prevent stress among junior doctors, and to facilitate resilience so that junior doctors can help each other to expand and strengthen resilience factors.

**Summary of Results**: In the workshops we present five resilience factors and the participants discuss and work in small groups with different exercises in order to find and strengthen their own resilience factors. Furthermore we emphasize the mutual responsibility for each other.

**Discussion and Conclusions**: The participants are very satisfied to find that they themselves contain the resilience factors that are necessary to cope with a challenging environment AND to provide more to the community.

**Take-home messages**: Stress is an individual problem, but the responsibility for stress on hospital wards is shared. It is crucial that this point of view shows through the whole workshop so that the participants are fully aware of the fact that they are not responsible for their stress.
Differential Item Functioning Analysis of the Readiness Scale for Clinical Training

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Background: The Readiness Scale for Clinical Training measures the perceived readiness of pre-clinical students. Differential Item Functioning (DIF) analysis of items in this scale will identify items favoring specific groups that may affect its validity.

Summary of Work: Differences in readiness scores of students grouped by gender, year level, and academic performance were measured. The scale was administered to first and second year dentistry students and DIF analysis was done to identify items favoring males, students with above average academic performance, and higher year level.

Summary of Results: 295 scales were returned. 5 items showed large magnitude DIF based on gender. Two items showed large magnitude DIF based on academic performance (self-reported GWA). Eight (8) items according to year level, showed DIF with one item showing large DIF magnitude.

Discussion and Conclusions: DIF of items based on gender may be due to differences in perceptions on clinical training among males and females. DIF in items favoring students with above average academic performance may be due to awareness of learning in high achieving students, resulting to higher levels of readiness. DIF of items favoring higher year level students may be due to exposure to courses requiring owning dental materials, making them more ready than lower year level students. Logical and content analysis of these items is recommended to determine the source of DIF for deciding to delete or retain them.

Take-home messages: Items in scales like the Readiness Scale for Clinical Training should undergo DIF analysis to identify items showing signs of bias so these may be modified to improve the tool’s validity.

How do processes of mentor-student interaction translate to the development of self-directed and reflective learning? The mentors’ perspective

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Background: In medical education, students need to acquire skills to self-direct(ed) learning (SDL), to enable their development into self-directing professionals with broad competencies. A formal mentoring system and portfolio are often used to guide students in development of SDL skills. This study addressed the mentor perspective on how mentor-student interaction, a portfolio and mentor coaching skills influenced development of SDL skills.

Summary of Work: n=22 experienced mentors of a graduate-entry medical school were interviewed. In the program, students are instructed to use a specifically designed digital portfolio to reflect on assessment results, feedback and personal development. Mentors received training in coaching skills. The interviews were analysed using theory-based thematic analysis, in which a succession of coding templates and hierarchically structured themes, were applied.

Summary of Results: Mentors perceived that critical incidents, assessment results and reflection in the portfolio and their own role awareness gave opportunities to address and coach students’ SDL skills. Tensions were perceived with respect to portfolio assessment and guidance. If e.g. assessment/feedback results were below expectations, mentors indicated that this dominated the interaction, and mentor coaching became more directive, with less student input. All mentors indicated that the development of their own coaching skills positively influenced the development of students’ SDL skills.

Discussion and Conclusions: The mentors’ perspective on coaching and development of SDL skills of medical students yielded important insights on the processes during mentor-student interaction that can positively or negatively influence students’ SDL.

Take-home messages: Coaching skills of the mentor and a portfolio are important factors in mentor-student interaction that can translate to students’ SDL skills.
#3O Short Communications: Student stress and related problems

Location: Dochart 1, SECC

#3O1 (24858)
Stress in medical school – can we predict who is vulnerable?

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**Background:** Individual student responses to the stressors of medical school vary significantly. The goal of this study was to determine whether coping styles and stress levels of students in preclinical training predicted chronic and posttraumatic stress levels during 4th year of training.

**Summary of Work:** In 2012, the Perceived Stress Scale (chronic stress), the Impact of Event Scale Revised (posttraumatic stress), and the Coping Inventory for Stressful Situations (task, emotion and avoidant oriented coping styles) were administered to 47 2nd year medical students in a large urban Canadian medical school. In 2014, the same instruments were administered to the same cohort of students during their 4th year of training, with 33 students completing the survey the second time.

**Summary of Results:** Stepwise regression analyses show that the students’ self-reported chronic stress levels in their 2nd year of training was the sole predictor of later stress levels, predicting 37% of the variance in chronic stress (p<.01) and 53% of the variance in posttraumatic stress (p<.01) levels during their 4th year. Neither early coping styles nor posttraumatic stress levels were predictors of later chronic or posttraumatic stress (all β = -.14 to .12, p values = .33 to .95).

**Discussion and Conclusions:** Stress responses of medical students early in their training are strong predictors of the severity of later stress and posttraumatic stress levels. As such, interventions aimed at identifying and supporting vulnerable students should be targeted to the early years of training.

**Take-home messages:** Students with higher stress in preclerkship should be identified and actively followed with stress management interventions throughout training.

#3O2 (26107)
Burnout and stress in medicine in France: what challenges for Schools of Medicine?

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Marie Pierre Tavolacci, Rouen University Hospital, Rouen, France
Benoit Veber, Rouen Medicine School, France

**Background:** Medical students experience stress and burn out, and mental illness at a higher rate than the general population. The objective was to characterize the burn out and stress and to identify associated factors among medical students.

**Summary of Work:** A cross-sectional study was conducted in medical students in pre graduation (from 4th to 6th). In France, at the end of the 6th year (in June), there is the National Ranking Examination. An anonymous self-administered questionnaire was used. The burn out was measured using the Maslach scale, which addresses three scales: emotional exhaustion (burn out), depersonalization and personal accomplishment.

**Summary of Results:** A total of 542 students were included (response rate: 88.0%), including 388 students in 4th and 5th year and 3 and 154 students in 6th year (28.4%). The mean age was 23.1 years (SD = 1.6), sex ratio M:W=0.73. The average stress was 18.0 (SD=6.6) among 4th and 5th students and 19.4 (SD = 6.9) in the 6th year students (p = 0.03). In the 6th students, 33.6% presented a high level of burn out versus 27.5% in 4th and 5th students (p=0.004). A high level of burn out was significantly associated with stress (AOR=1.45, 95% CI=1.35-1.53; p <10-4) and working hours (AOR=1.13, 95% CI=1.05-1.19; p = 0.002).

**Discussion and Conclusions:** The prevalence of burn out is high among medical students, especially for those in 6th year, preparing the national examination. Burn out can have personal and professional consequences. These results suggest that new approaches may be needed to reduce the stigma of depression and to enhance its prevention, detection, and treatment.

**Take-home messages:** There is a high level of burn out and stress in medical students. Schools of medicine have new challenges for prevention and management of psychological distress.
Capturing the student experience

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Presenter: Menaka Jegasthesan*, Kent, Surrey and Sussex Deanery, Surrey, UK

Background: The Higher Education Authority initiative ‘Developing an Inclusive Culture in Higher Education’ inspired this project, to identify with students any inclusion issues they felt inhibited their learning.

Summary of Work: Initial student questionnaires showed that 53% of the respondents reported behaviours or styles that would hinder their learning and 33% reported seeing or experiencing bullying behaviour. A qualitative research project was initiated to explore issues in more depth using focus groups and individual interviews. All data was transcribed and analysed and from this, we created scripts using the student narratives to create a film.

Summary of Results: Three main themes were identified in our analysis: improving the teaching environment, integration of overseas students, and issues surrounding complaints procedures. Students reported concerns about lecturing, unprofessional behaviours such as public interrogation and bullying questioning styles, specific discriminatory behaviours, and being made to feel unwelcome and neglected. There were also some good examples where students felt respected and included by both clinicians and tutors.

Discussion and Conclusions: Creating confidential, safe environments for students to give anonymous feedback as part of the research project led to insightful student comments on role-modelling and discriminatory behaviour that could have a detrimental effect on student inclusion and retention. The film that was created has become an invaluable and forceful tool for engaging both staff and students in a process for change.

Take-home messages: Using research to create a film based on student narratives can be a powerful way to generate discussion and motivate both staff and students to address important inclusion issues.

Is dating-gender violence accepted as a societal “norm” by college students from Universidad Nacional Autónoma de México (UNAM)? A comparative study

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Background: Dating-gender violence is a social and public health problem. It is a serious and pervasive problem among college students.

Summary of Work: Our objective was to find out whether societal legitimising of dating-gender violence was accepted by college students from five schools at UNAM (53.4% men, 46.6% women, mean age 19 year old). Methodology: we carried out an exploratory cross-sectional descriptive study in a non probabilistic sample of 146 medical, engineering, psychology, philosophy and accounting students. We collected information through a questionnaire and performed statistical analysis using SPSS version 20 and proved at 5% level of significance differences by sex/gender and school using Chi-square.

Summary of Results: Approval of legitimising dating-gender violence share for women and men of all groups are shown: Categories, agreement of total population (male and female in %) and agreement of medical students (male and female in %):

1. Jealousy is a token of love : 74.4, 41.2 (p=<0.000); 35.7 and 0
2. Insulting your partner is normal: 61.5, 42.6 (p=0.02); 0.0, 0.0
3. It is valid to impose rules in a dating relationship : 69.2, 50 (p=0.017); 42.9, 66.7
4. Pinching, biting, pushing are normal as a game: 39.7, 29.4 (p=0.19); 28.6, 16.7
5. It is valid to criticize the look, the outfit and the way of thinking of your partner : 14.1, 23.5 (p=0.014); 35.7, 0.0

Agreement in ten more features were present only among accounting students. Some differences were found by school.

Discussion and Conclusions: Dating-gender violence is determined by inequity and unequal power gender relations, the meaning is different, more men than women accept male domination and women subordination.

Take-home messages: Gender perspective is necessary to study and prevent dating-gender violence.
#3O5 (27385)
Evaluation of an integrated mindfulness and lifestyle program

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Chris Skinner, The University of Notre Dame, School of Medicine, Fremantle, Australia

Background: There is growing concern within the medical community regarding poor physician wellbeing. The University of Notre Dame Australia Fremantle, Graduate School of Medicine, examined strategies to include in the course to facilitate medical student acquisition of effective self care and stress management skills.

Summary of Work: An integrative mindfulness and lifestyle program, based on the work of Dr Craig Hassed (2009), was identified as being a comprehensive and evidenced-based intervention to pilot. In 2014, the six week ESSENCE+ Wellbeing Program was introduced in semester one of the first year of the four year course and evaluated, in a semi-formal fashion.

Summary of Results: Initial evaluation results collaborated published reports that such training for medical students was beneficial in terms of reducing negative emotions and stress, enhancing mindfulness, and facilitating empathy and self-compassion. In early 2015, trained tutors will again offer the program to 13 small groups of between eight and nine students.

Discussion and Conclusions: The proposed research will investigate impacts of the intervention in a more formal and rigorous fashion. It is envisaged that the research findings and the experience of the collaborative approach to the development and implementation of this program will be of interest to the broad community of medical educators.

Take-home messages: Collaboration and a research partnership with Leicester University Medical School, UK, which are planning to implement Dr Hassed’s program, has already been established. It is envisaged that this and similar international collaborations will foster a richer evidence base for the mandatory inclusion of such programs for medical students.

#3O6 (28133)
SAFE-DRS: Health and Well-being in the Medical Curriculum

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Background: In 2013, The University of Auckland medical programme adopted a reinvigorated curriculum which included “Health and Well-being” (SAFE-DRS). There is evidence that doctors’ self-care and help-seeking behaviour can affect patient-care as well as affecting doctors’ personal health. Teaching health and well-being in the medical curriculum has been shown to have multiple benefits.

Summary of Work: The multi-year SAFE-DRS curriculum was developed to include:
- Self-care/skills
- Access help
- Focussed attention
- Emotional intelligence
- Doctor as patient
- Reflective practice
- Stress-resistance.
SAFE-DRS topics are re-visited throughout the programme to enhance earlier learning and highlight clinical relevance. Innovative teaching and learning methods using experiential learning, creativity, humour, and personal stories are used, and opportunities are taken to enhance help-seeking behaviour and link to student support services.

Summary of Results: A survey of 236 Year 2 students (RR 99.6%) at the end of 2013 showed that 95% of students agreed that SAFE-DRS lectures and tutorials had changed their self-awareness and/or behaviour regarding their personal health. 77% of students agreed that completing exercises for the self-care journal had changed their behaviour regarding their personal health.

Discussion and Conclusions: To engage students and re-inforce learning, health and well-being is best learnt over multiple years in an experiential and reflective way, enabling students to develop a lasting skill-set. As well as improving students’ own health, the benefits for clinical practice can include an enhanced ability to learn, and the development of empathy, compassion, self-awareness, self-regulation and improved clinical decision-making.

Take-home messages: Health and well-being learning is a necessary initiative for the purposes of both self-care and patient-care. The SAFE-DRS curriculum appears to meet these needs.
UK Undergraduate Medical Students’ Experience of Personal Bereavement

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Pia Thiemann, University of Cambridge, Primary Care Unit, Department of Public Health and Primary Care, UK
Diana Wood, University of Cambridge, School of Clinical Medicine, UK
Stephen Barclay, University of Cambridge, Primary Care Unit, Department of Public Health and Primary Care, UK

Background: Undergraduate medical students’ experience of personal bereavement (PB) is relatively unknown. PB may influence attitudes towards course components, including dissection and end of life care (EOLC), and academic performance.

Summary of Work: PB — “loss of someone close recently” Analysis of data of PB, attitudes toward EOLC and death anxiety from 1132 first and 780 final year students in 15 UK medical schools, participating in an online questionnaire survey. Comparison of students with and without experience of PB.

Summary of Results:

• Incidence: Year 1: 398 (35.2%), Final Year: 319 (40.9%) • Experience of PB within last 2 years: Year 1: 251 (22.2%), Final Year: 201 (25.8%) • Among those reporting PB: → Year 1: 143 (35.9%), Final Year: 115 (36.0%) experienced multiple losses. → Number of deceased: Year 1: 519, Final year: 311 → Of deceased: Grandparents Year 1: 62.8%, Final Year 53.8% and Friends Year 1: 9.4%, Final year: 14.4% • Students experiencing PB → More likely to anticipate guilt after a patient’s death → Year 1: 66.8% versus 60.1% (X² 5.018 p=0.25), Final year 51.1% versus 42.3% (X² 5.877 p=0.15) • No relationship between PB and death anxiety

Discussion and Conclusions: Significant proportions of first and final year students experienced PB and for many this was recent. PB was associated with anticipating guilt following a patient’s death but not with death anxiety.

Take-home Messages: Experience of PB may affect students’ attitudes towards course components, including EOLC and educators should be mindful that a significant proportion of students starting their course may have experienced PB recently, and a significant number will experience losses during their course.
#3P Short Communications: Communication Skills

**Location:** Dochart 2, SECC

### #3P1 (26259)
Integrated versus distinct teaching units in communication – what is more effective and how long does this effect last?

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Nicole Deis, Medical Faculty Mannheim of Heidelberg University, Department of Undergraduate Education and Educational Development, Mannheim, Germany
Giesler Marianne, Albert-Ludwigs-University, Medical Faculty, Centre for Evaluation of Teaching in Medicine, Freiburg, Germany

**Background:** Studies show that communicative competence of physicians not only increases physician-patient-relation (e.g. Bredart et al., 2005; Arora, 2003) and patient satisfaction (e.g. Brown et al., 1999) but also increases clinical outcomes (e.g. Little et al., 2001). In one Medical Faculty (Freiburg) distinct teaching units of communication with patient actors are implemented in the first study year. In the other Medical Faculty (Mannheim) integrated teaching units with basics (knowledge), video-analysis of role models and application in role plays are realized (skills) and several references to both knowledge and skills are introduced during the first study year. We wanted to find out if the integrated approach is more effective in obtaining communicative competence and if the effect is of duration.

**Summary of Work:** In 2014 we asked all students from the Medical Faculties of Freiburg and Mannheim to complete the ‘Freiburg Questionnaire to Assess Competencies in Medicine’ (FKM, Giesler et al., 2011). 569 Freiburg students and 573 Mannheim students completed the questionnaire.

**Summary of Results:** In the middle of the 1st study year Mannheim students score higher in communication than Freiburg students (T(440)=4.43, p<0.001). The Scheffé-test shows that in Mannheim 1st year students have higher scores in communication than 2nd study year students.

**Discussion and Conclusions:** The integrated teaching units are more effective than distinct teaching units of communication, but it seems that the effect does not last.

**Take-home messages:** To obtain and maintain communicative competence in medical education you need integrated and longitudinal curricula of communication.

### #3P2 (25796)
A two-way path toward effective communication in the PICU: Evaluation of a novel program

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Kori L. Jones, University of Michigan, Patient Family Centered Care & Department of Operations and Support Services, Ann Arbor, MI, USA
Timothy T. Cornell, University of Michigan, Department of Pediatrics and Communicable Diseases, Ann Arbor, MI, USA

**Background:** Effective communication with patients and parents improves satisfaction and reduces healthcare costs. Few graduate medical training programs offer formal communication training. The simulation-based “Communication Bootcamp” offers a novel learning opportunity for both fellows and parents, while creating a care team that employs effective two-way communication. We describe the curriculum, associated assessment, and early program evaluation findings.

**Summary of Work:** The program transformed into a 2-day, informal, authentic, two-way discussion among parents and fellows in the Pediatric Intensive Care Unit (PICU). On-going formative assessment was performed to measure 8 fellows’ bedside communication skills. Three parallel forms, targeted to the fellow, parent/caregiver, and other healthcare providers consisted of 5 items scored on 4-point scales ranging from 0 (Unacceptable) to 3 (Above expectations) to evaluate different aspects of care (engagement, respect, Information, responsibility, hope). From July 2014-January 2015, 59 patient interactions were assessed with these measures. Responses by role were compared using Kruskall-Wallis test, and trends over time were analyzed using a Rasch model.

**Summary of Results:** Healthcare providers’ [Observed Avg (OA) = 2.8] and parents/caregivers’ ratings (OA=2.6) were higher than fellows’ (OA=1.8) across all aspects, p<0.5. Trends indicated improvement across all aspects over time, but statistical significance was not reached. Evaluation is on-going and updated results will be presented.

**Discussion and Conclusions:** Preliminary findings suggest the “Communication Bootcamp” improves PICU fellows’ communication with patients and their parent/caregivers. Future work includes analyses of fellows’ reflective notes, and evaluation of patients’/families’ attitudes toward the program.

**Take-home messages:** Structured simulation programs focused on communication can be effectively implemented into a graduate medical training program.
Can erroneous video-based examples foster the acquisition of patient-centered communication skills in healthcare undergraduate students? Results of a randomized controlled trial

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Martin R. Fischer, LMU Munich, Institut für Didaktik und Ausbildungsforschung in der Medizin am Klinikum der Universität München, Munich, Germany  
Sissel Guttormsen Schär, University of Bern, Institute for Medical Education, Bern, Switzerland

**Background**: Patient-centered communication leads to improved health outcomes and greater patient satisfaction. Thus, medical and health professions schools give attention to teaching of communication in undergraduate training. However, achieving the requested communication skills requires learners to transfer theoretical knowledge into practice.

**Summary of Work**: A video-based worked-example approach was implemented in a computer-based learning environment with the intention to facilitate the acquisition of communication skills in undergraduate healthcare students. The example format was varied experimentally and constantly combined with self-explanation prompts and elaborated feedback.

36 nursing students were randomly assigned either to one of two respective treatment groups (correct vs. erroneous examples) or to the control group (no examples). Learning materials on an evidence-based strategy for giving unfavorable information to patients included an introduction for all three groups and four respective video-based examples for each treatment group. Dependent variables were outcomes derived from a repetitive knowledge test and a single performance test (giving bad news to a standardized patient), respectively. Performances were video-recorded and scored by three ‘blinded’ experts using a checklist. To analyze group differences, Kruskal-Wallis test and Dunn’s tests were conducted.

**Summary of Results**: Performance-test scores significantly differed between the groups ($\chi^2(df=2,N=36)=7.79, p=.02$). Students confronted with erroneous examples performed best, whereas students from the control group performed worst. Hence, this difference was significant ($z=2.78, p=.005$).

**Discussion and Conclusions**: Implementing video-based examples, self-explanation prompts, and elaborated feedback strongly indicates to facilitate the acquisition of patient-centered communication skills in healthcare undergraduate students, especially when examples are erroneous.

**Take-home messages**: Studying erroneous video-based examples can promote essential transfer performances in prospective healthcare communicators.

#3P3 (23988)

#3P4 (25694)

Development of a national, longitudinal communication skills curriculum for undergraduate medical education

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Volker Köllner, Medicin Bliestal Clinics, Clinic of Psychosomatic Medicine, Bleskastel, Germany

**Background**: Due to changes in the Medical Licensure Act in May 2012, communication skills are now a mandatory part of medical education in Germany. To support the medical faculties in implementing teaching and assessment of communication skills within their present curricula, the present project aims to develop a national, longitudinal communication skills curriculum. The project is supported by the German Federal Ministry of Health.

**Summary of Work**: Overall, the project has two major goals. First to investigate the current state of teaching and assessment of communication skills at Germany’s medical faculties is conducted. To this end, data about structure, content and learning objectives realized in the respective courses and exams are analyzed. Second, current best-practice-examples of teaching and assessment of communication skills are collected and also classified according to learning objectives and communication competences.

**Summary of Results**: Up to now, 30 faculties have been included in the analysis of current state. Furthermore, 130 best-practice examples from 29 faculties have been collected. Based on the classification and analysis of these best-practice-examples, a blueprint for a longitudinal communication skills curriculum was developed. It consists of 300 teaching units distributed among 3 modules: 1) core curriculum of medical communication, 2) inter-professional communication and 3) advanced communication.

**Discussion and Conclusions**: The blueprint and underlying best-practice examples aim to support the medical faculties to (further) develop their own communication skills curricula. Specifically, it should enable an integration of communication-related learning objectives into already existing courses and lectures to avoid further strain on teaching capacities.
#3P5 (24169)
"Dear death": Reflective letter writing as a method to improve physician communication skills at the end of life care

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Etti Gordon Ginzburg, Oranim Academic College, The Faculty of Education, Tivon, Israel
Yoav Ginzburg, The Ruth & Bruce Rappaport Faculty of Medicine, Technion- Israel Institute, Department of Family Medicine, Haifa and Western Galilee District, Israel

Background: End of life care has always been managed and executed mainly by physicians. Although it is well known that competent communication during this period is contingent on emotional and reflective capabilities of those who do it, clinical socialization seems to create a cynical attitude towards emotional and psychological aspects of the medical practice. This can be attributed in part to the contents and methods of conveying these skills. An examination of teaching emotional abilities is thus called for both in terms of content and methodology.

Summary of Work: The present talk attempts to suggest reflective letter writing as a means to enhance emotional communication and affective capabilities between physicians and patients and by implication between the physicians and themselves, in end of life situations.

Summary of Results: Based on grounded theory, we will argue that reflective letter writing propels a process that enhances communicative and emotional capacities by affecting the creation of a community of learners due to the dialogic nature of the letter. The collective engagement that the letter affects—reading the letter out loud, giving and receiving feedback, sharing and witnessing others’ personal experiences—provides the necessary rapport for an emotional change to take place.

Discussion and Conclusions: The lecture is based on a course in end of life communication to residents of family medicine at the Haifa Technion medical school. Data have been solicited from letters written during this course. These letters are used to substantiate some of the arguments provided, and will be used for demonstration during the lecture.

Take-home messages: Reflective letter writing propels a process that enhances communicative and emotional capacities and improve physicians end of life communication.

#3P6 (28119)
Is there a need for training Clinical Communication in Family Medicine? A survey on patients’ perspective

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Margarida Figueiredo-Braga, Faculty of Medicine, University of Porto, Department of Clinical Neurosciences and Mental Health, Medical Psychology Unit, Porto, Portugal

Background: Physicians’ communication skills are an essential tool in the diagnostic and therapeutic process, as they influence patients’ confidence, compliance, satisfaction and ultimately psychological and physical outcome.

Summary of Work: We analysed patients’ experience in communicating with their Family Physician (FP), using the QUality Of care Through the patients’ Eyes COMMunication (QUOTE-COMM) questionnaire, as part of a survey evaluating the impact of FPs’ use of computer on patient-physician communication. A convenience sample of 392 patients registered in a Portuguese Health Centers Grouping completed the survey.

Summary of Results: Overall patients reported a high ability of FP’s to communicate regarding affect-oriented as well as task-oriented approaches. No association was found between number of years with FP and QUOTE-COMM score, but a positive correlation was detected between number of consultations in the previous year and QUOTE-COMM score. Furthermore, FP communication capacity was negatively associated with time spent interacting with the computer during the consultation, although patients perceived the use of the computer by their physician as a positive asset.

Discussion and Conclusions: Computer has become an essential tool in primary care consultations, but also a challenge to patient-physician communication. As this study suggests, better communication skills are related to a more positive impact of computer use by FPs. Effective clinical communication skills, including specific computer use skills may influence physicians’ efficiency. More studies are needed to establish how patients evaluate their FP communication ability and how they value specific communicational approaches.

Take-home messages: Specific training during FP internship and during senior physicians’ practice may enhance physicians’ communication ability and lead to a positive impact of computer use on patient-physician communication.
#3P7 (28129)
Lost in translation: using video-based ethnography to study the contribution of junior doctors in the communication between professionals during team-based tasks

Hema Gandecha*, University of Leicester and University Hospitals Leicester, Leicester, UK
Ayushman Gupta, University of Leicester and University Hospitals Leicester, Leicester, UK
Nicole Nichols, University of Leicester and University Hospitals Leicester, Leicester, UK
Andrew Furlong, University of Leicester and University Hospitals Leicester, Leicester, UK
Rakesh Patel, University of Leicester and University Hospitals Leicester, Leicester, UK
Jonathan Acheson, University of Leicester and University Hospitals Leicester, Leicester, UK

**Background:** High quality patient care is delivered through effective communication between healthcare professionals in a multidisciplinary team. Junior doctors are key mediators in this communication since they work on the frontline and maintain close contact with patients. The aim was to explore the contribution of junior doctors in the communication between healthcare professionals during a team-based task such as the ‘board round’.

**Summary of Work:** All formal board rounds on a general medical ward were observed and digitally recorded over two 48-hour periods. The data was analysed for the quantity and quality of contribution made by junior doctors to the discussion. The findings were triangulated with data obtained from the medical notes and handover documentation completed by the same trainees.

**Summary of Results:** Junior doctors contributed to 17% of the total time spent discussing patients during board rounds. Key information about the inpatient management and discharge plan across patients was omitted by junior doctors at the board round. There is a general inconsistency across healthcare professionals about the information held on patients in the board round setting. Furthermore, the key information such as diagnosis is rarely re-evaluated at board round, on the ward round or during handover.

**Discussion and Conclusions:** Whilst junior doctors participate in discussion during team-based tasks, they do not always communicate key information about the inpatient management or discharge of patients.

**Take-home messages:** This study demonstrates the need to continually develop communication skills across the continuum of medical education since poor communication during team-based tasks can be detrimental to delivering effective and efficient patient care.
#3Q  Conference Workshop: Should “Adaptive Learning” be the future of medical education? (26481)
Location: Castle I, Crowne Plaza

Hilliard Jason*, iNSoMed (international New School of Medicine) AND University of Colorado, Educational Affairs AND Family Medicine, Boulder, Colorado AND London, England, USA
Andrew Douglas*, iNSoMed (international New School of Medicine), Administration and Financial Affairs, London, UK
Davinder Sandhu*, Royal College of Surgeons in Ireland, Medical University in Bahrain
Michael Seropian*, Oregon Health & Science University, Anaesthesiology and Paediatrics, USA
Jane Westberg*, iNSoMed (international New School of Medicine) AND University of Colorado, Family Medicine, Boulder, USA

Background: Health professionals understand that clinical care should be adapted to individuals. We routinely undertake individualized diagnostic workups and propose personalized care plans. Educators should, similarly, be adapting to individuals as learners. Everyone has a unique combination of life experiences, prior learning, cultural heritage, communication skills, relationship styles and more. Learning experiences that don’t provide for Adaptive Learning (AL) can be sub-optimal.

Intended Outcomes: 1) Understand the practices, principles and potential of “Adaptive Learning”; 2) Recognize why all learning should be adaptive; 3) Consider ways that AL can be accomplished; 4) Devise steps you want to take in educational events for which you are responsible.

Structure: We will begin with an exchange, determining attendees’ familiarity with the rationale and central features of AL. AL involves determining and adapting to entering students’ baseline characteristics, and allowing for individualized adjustments in pace, focus and expectations as they progress through the program. AL can range from an individual educator’s work with a single learner to the essence of an entire medical curriculum. We will encourage subgroups to explore the strategies and feasibility of AL-based education. Facilitators will circulate among the groups, and, as needed, help groups that have questions or concerns. We will conclude with a full group exchange of highlights of each subgroup’s discussions, and both invite and offer suggestions of take-home steps to pursue in any education you offer.

Who Should Attend: Anyone interested in the quality and outcomes of medical education.
Level: Intermediate

#3R  Conference Workshop: Using Mind-Body Medicine Skills to Reduce Stress and Promote Wellness in Medical School (28348)
Location: Castle II, Crowne Plaza

Aviad Haramati*, Georgetown University School of Medicine, Dept of Biochemistry, Molecular and Cellular Biology, Washington DC, USA

Background: Reports from various sources suggest that burnout is prevalent in the medical profession, affecting upwards of one in three primary care practitioners. This trend may begin earlier with the observed decline in empathy during medical student training. To address this issue, faculty at Georgetown University School of Medicine have developed an 11 week experiential and didactic module that introduces medical students and faculty to a variety of mind body techniques (e.g., mindfulness meditation, autogenics and biofeedback, guided imageries, movement, and writing exercises) with the goal of enhancing professionalism by improving stress management skills and promoting wellness. The course integrates scientific principles with experiential learning. Each group of 10 students is facilitated by two trained faculty members from across the medical center (educators, researchers and clinicians). Outcomes include increased student empathy and mindfulness, as well as a reduction in students’ perceived stress in medical school. In addition to involving over one-third of the students, the program has expanded to include specific offerings for faculty and staff.

Intended Outcomes: To discuss various approaches to teaching Mind-Body Medicine, including a detailed description of the 11-week course at Georgetown University School of Medicine, and appropriate outcome measures and assessment.

Experiential learning modules in mind-body medicine can be used effectively to foster student self-awareness, self-care, improve listening skills and empathy of students, and also advance educational goals in basic science, wellness and professionalism.

Structure: This workshop will be a combination of a short (30 minute) didactic presentation with extended group discussion, and a 60 minute experiential learning exercise.

Who Should Attend: Individuals with responsibility for faculty development, student wellness and professionalism.
Level: All
#3S Conference Workshop: A Gentle Introduction to Psychometrics for the Medical Educator: Key concepts and how to apply

Location: Castle III, Crowne Plaza

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 decisions. 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

#3T Conference Workshop: MedEdPublish: A new approach to publishing in health professions education

Location: Gala 1, Clyde Auditorium

Ronald M Harden*, AMEE, Dundee, UK
Catherine Kennedy*, AMEE, Dundee, UK
Sheghley Ogilvie*, AMEE, Dundee, UK
Ricky Shek*, AMEE, Dundee, UK
Trevor Gibbs*, AMEE, Dundee, UK

Are you interested in publishing your short communication, poster presentation, or workshop delivered at AMEE 2015 in Glasgow? If so, you might be interested in MedEdPublish. MedEdPublish has been launched by AMEE as an easy-to-search, e-journal. 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 discuss in depth the ways in which individuals can get involved in MedEdPublish and will offer an overview of how to contribute and review papers.
#3U  Conference Workshop: Methodology and evidence synthesis choices in health education systematic review: A Best Evidence Medical Education (BEME) collaboration workshop (27301)
Location: Gala 2, Clyde Auditorium

Morris Gordon*, University of Central Lancashire, School of Medicine and Dentistry, Preston, UK
Madalena Patricio*, Lisbon, Portugal
Antonio Vaz Carneiro*, Lisbon, Portugal

Background: BEME is playing an important role in supporting synthesis of evidence to inform teaching with BEME reviews frequently cited after publication. Many health education systematic review reports are limited by a mismatch between the actual aims and chosen methodology to achieve those aims, or by inappropriate use of techniques such as meta-analysis. In this workshop, we will support participants in developing a protocol for a review, considering wider methodology and in particular the choice of and use of different synthesis methods.

Intended Outcomes: To develop skills in health education systematic review, particularly in designing appropriate methodology to best address the aims of the review.

Structure: The workshop will start by a short introduction to the key elements of a protocol for systematic review. Participants will review a sample of methodologies from actual BEME reviews, with a whole group debrief to identify key areas of strength and concern. Three small groups will then rotate in 10 minute intervals for a session on each of ‘Useful descriptive synthesis’, ‘meta-analysis in health education review’ and ‘qualitative synthesis’.

Who Should Attend: All those planning a health education systematic review
Level: Intermediate

#3V  Conference Workshop: Improving presentations: Say-it-Better & Show-it-Better (27125)
Location: Staffa, Crowne Plaza

Douglas L Wooster*, University of Toronto, Surgery, Toronto, Canada
Elizabeth M Wooster*, OISE/University of Toronto, Higher Education, Toronto, Canada

Background: Electronic presentations (eg PowerPoint®) are an important component of scientific communication in the health professions. Reviews and audits of short and long presentations at a variety of levels by professional presenters and educators and trainees show poor skills in preparation of ‘slides’. There is a role for faculty development, defined instruction of trainees and peer-to-peer promotion to improve the quality of presentations.

Intended Outcomes: This workshop will identify common shortcomings in preparation of ‘slides’ and strategies for improvement. These strategies will focus on 10 ‘rules’ for text and image optimization. Strategies to instruct trainees and facilitate faculty development and peer-to-peer promotion will be developed. At the end of this workshop participants will be able to:
- Describe the current status of text and image use in electronic presentations.
- Demonstrate the ten technical skills in optimizing text and images for presentation.
- Present a strategy to train others in the techniques presented.

Structure: The facilitators will present findings from an audit of presentations and a discussion regarding the relevance of these findings will follow. Techniques to improve text slides and optimize images will be presented. Guided interaction will be undertaken to have each group modify a set of slides using 10 techniques to ‘Say-it-Better’ and ‘Show-it-Better’. Small group discussion will be held to identify strategies to use these skills to train others.

Who Should Attend: participants of intermediate and advanced skills who have an interest in improving their powerpoint presentations
Level: Intermediate
#3W  Conference Workshop: Proficiency based progression as an ‘outcome’ based approach to graduate medical education and training; What is it and how to do it! (28353)

Location: Shuna, Crowne Plaza

Anthony G Gallagher*, ASSERT for Health Centre, University College Cork, Ireland
Michael Cunningham*, AO Foundation - AO Education Institute, Switzerland

Context: The mission of many organizations is to reduce the burden of disease and to optimize training and education to improve patient outcomes. High profile error cases and reduced work hours have forced many medicine and surgery specialties to consider new approaches to training. The traditional apprenticeship model of training during long hours of clinical service has come under question. Quantitative evidence shows that trainees engaged in this training process accumulate considerably less clinical case exposure (never mind competency) than was previously thought. The Institute of Medicine (IoM) has proposed that medicine should change from a ‘process’ driven approach to graduate medical education (GME) and training (i.e., number of years in training, number of procedures done, attendance at educational events, etc.) to an ‘outcome’ based approach (e.g., a verified and validated skills level). We concur with the conclusions of the Institute of Medicine (IoM) report on GME. As a society we have become convinced by the evidence on ‘outcome’ in comparison to ‘process’ based GME as a better way to achieve our educational and training goals.

Level: All

#3X  Conference Workshop: Training the Trainers to Support Doctors in Difficulty (28349)

Location: Jura, Crowne Plaza

Liz Spencer*, NACT, UK
Alistair Thomson*, NACT, UK

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).

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: 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.

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

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
#3Y Conference Workshop: Student choice and Student Selected Components (SSCs): Challenges and solutions from UK and international perspectives (26513)
Location: Barra, Crowne Plaza

Simon Riley*, University of Edinburgh, Centre for Medical Education, Edinburgh, UK
Michael Murphy*, University of Dundee, Centre for Undergraduate Medicine, Dundee, UK
Joanne Burke*, University of Glasgow, Centre for Medical Education, Glasgow, UK

Background: All UK medical schools now offer Student Selected Components which provide students with opportunities and choice. SSCs have evolved profoundly since the first version of “Tomorrow’s Doctors”. They are a significant part of curricula, delivering integrated core educational outcomes, particularly in personal and professional development, and career exploration. This provision of student opportunities for self-directed and self-regulated learning has been echoed in other parts of the world in many forms. However, there remains a paucity of research into the benefits of SSCs in student learning, and limited guidance on delivering these activities.

Intended Outcomes: Participants should develop a clearer understanding of the purpose of student choice within the curriculum; appreciation of the similarities and differences in implementation of SSC programmes; template / checklist and a collection of ideas and pragmatic examples to assist in developing their own SSCs; network of individuals and schools that can work together through continued communication.

Structure: From an extensive background of experiences in developing and delivering SSCs and curriculum design in Scotland, UK, Europe, and globally, the facilitators will explore how to derive the greatest benefit from SSCs and student electives. The workshop format will consist of a brief introductory session leading into focused interactive small group participant-centred activities. These will explore the provision of student choice in SSCs from the viewpoints of curriculum design and attaining learning outcomes, course delivery, assessment, quality assurance and the future of SSCs. Findings will be collated and summarised as an integrated template / checklist for both faculty and students, to optimise educational benefits.

Who Should Attend: Curriculum designers, SSC and elective organisers.
Level: Intermediate

#3Z Conference Workshop: Training live simulators for realistic portrayals in five steps (27742)
Location: Orkney, Crowne Plaza

Gayle Gliva-McConvey*, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, USA
Lorraine Lyman*, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, USA
Amelia Wallace*, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, USA
Temple West*, Eastern Virginia Medical School, Sentara Center for Simulation & Immersive Learning, Norfolk, USA

Background: The quality of role portrayal by live simulators (simulated patients, simulated family 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, the simulators must be properly prepared or trained. There is an established methodology for training Standardized Patients that has proven to produce very realistic and standardized portrayals. This pre-simulation training is thorough and has proven efficacy. This workshop condenses the well-established SP Methodology and training techniques into Five easy-to-follow steps configuring the training for situations that require realistic portrayals of common conditions with emotional undertones. Using SP-based techniques and a step-by-step guide, a live simulator can be trained to realistically and repetitively portray the role needed to enhance and complete the simulation.

Intended Outcomes: Participants will identify skills necessary to train realistic portrayals and practice training roles for healthcare simulation.

Structure: Combined short didactics, guided observation with AV demonstrations and small group application/practice.

Who Should Attend: Faculty responsible for training simulated role portrayals for healthcare simulations.
Level: Intermediate
#3AA ePosters: Mobile Learning and Social Networks
Location: Morar, SECC

#3AA01 (25628)
Using the Mobile Group Chat Application, LINE, to Improve Medical Knowledge of Common Ear-Nose-Throat Problems

Intira Anantpinijwatna*, Mahasarakham Hospital, Otorhinolaryngology, Mahasarakham, Thailand

**Background:** The use of mobile group chat applications for learning and knowledge dissemination have gained popularity. This study aims to evaluate whether the application called LINE can enhance the knowledge of medical students regarding common ear, nose, throat problems.

**Summary of Work:** This is a quasi-experimental study that included fifth year medical students during their rotation at the Department of Otorhinolaryngology in Mahasarakham hospital, Thailand. The students were divided into two rotations. Students in the first rotation utilized a conventional learning method while students in the next rotation utilized the LINE application. At the end of their rotation, a post-test was distributed to compare the knowledge of the medical students.

**Summary of Results:** All fifth year medical students participated in this study. Half of them were quizzed via the LINE application. At the end of the rotation, post-tests were used to compare the knowledge of all the medical students. The mean scores of medical students who used the LINE application was 86.46% and without LINE application was 60.96%. No one failed the final examination. The students who used the LINE application felt that it was convenient and a useful tool for consultation and submitting assignments.

**Discussion and Conclusions:** LINE application shows potential for being a good learning tool for medical students in conveniently improving their medical knowledge regarding certain medical issues like common ear-nose-throat problems.

**Take-home messages:** Due to the recent trend toward mobile group chat applications like LINE, their use in the arena of medical research and education should be further explored and utilized to improve medical student learning environment.

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#3AA02 (26134)
Junior Doctors’ Use of Smartphones for Point-of-Care Clinical Information – A Mixed Methods Usage Analysis

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**Background:** Trainee doctors’ clinical decision-making can be supported by rapid access to accurate clinical information. Smartphone apps can provide this, however commercial content can be expensive. Usage data for apps could be used to focus content, thereby reducing cost, yet still reinforcing good practice.

**Summary of Work:** The smartphone-app ‘DrCompanion’ was obtained, with a subscription to medical handbooks, digitised local guidelines, and the BNF, for 150 Foundation trainees. Anonymous usage data and metadata was obtained for every pageview and categorised by user, topic and publication. This was interpreted by triangulation with thematic analysis of interviews and questionnaires.

**Summary of Results:** Uptake was high, 76 doctors used the app once weekly or more. Commercial content was accessed more than local guidelines. Emergency topics such as chest pain, DKA, and electrolyte abnormalities were accessed most frequently, ‘on (the) way down to A&E’ or ‘when stuck on the wards.’

**Discussion and Conclusions:** The app was well used by our cohort, though commercial content was used preferentially to local content. This may reflect challenges with local guideline content not being specifically designed for smartphones, and highlights the reliability and relevance of commercial content. Doctors however repeatedly reflected that improved and expanded local guidelines would be preferable. Popularity of emergency topics was shown by triangulation with interviews to reflect a predilection for doctors to access material at point-of-care.

**Take-home messages:** A business case was built upon these findings to maintain the app subscription, at reduced cost, by focussing on most used content. We plan to develop an app with user-friendly local guidelines and patient safety information.
Background: Learning technologies are popular because of convenience and flexibility. LINE® is an attractive application for instant messaging (IM) group communications on smartphones or PCs. The Department of Surgery at Prince of Songkla University has implemented instant messaging (IM) group communications for medical students to increase contact time between the advisor and medical students. This study aimed to examine the perception of IM group communications in Thai medical students.

Summary of Work: This study was a qualitative design. Data were gathered from 18 medical students. In-depth interviews were utilized for data collection. Data were analyzed by content analysis and coding.

Summary of Results: IM group communications promoted education and confidence in expressing ideas, sharing of knowledge, and improved the advisor-student relationship. All participants agreed that it was just an additional tool and cannot replace traditional face-to-face learning. The limitations included the inability to express non-verbal language, loss of continuity, small text fonts, and it is unsuitable for long and detailed messages.

Discussion and Conclusions: Discussion: IM group communications is an important part in effective learning. Further studies are needed to determine the learner participation. We propose that a medical education unit apply creative learning and effective training to save time and money and offer opportunities for innovative learning. Conclusion: Our data suggest that IM group communications can be an additional learning tool. The number of participants should be less than 10, the questions and answers should be short, and there should be a time schedule.

Take-home messages: Technology can give us the opportunity to enhance face-to-face interactions, not replace them.
#3AA05 (27699)

Mobile chat application: A new way of student support

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**Background:** Student support is important in the medical education. It can solve the problem of the students and enhance the facility of learning. The tradition student support in our center was the assignment of a staff to each student and schedule meeting. The new method was introduced by mobile group chat application.

**Summary of Work:** The medical students during the rotation at Department of Obstetrics and Gynecology, Udonthani hospital, Thailand was introduced to the new student support using the mobile chat application program. They could choose more than one advisor by themselves and the advisors could accept as much as they could manage the group. The consultation was done in any topics depend on the agreement of both sides. The satisfaction of the method was evaluated at the end of rotation compare with their experience of former tradition method.

**Summary of Results:** 60 medical students participated in this program. 93.8 % of student and 80.0 % of staff had more satisfaction in the new program than the tradition program. The satisfaction was highest in the convenience of use and improvement of relationship with staff. The topic which was consulted most frequent was academic and administrative problem. Most of medical students agreed with this change of student support and suggested expanding this method to all departments.

**Discussion and Conclusions:** Mobile chat application is a good student support method. It can be used to enhance the learning of students with good satisfaction of medical student and staff.

#3AA06 (27610)

Attitudes To mLearning With Tablet Computers Amongst Medical Students: An Observational Study in a University Teaching Hospital

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**Background:** As Medical Schools expend resources in equipping, distributing and supporting mobile devices for large cohorts of students, research is needed to ensure tablet computing devices are used and useful in clinical settings.

**Summary of Work:** A prospective observational study involving 126 medical student at the Royal Free Hospital, were offered an iPad Mini for the duration of the six-week rotation. 101 participants were issued tablet devices preloaded with apps, links and medical texts. Data was collected in the form of pre- and post-study questionnaires.

**Summary of Results:** All students agreed with the proposed advantages of the tablets with positive views regarding portability, speed of access to up-to-date information, administrative efficiency and multimedia capabilities. Initially the students identified with many concerns about using the iPads in clinical settings, but subsequently became less concerned in all areas except device cost and risk of damage, theft or loss. Overall, lack of Internet access was of greatest concern.

**Discussion and Conclusions:** Tablet computing in medical education is strongly favoured by medical students. Barriers to adoption lie in the lack of Internet access, expense and the risk of loss or damage. Students did not consider the tablets problematic either in their interaction with patients or clinicians.

**Take-home messages:** Students strongly support using tablet devices for medical education and any misgivings they have are generally allayed once they use the devices on the wards. When considering mLearning rollouts, medical schools should promote Internet access in clinical areas. Remaining barriers to adoption include cost and risk of loss or damage.
The connectaholic behind the curtain: a mixed methods study of student use of mobile devices in clinical settings

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Background: Mobile devices with continuous data connections are now commonplace in clinical educational settings. This paper examines the adoption of mobile technologies by medical students in a clinical setting and factors influencing their use.

Summary of Work: The RCSI laptop scheme offered clinical students a choice: a MacBook air or iPad mini (with 3G connection). Participating students were surveyed twice (n=128) to explore technology ownership profiles and online habits, smaller groups of students (n=19) participated in semi-structured qualitative interviews.

Summary of Results: Students report that they are continuously online, using mobile devices to fluently exploit data and services from a wide variety of sources, both in their academic and personal lives. While technology may appear to be ubiquitous, our results highlight differences when technology is used in personal and clinical settings. When students use mobile devices in clinical settings personal convictions such as a belief that doing so is rude or unprofessional influences how and when the device is used. Students prefer to reference information privately and then return to the clinical patient.

Discussion and Conclusions: Ubiquitous access to online data is an everyday reality, and in clinical settings is an important issue for medical students. Their personal use and perceptions of technology influence how they use it in clinical settings with some opting to remove themselves from a clinical interaction by “going behind the curtain” to retrieve information.

Take-home messages: Technology may influence the potential for asymmetry between those present in clinical teaching settings: staff and student alike must learn to identify these issues and deal with them efficiently.

Eteachingapps.com, a novel internet platform to create mobile teaching applications for higher education

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Background: Mobile e-learning is increasingly used in undergraduate medical education. However, high costs and complexity to develop software applications (apps) for mobile devices limit their use and prevalence in higher education.

Summary of Work: Here we present Eteachingapps.com, a novel internet platform for educators to independently create and manage teaching apps without the requirement of programming skills or additional software. Eteachingapps.com was developed at Technische Universität München (Germany) specifically for higher education and can be used for free by educators and students worldwide.

Summary of Results: Eteachingapps are based on Hypertext Preprocessor (PHP) as server-side scripting language and a My Structured Query Language (MySQL) database management system. Educators can create their own teaching app and instantly edit its content online at http://www.eteachingapps.com. Students can access the apps with a webbrowser on any internet-enabled device (smartphones, tables-PCs or laptops). A pilot study to evaluate functionality and user acceptance conducted with undergraduate medical students and lectures showed above average evaluation results.

Discussion and Conclusions: Eteachingapps.com is a novel internet platform to independently create, edit and manage teaching apps for higher education that was well received by students and educators. As a non-commercial alternative to conventional apps, it will likely help to foster mobile e-learning in undergraduate medical education.

Take-home messages: Eteachingapps.com enables educators to present their teaching content as professional apps, without programming skills.
Group LINE chat application facilitated in surgical spot diagnosis skills for medical students

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Background: Recent technologic advances in mobile devices allow us to use the acquired and transmit digital images among medical students and surgical staff. We report our experience with LINE chat application in how it facilitate correct diagnosis and brief of clinical management for 5th year medical students. We aim to encourage learning process of 5th year medical students via the picture spot diagnosis using Line chat application

Summary of Work: We set the “spot diagnosis chat group” and invited all 5th year medical students and the surgical staffs to the group. The surgical staffs shared their spot pictures and left the questions then the students were free to answer, description of lesions, differential diagnosis. At the given time, the staffs posted the right answer and discussed with the students. The feedback questionnaire were given.

Summary of Results: Most of the students participated and attended the chat group everyday. The questionnaire graded by satisfaction between 1 (less likely) to 4 (absolutely agree). The result showed that most of the students attended the chat group activity more than 4 times per day. Most of them felt that this chat group was a useful tool to encourage the learning process, making them remember, can manage the case better and decrease gap between teacher and students.

Discussion and Conclusions: We found that using the chat group offers a new exciting process of learning to the medical students.

Take-home messages: The chat group is a useful tool and provide a way to facilitate learning and offer a two way communication between teacher and medical students.

A Scoping Review of Podcasts in eLearning: More bark than bite?

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Background: Podcasting has become popular in medication largely for the advantages such as easy to create, cheap costs for distribution and ease of portability. However, there is no data describing factors associated with success or quality of podcasts. The goal of our study was to identify successful podcasts in anesthesia and identify factors associated with success.

Summary of Work: Independent reviewers performed a systematic search of anaesthesia related podcasts on iTunes Canada. Data and metrics recorded for each podcast included: podcast’s authorship, number posted, podcast duration target audience, format, and social media presence. Descriptive statistics and ANOVA were used to analyze data.

Summary of Results: 21 podcasts related to anesthesia were included in the final analysis. Only a third were still active. The median longevity of the podcasts series was only 3 months (IQR: 3-28 months). Less than 10% of podcasts had user ratings. Factors associated with success were: podcasts created by universities/companies; use of social media; frequency of posting (P<0.05).

Discussion and Conclusions: We have developed a novel tool for assessing the success for a podcasts. The majority of anesthesia podcasts have a short half-life of only 3 months. Successful podcasts are associated with journals/universities. Reasons for this may be the need for fresh and quality content and good editing by users. The lack of these maybe associated with the early demise of a podcast series.

Take-home messages: Podcast creators and users should consider these factors associated with success when creating podcasts: use of social media; frequency of posting.
eLearning among medical undergraduates: How do Medical Students use podcasts and what are their learning needs?

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Background: Podcasts have several advantages over traditional learning styles. Usage within medical education has risen in popularity. There is limited information available regarding why and how medical undergraduates use podcasts.

Summary of Work: A 25-item survey was developed and distributed by email eliciting information on patterns of podcast use, preferred content and format. Descriptive statistics and a two-tailed Fisher’s exact test were used. P<0.05 was taken as significant.

Summary of Results: 70.5% (160/227) used medical podcasts with 50% of these users spending up to 1 hour per week viewing podcasts. Pre-clinical students (p=0.008), auditory and visual learners (p=0.023), students with a previous degree (p=0.05), students revising for exams and those studying basic science were more likely to find that podcasts were one of the most beneficial uses of their time. Students primarily accessed podcasts by watching online via a computer (83%). 55% reported using podcasts as part of their revision before an exam whilst 40% used them as part of routine study. The ability to review materials at their own pace was the most appealing feature of podcasts. The most common reasons to not use podcasts were technical problems (52%) and lack of time (48%).

Discussion and Conclusions: The majority of medical undergraduates use podcasts. Pre-clinical students, students with previous degrees, auditory and visual learners, those studying basic science and revising for exams were more likely to find podcasts useful. Time and technical issues remain a barrier to their use. Take-home messages: Undergraduate preferences should be taken into consideration by course designers when considering when and how to introduce podcasts.

Mobile social network for post-graduated doctor consultation system in community oriented medical education based center

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Background: Nowadays, many post-graduated doctors from our center practice in community hospitals. They need the consultation system to guide them to manage some difficult cases in real situations. Mobile social network application is widely used in these doctors so, our center created the group chat for them to directed consult with specialized doctors.

Summary of Work: Group chat was created with the mobile social network application, the post-graduated doctors from our center were asked to join in the group and Orthopedic medical teachers were assigned to be the consultant. The administrator collected the usage of consultation system and the number of cases, the problems, and management was summarized.

Summary of Results: 159 users join this group and 20 were the consultant. From October 2013 to October 2014, There were 188 cases that post into this group; 90(47%) traumatic cases, 27(14%) spine problems, 22(12%) hand problems and the other problems were pediatric, tumor and infection problems. About 60% of the cases can help the post-graduated doctor to manage the cases in their hospital and 40% of the cases were appropriated referred to the center. The administrator collected 26 common consultation problems and re-post in the group for learning.

Discussion and Conclusions: This consultation system can help post-graduated doctors to appropriate manage difficult cases in orthopedic problems. The information for group chat usage can help the teacher to know the gap of orthopedic knowledge in post-graduated doctor. Take-home messages: Mobile social network is useful for post-graduated learning and practice.
Development of a basic life support guide application usable on Android devices for lay rescuers

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Background: Basic Life Support (BLS) education has widely been introduced for general citizens. However, if general citizens (lay rescuers) encounter a situation wherein they should perform a BLS process, these lay rescuers cannot always perform the necessary actions as per the required guidelines. Here we developed a BLS guide application for the lay rescuer.

Summary of Work: We developed an Android application based on the AHA guideline 2010. In this application, a series of BLS processes, such as consciousness recognition, emergency calling, chest compression administration, and automated external defibrillator (AED) usage, were navigated using a series of displayed pictures and texts with voice guides. The application showed what to perform at each step and how to perform it.

Summary of Results: We conducted basic user tests to investigate the potential and utility of the application. Participants were five university students. All of them had undergone some BLS training more than once before the tests. Using the application, the students were asked to perform BLS processes in a scenario where an adult male teacher suddenly collapsed and became unconsciousness. We evaluated BLS performance using a 10-item checklist. Our results showed that the number of correctly performed steps were an average of 5.6 items. All the students correctly performed the step of asking someone to bring an AED. However, 80% failed to correctly perform the step of asking someone to prepare the AED for use.

Discussion and Conclusions: We developed a Basic Life Support guide application usable on Android devices for lay rescuers. With regard to the utility of the application, all students answered that it helped them perform the appropriate BLS processes.

Improved patient-perceived resident competency in Family Medicine minor procedures with use of an iPAD application "app" training tool

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Background: Competency in family medicine procedures requires both manual and cognitive skills. The cognitive component includes knowledge of when to do a procedure and the skill to communicate the risks, benefits, and side effects to the patient. Manual skill includes motor control and technique. Direct observation of patient-resident interaction by the supervising physician is one method of evaluating resident competency. We used patient perceived competency to assess the efficacy of an iPAD app training tool for Family Medicine minor procedures.

Summary of Work: Residents were randomized to control or intervention groups prior to attending procedures clinic. Both groups received standard clinical training and supervision during the clinic, but the intervention group was given access to the iPAD app. Patients were blinded to allocation group and, after a procedure was performed, asked to fill out an evaluation of the resident’s performance using a likert scale.

Summary of Results: On average, there was a statistically significant difference between groups; patients rated residents in the iPAD group higher for competency than the control group. Results held true regardless of which faculty supervised resident training.

Discussion and Conclusions: Access to the iPAD app training tool is a simple way to improve resident competency in family medicine procedures and is becoming an integral part of our family medicine resident training. Future studies will delve further into evaluating the individual components of competency.

Take-home messages: Technology can improve competency.
Winning over hearts and minds: using Twitter to enhance the student learning experience in neuroanatomy

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Background: Since the rise in tuition fees the value of the student experience has become more important than ever. Difficult areas of medical programmes like neuroanatomy can often be pre-perceived by students as overly challenging and unenjoyable, potentially stunting student engagement with course material. As Twitter has been used in higher education to increase engagement and offer a supportive online community for the learning of challenging subjects, we incorporated it into the neuroanatomy module at the University of Southampton. We investigated how much value students place on having a supportive network when undertaking difficult subjects and how this would impact on the learning experience.

Summary of Work: The nlm2soton hashtag was created for a cohort of 197 medical students studying neuroanatomy. Students completed an end of module questionnaire and a focus group was conducted to deduce how Twitter impacted the learning experience and exam performance.

Summary of Results: 91% of the cohort used the hashtag. 58% simply viewed while the extra 33% contributed to tweet activity. 3 dominant tweet themes were identified as follows: Sharing learning ideas, Morale boosts and Questions and feedback. Students valued how Twitter made communicating with lecturers easier, created a supportive network and a sense of anxiety relief. There was no statistical relationship between frequency of Twitter engagement and exam performance.

Discussion and Conclusions: We found that Twitter can be successfully used to create an inclusive and informal supportive networking space for students to engage in group learning. The sense of support and anxiety relief that students felt from being part of this online community was highly valued and ultimately enhanced the student learning experience.

The use of Facebook among medical students in Alfaisal University, Saudi Arabia

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Background: The use of social networking has changed the life style of the current youth generation. Around 30% of the Facebook users are university students. 800 million college students spend 100 minutes/day on Facebook. Studies suggest that there is a potential impact of using Facebook on students’ studying time and therefore their academic performance. Our study aimed to relate the personal traits of the medical students when using Facebook to the effectiveness of use on the academic performance.

Summary of Work: This is a cross sectional study. An anonymous online questionnaire was distributed among medical students in Alfaisal University in April, 2014. Chi-square test was used in the statistical analysis.

Summary of Results: A total of 140 students participated. Among participants who study more than 3 hours per day, 41.9% spend 1 hour or less on Facebook, 32.3% spend 2 hours and 25.8 % spend > 3 hours. 70.7% reported that education was one of the main purposes of using Facebook. 44.4% reported that Facebook is effective in their academic performance and 23.2% reported its ineffectiveness. A significant interaction was found in chi-square test when comparing the frequency of GPA≥3.25 in students who use Facebook in education and who do not use it (X²(1)=5.9,p<.05).

Discussion and Conclusions: Students who use Facebook in education were more likely to get GPA≥3.25 than who do not use it. Therefore, Using Facebook is expected to influence students’ studying time and academic performance.

Take-home messages: The time management and the purpose of using Facebook would determine the effectiveness of the use on the academic performance.
#3AA17 (26595)
Postgraduate learning in orthopedic consultation system via social app

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Background: Maharat Nakhon Ratchasima Hospital is the medical center in which served for the patient with advance conditions from community hospitals in Nakhon Ratchasima province. In the past, community doctors consulted the orthopedist by phone but detailed of clinical information was limited. Social app were popular because of its mobility and multimedia-ready system. Closed social network group was established for orthopedic consultation system in Nakhon Ratchasima. Community doctors asked the expert for management of the patients with orthopedic problem in chat room of the social app. The administrators of group summarized the consulted problems and noted for read later in another section of social app.

Summary of Work: Online questionnaire about orthopedic consultation system was created in Google Form and distributed to members of orthopedic consultation group. Responses were submitted back to the authors.

Summary of Results: The questionnaire was responded by 50 members. 46 responders (92%) satisfied with rapid management in consultation system. 34 responders (68 %) utilized the knowledge from live conversation in chat room while 13 responders (26 %) utilized knowledge from note in which the administrator summarized from chat room.

Discussion and Conclusions: Postgraduate learning in orthopedic consultation system can be done via social app. Most of the community doctors/medical personnel utilized the knowledge from the job they were.

Take-home messages: Postgraduate learning in social app is another way to merge the learning process on-the-job and daily lifestyle together.

#3AA18 (25062)
How do Medical Students in the United States and China Use their Smartphones During Clinical Work?

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Background: As of 2013, smartphone technology has provided 100,000 medical apps. Research on how medical students utilize their smartphones and apps during clinical work is limited.

Summary of Work: In 2014 we surveyed medical students in the US (Utah) and China (Hainan) to understand current smartphone use and barriers to use during clinical work. Total monthly use, scores for general use (e.g. internet, email), patient specific app use (e.g. diagnosis management, pill identification), and barriers to use were compared between medical students in the US and China with Mann Whitney U tests.

Summary of Results: Response rates were 49% in the US and 71% in China. 50% of medical students in China and 96% in the US owned a smartphone and used it during clinical work. Medical students use their smartphones for more general features (64%) than patient specific apps (35%), P < .001. Medical students in the US had higher general use scores and higher monthly use than medical students in China, P < .001, but there was no difference for patient specific apps use, P = .434 and barriers to use, P = .272.

Discussion and Conclusions: Adoption of smartphones into the clinical environment has been faster for medical students in the US compared to China. Students in the US are not using patient specific apps at higher rates than students in China. More formal training is needed for student medical apps utilization.

Take-home messages: Medical students use their smartphones for general use more often than patient specific apps.
Improving Access to Stakeholder Input in Distributive Educational Programs Using Social Media Platforms: A Qualitative Study

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Background: In institutions utilizing a distributed educational model, face-to-face engagement with key stakeholders is a challenge. This study explored the feasibility of using a social media platform designed for professional networking (LinkedIn) as a way for conducting asynchronous focus groups; thus facilitating and enhancing distant faculty engagement in curricular relevant issues and decisions.

Summary of Work: Semi-structured interview questions were employed in conducting focus groups with preceptors. These questions focused on experiences, thoughts, and impressions regarding student teaching in non-academic clinical settings. One group (n=5) participated in a 2-hour, face-to-face facilitated discussion. Two groups (n=8, 6) participated in an asynchronous facilitated discussion on LinkedIn. Deductive thematic coding was performed on all focus group transcripts by the three authors using Boyer’s four areas of scholarship as the theoretical framework. Inductive coding was used to capture non-framework themes. Inter-rater agreement of individual coders across twenty-three parent and child nodes in the three focus groups was determined by kappa statistic in Nvivo.

Summary of Results: Both face-to-face and social media focus groups produced themes which aligned with Boyer’s framework. Eighty-one percent of nodes had almost perfect agreement (kappa = 0.8-1), 4% substantial agreement (kappa = 0.6-0.8), and 13% moderate agreement (kappa 0.4-0.6).

Discussion and Conclusions: Social media platforms designed for professional networking have potential to be viable alternatives for face-to-face focus groups with educators in distributed teaching programs. Professional social networks can be effectively utilized to obtaining valuable stakeholder curricular engagement, but continuous monitoring and frequent prompting are necessary to ensure full participation.

The answer is in da blog: the chief resident’s solution to archive and share learning

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Background: Keeping the residents posted with updated announcements and sharing the learning among different training sites were a challenge. Traditional approaches include E-mail updates, with risk of causing “E-mail burden” and less attention to important program matters.

Summary of Work: From July 2014, our internal medicine program (60 residents in total) has launched a chief resident driven blog site for internal use, which allowed us to archive and share our learning. For categorical PGY-1 to PGY-3 internal medicine residents, a pre survey before launching the blog and post survey 6-months later were collected. Questions focused on resident’s perspective of E-mail burden and satisfaction of information access method. Web access data was retrieved by an online collector service (Statcounter®).

Summary of Results: Total of 50 data were collected, which demonstrated that inattention rate of program related E-mails (defined as not reading >20%) improved from 50% to 38%. Resident satisfaction of accessing useful information improved from 18% to 86%, measured by marking a scale higher than 4 (maximum 5). Average of total monthly access was 954, with average 286 first visits per month. Most commonly accessed contents include rotation schedule, orientation slides, morning report summary and elective or fellowship information.

Discussion and Conclusions: This innovative method utilizing chief resident driven blog site to archive and share learning experience improved efficiency of information delivery and resident satisfaction to access relevant information with a low running cost.

Take-home messages: Chief resident driven blog site is an innovative and effective method to archive and share learning.
#3BB  ePosters: The Lecture and the Flipped Classroom

**Location:** Ness, SECC

#3BB01 (27933)
Comparison between audience response systems and coloured voting cards: medical student perspective

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**Background:** Audience response systems (ARSs) were first launched in 1966 but not extensively used until 2003. Several studies have reviewed benefits and limitations of ARSs but there is almost no published literature comparing medical student’s perception towards ARSs with coloured voting cards (CVCs).

**Summary of Work:** Both ARSs and CVCs were used during the two-week Principle of Pharmacology course in Year 3 of the undergraduate curriculum at Chulalongkorn Medical School in 2014. We used CPS pulse clickers, sponsored by the University’s Learning Innovation Center, for ARSs; and three A6 pieces of paper (red, yellow and green) for CVCs. Questionnaires were distributed to 323 participating medical students at the end of the course to evaluate their opinions.

**Summary of Results:** Our respondents statistically significantly enjoyed using ARSs more than CVCs (4.01 VS 3.77, p < .01). When asked to choose between ARSs and CVCs, 60% preferred ARSs with 21% favouring CVCs. The advantages of ARSs were: anonymity in responding; not knowing other people’s responses in advance; and summarising all responses in percentages. However, it was more expensive than CVCs. It required considerable time to set up ARSs. Moreover, it was more flexible for lecturers to add more questions using CVCs.

**Discussion and Conclusions:** In general, teachers should employ ARSs as more medical students would rather use them than CVCs. However, when designing his/her lesson plans using ARSs, teachers should take their limitation into consideration. Enough preparatory time is essential and alternative plans in case of adverse events are unavoidable.

**Take-home messages:** Let’s make our lectures more interactive using ARSs.

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#3BB02 (26282)
Embedding audience response strategies to increase active learning in a veterinary curriculum

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**Background:** As part of a major review of the veterinary curriculum, one challenge was making large group teaching more interactive and student centred. A project was undertaken to embed the use of an audience response system (TurningPoint) throughout the curriculum and foster best practice.

**Summary of Work:** The project implemented a long-term loan of voting handsets to all veterinary students (approximately 500) and established a community of expert academic users. Extensive training was provided for academics, facilitating development of more interactive approaches to traditional lectures and practicals, enhancing case-based learning, and introducing game-based learning.

**Summary of Results:** There has been widespread uptake among academics, “I am a total convert after 3 sessions”, which has increased opportunities for active learning and resulted in perceived student benefits: “TurningPoint is a brilliant aid, makes you think more and feel more involved”. When used in case-based learning sessions “voting helped me feel I was making decisions and learned better.” Additional uses include gathering feedback on teaching, which has improved response rates, and adoption by students for coursework and extra-curricular activities.

**Discussion and Conclusions:** The handset loan and staff training overcame barriers to use and motivated staff to explore new student centred approaches to teaching. Academic champions and student feedback provide extra momentum as adoption expands further. Use of TurningPoint is now embedded throughout the curriculum, and feedback indicates a positive impact for students. The student loan system and skills acquisition for academics were critical to success.

**Take-home messages:** Promoting use of audience response systems provides valuable opportunities for active learning via large group teaching.
#3BB03 (24969)
The role of lectures during the first year of a graduate entry problem based medical course

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Background: This paper discusses the role of lectures for first year graduate entry (GE) medical students on a PBL course. GE students commence studies with knowledge of what is expected of in a higher education setting. They are older and have some life experiences which will affect how they interact with the higher education environment.

Summary of Work: Eleven students were interviewed at three points during the year. Qualitative methods were used to analyse data.

Summary of Results: The results indicates that (1) initially students heavily rely on the supplementary lectures, but as the year progresses students prefer to do some independent study before so that they can engage in discussion with the lecturer (2) after 17 weeks on the course GE students are using the lectures to clarify areas of ambiguity during discussion with the lecturers as they view other ways of assimilating the knowledge more efficient (3) students find the small group teaching sessions and the day at the GP surgery useful in reinforcing their knowledge (4) the expert sessions where discussions with lecturers are based on student generated questions received mixed reviews.

Discussion and Conclusions: The students develop ways of assimilating vast amounts of information in very short period. While the lectures were still valued, their role in student learning was secondary to interaction with peers and independent study.

Take-home messages: Because GE students have ‘knowledge of’ a higher education they adapt this to the new medical school context where they need to cope with large volumes of academic knowledge within a limited timeframe.

#3BB04 (24752)
Video recorded lecture utilization in undergraduate medical education

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Background: Despite a major paradigm shift in medical education that has increasingly emphasized independent and technology-assisted learning, there is only an emerging literature regarding video-recorded lectures. Previous research has polled students and faculty about their subjective experiences but there is a paucity of objective information about how video-recorded lectures are actually used by undergraduate medical students.

Summary of Work: The purpose of the current study was to identify trends in the utilization of video-recorded lectures across academic departments and compare the digital lecture format to time spent in other learning modalities. This study used archival, anonymous, meta-data from a password protected online presentation website.

Summary of Results: Data from 1,509 users and 166,822 views are summarized. There was a statistically significant difference between academic departments for the duration of lectures offered [F(8,875) = 6.15, p<0.001] and the average time students watched video-recorded lectures [F(8,875) = 5.55, p<0.001]. On average, the duration of time spent watching video-recorded lectures was 54% of the live lecture hours available.

Discussion and Conclusions: In the context of ongoing efforts to improve the quality of medical education, engage students through multiple learning modalities, and integrate innovative technologies, there is still a need to better understand how video-recorded lectures are being utilized. These finding suggest that students who use video-recorded lectures spend approximately half as much time engaged in the lecture material.

Take-home messages: Although video-recorded lectures offer flexibility and are preferred by some students, they tend to be viewed at an accelerated rate and the implications for how this affects learning outcomes remains unknown.
Select your seat, Increase your grade: Does seating preference affect learning achievement?

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Background: Physical environments such as classroom seating, teaching media, light, and sound influence on learning process and outcome. From observation and previous studies show that seating in the front of a lecture hall is more likely to get higher grade than the back rows.

Objective: To determine the effect of seating preference and learning achievement

Summary of Work: Cross sectional study was conducted. A total of 80 medical students of 4th and 5th year were invited to fill out questionnaire. Learning outcome was measured using grade point average in 3rd preclinical year (GPA-YR3). Independent variables were seating zone (front, middle, back), gender, learning preparedness, seating with peer, 2nd preclinical year grade point average (GPA-YR2), frequency of classroom interaction, other environment such as light, sound, room temperature. Statistical analysis were performed using chi-square test, one-way ANOVA, Kruskal-Wallis test and multiple regression analysis.

Summary of Results: The reasons of seating preference were interest of topic (89%), seating with peer (80%), secured zone (62%), classroom interaction (11%), other environments such as light, sound, and room temperature (47%). Female and high GPA-YR2 students preferred the front rather than other rows. By multiple regression analysis, seating location was not associated with GPA-YR3.

Discussion and Conclusions: Learning achievement measured by final GPA was not associated with seating location.

Take-home messages: Seating location does not directly affected on learning achievement. Preference is also influenced by other factors such as female gender, physical environments.

Combination of Interactive Response System and Forum Curriculum as a New Teaching Technique for Fourth Grade Medical Students

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Background: Be a physician, it is not uncommon to face the clinical dilemma. The aims of this new teaching technique are to train our medical students to approach controversial clinical issues.

Summary of Work: An experimental forum curriculum was applied for the fourth grade medical students in National Defense Medical Center in Taiwan. Before the class, the teachers proposed a clinical debatable issue to help the students prepare the background knowledge. At the class, an interactive response system was set up to collect the judgment from students at each stage immediately. The students presented their points of view and the underlying reasons. Then the interdisciplinary teachers demonstrated the correct methodologies for resolving problem by evidence-based medicine.

Summary of Results: Compared with regular lecture, the satisfaction of forum curriculum significantly increased from 62% to 80%. By discussing the debatable issues, the students suggested that the new curriculum was interesting, easy to participate, and helpful to understand the disease course and treatment strategies.

Discussion and Conclusions: Our new forum curriculum intends to offer students additional dimensions to consider clinical issues and to approach clinical problems by evidence-based medicine. Moreover, the interactive response system facilitated the students to provide their opinion within a limited timeframe, which promoted the scene ambiance and participation. With higher participation and teacher-student interaction, our forum curriculum opens new avenues for teaching clinical debatable issues.

Take-home messages: Forum curriculum with interactive response system may be a promising teaching method for medical students to improve their competence of solving clinical problems.
#3BB07 (27583)
The effectiveness of lecture before versus lecture during pediatric course on student attitude and performance

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Background: The purpose of this study was to compare the effectiveness of lecture before and lecture during pediatric course on student attitude and performance.

Summary of Work: All 16 fourth year medical students were divided into two groups, lecture before group (LBG) (n=8), and lecture during group (LDG) (n=8). For eight weeks of pediatric course, LBG was received lecture completely in the first two weeks, and followed by didactic learning activities in six week later, whereas LDG was received lecture and didactic learning activities within eight weeks. Students preference was measured by structural questionnaire, and students performance were evaluated by MCQ, and MEQ after the end of course.

Summary of Results: Compared to LBG, mean score of MCQ among LDG groups was higher without statistical significant (70.5±7.80 vs. 67.5±7.73; p= 0.45). Mean score of MEQ was not significant greater for LDG group when compared with LBG (77.96±7.85 vs. 70.5±7.80). Student in LDG had more favorable attitude than LBG.

Discussion and Conclusions: Our results suggest that lecture during course appears to promote better score, and favorable attitude than lecture before.

Take-home messages: Lecture during course appears to promote better score, and favorable attitude for medical students.

#3BB08 (28056)
The impact of interactive tools within lectures in medical education

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Background: Traditional didactic lectures in medical curriculum are used to transmit lots of information in a short time frame but evidence shows that student attention lapses after 15-20 minutes into a lecture. Along with this, there is a concern that deep understanding of topics is often missed in favour of fact retention. In this study, I am interested in finding out student perception of the use of interactive tools within lectures and whether the use of such tools encourages active learning, improves understanding and helps students retain knowledge.

Summary of Work: Two lectures were delivered to Year 1 MBChB students, one using interactive tools including electronic voting, real time discussion boards and polling software, and one without any interactive tools. Student opinion of these was evaluated using a questionnaire and focus group.

Summary of Results: Students felt the use of interactive tools made the lecture more interesting and helped them stay focussed during the lecture. It allowed them to check that they understood the topic being presented and they were in favour of being able to compare their answers to the rest of the class.

Discussion and Conclusions: Asking and answering questions using interactive tools during lectures facilitates the development of deep, active learning and knowledge creation, and gives students the feeling that they are contributing to their own learning.

Take-home messages: The use of some interactive tools within lectures is welcomed and can have a positive impact on knowledge and understanding.
The Use of Laptops in the Classroom and the Potential Effect of Distractions on Students at King Saud bin Abdulaziz University for Health Sciences

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**Background**: In the present era it is difficult to keep the concentration of college students at its maximum potential during the entire time of the class. This is a challenging task as there are many detractors for student’s concentration and optimal learning. Technology as laptops, cell phones have invaded the classroom, which rose a considerable concern about its effects on the student attends in the college classroom.

**Summary of Work**: The study includes 265 students from medical and basic science classes, who answered the survey about the nature, frequency of laptop and cell phone use in the classroom and student perceptions of the degree of the classroom distraction produced by seventeen self-produced and twenty-four externally produced classroom situations.

**Summary of Results**: Class materials presentation was the main reason of has laptop in the class for 58% of students. While 29% of students self-reported using laptops for non-class activities. 25% and 15% of students used cell phone and laptop (respectively) more than 5 times per class period. Ringing cell phones in class was the most electronic external distracter to 68% of students while the instructor who is difficult to understand was the most external behavior distractor to 75% of students. Students talking in class were the most self-produced distracter to 72% of student concentration.

**Discussion and Conclusions**: The laptop and cell phone use in the classroom impact negatively on the students' learning process. The students consider instructors who are difficult to understand and students talking in the class a major destructive.

**Take-home messages**: 1) Laptops, cell phones in class pose a distraction to students 2) Some of classroom behavior causes a major distraction to the students.

Factors influencing the success of a lecture

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**Background**: As the digital “Z”-generation arrives in higher education, we witness a changing landscape in educational culture. This is especially true regarding the lectures. In our previous studies, we explored the factors that influence the practice’s and the subject’s general judgement. The goal of our current study was to analyse what makes a lecture largely attended, what are the factors determining the lectures’ judgement.

**Summary of Work**: 43,973 anonymous questionnaires have been processed. Explorative and confirmative factor analysis has been used to validate the inventory. Forward stepwise automatic linear modelling was used to explore the underlying connections between the items.

**Summary of Results**: Satisfying, 75-80% accurate linear models were made, which have determined, that the most influential factors in a lectures judgement are: its role in exam-preparation, the dynamism, the organisation. The most determining factor in the attendance of a lecture is the semester when it is observed, with a stunning 98%. As for the question of “if you would attend it again”, the most important factor was the role in exam preparation.

**Discussion and Conclusions**: While the semester seemed the most determining factor, it is no surprise, as in a student gets more “comfortable” in it’s role in the education. According to our results, the key to a popular lecture is to give the students a “useable” lecture in a most understandable content.

**Take-home messages**: Sadly, there is no guarantee for a popular lecture, not even a good lecture.
Medical student views on the use of humour in lectures

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**Background:** Humour is a social construct whose impact on learning is presumed to be positive. The empirical evidence for this in the medical education literature, however, is limited. We looked at the experiences, perceptions and attitudes of penultimate year medical students towards the use of humour in undergraduate lectures.

**Summary of Work:** Ethics approval and participant consent was obtained. Focus groups were used to generate data, with thematic analysis undertaken by two researchers.

**Summary of Results:** Students observed that humour was employed infrequently by lecturers but recognised a spectrum of examples, including jokes, anecdotes, crude and unintentional humour. Reactions of the audience was context-specific: positive benefits for rapport, engagement and learning environment were recognised but also sensitivity to negative perceptions of humour involving stereotyping patients or unnecessary humour. This conflict was often attenuated by familiarity with, and perceived credibility of the lecturer.

**Discussion and Conclusions:** Interpretation of humour is context specific, with individual as well as inter-generational variation. Cynical attitudes and ethical erosion have been described longitudinally in medical training – students were conflicted by ideals of role modelling with the relief of demonstrating ‘human’ perceptions. Relevance to learning material was important, as well as insight into the “person behind the performance”. Judicious use of humour was cautioned by students, although they appreciated those who managed a successful balance and were able to use humour to assist learning.

**Take-home messages:** Humour may promote successful learning relationships, especially in a traditionally hierarchical profession. However, medical educators also have a unique impact on role modelling and may wish to use humour judiciously.

Behind the Laptop: Examining Student and Staff Perceptions of Laptop or Tablet use in Teaching Sessions

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**Background:** Note-taking is an essential skill for students. With the increasing use of technology in education, an important issue is whether students are using devices in a way that enhances learning, or if technology is causing decreased attention and productivity. There are contrasting opinions: some believe that knowledge retention by hand note-taking is far superior to learning than laptop use (Stromberg, 2014). Others view laptop note-taking as an advantage, promoting students’ adult learning skills (Schuman, 2014).

**Summary of Work:** This study investigates whether staff and students find electronic device use in lectures useful to learning or else a distracting presence, and to determine what is the current general use of these devices during teaching sessions. Through the themes taken from transcribed data from focus groups, we will evaluate the underpinning issue of medical students’ adult learner skills.

**Summary of Results:** Results are pending and will be available at the time of the conference.

**Discussion and Conclusions:** The use of electronic devices in teaching sessions brings mixed opinions. Despite sometimes being a distraction, many students find them useful for note-taking. Some educators are uncomfortable with their use as they cannot know or regulate what is happening behind the screens. We aim to provide lecturers with useful insights on students’ most common listening and participation habits during teaching sessions. This may help develop strategies that medical schools can implement to tackle inappropriate laptop use in lectures.

**Take-home messages:** Electronic devices can be useful in teaching sessions. This study hopes to reflect teaching staff and students’ insight into their value for practice.
**#3BB13 (27248)**
Do It Yourself (DIY): a mixed model for flipped (large) class in limited resources

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**Background**: Recently, flipped classroom (FC) is one of the most popular learning-centered activity. Although scientific educational literature has demonstrated the main advantage of creating opportunities for individual education, this approach has a number of perceived drawbacks, especially students’ satisfaction. Herein, we applied a project-based learning (PBL) and the FC activity in transfusion medicine class and evaluated both student perceptions and knowledge.

**Summary of Work**: This study evaluated learning experiences of 198 third-year medical students based on team-based project completed within one week after assignment. The task was to design a poster for whole blood donor and present it in class for popular vote. The post-course survey consisted of 28 five-level Likert items (1 = strongly disagree to 5 = strongly agree) for student’s self-evaluation and 15 true-false questions (TF) for knowledge assessment.

**Summary of Results**: From Likert items, the mean ranges for active learning and team-based working skills were 4.30 to 4.63. The mean scores from scales reflecting happiness of 4.64 revealed that student perceptions of education environment were positive. For knowledge assessment, the mean scores + SD from TF was 12.84 ± 2.33.

**Discussion and Conclusions**: Mixed model of PBL and FC motivated students with active learning, enhanced thinking creatively and working creatively with others to gain both happiness and knowledge.

**Take-home messages**: Application of appropriate learning tools will improve student engagement and 21st century skills without loss of student satisfaction.

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**#3BB14 (27337)**
The achievement in pre-class learning predicts the final outcome in flipped classroom learning

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**Background**: Flipped classroom learning has attracted widespread attention. However, few studies had investigated the possible determinant factors which predict outcome of flipped classroom learning. This work retrospectively analyzed available data to determine significant predictors of outcome.

**Summary of Work**: A flipped classroom re-education program called TOTR was implemented to improve the teaching skills of clinical teachers. Totally, 45 clinical teachers completed this program. The available information for analysis included age, gender, duration of clinical teaching, professional category, pre-class test scores, post-class test scores and TOTR session. The post-class scores were used to represent final outcome of TOTR learning.

**Summary of Results**: Only pre-class score (p=0.000), but not age, gender, teach duration, job category or TOTR session, was a significant predictor of post-class scores. When divided into 3 groups according to post-class scores, participants with lowest post-class scores had lowest pre-class scores (p<0.05), alternatively, those with highest post-class scores had highest pre-class scores (p<0.05). Linear regression analysis showed that post-class score positively correlated with pre-class score (R = 0.691, p = 0.000).

**Discussion and Conclusions**: Our results suggested that the achievement in pre-class learning is an important determinant of final outcome in flipped classroom learning. It means that if a learner cannot have a good pre-class learning, then, he cannot have an optimal final outcome. Thus, every effort should be made to improve the achievement in pre-class learning. Then, we can get a better outcome in flipped classroom learning.

**Take-home messages**: In flipped classroom learning, facilitators should monitor and provide the learner assistance in pre-class learning to guarantee a good final learning outcome.
Satisfactions of changing from traditional to flipped classroom

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Background: The flipped classroom is an innovative pedagogical approach that focuses on learner-centered instruction. This study aimed to evaluate the satisfactions of changing from traditional to flipped classroom in clinical-reasoning tutorial (CRT) sessions.

Summary of Work: Five CRT learning objectives of breast mass, acute abdomen, abdominal mass, intestinal obstruction and gastrointestinal bleeding were given to the first clinical-year medical students rotated at surgical department during the year 2014. Instead of discussing one scenario case as traditional method, several cases were discussed based on their self-directed learning. Likert scale satisfaction questionnaires compared between the traditional and flipped method were evaluated.

Summary of Results: Forty students included in the study. Mean overall satisfaction score was 4.87 (SD = 0.32). All students totally agree with a flipped method in terms of broaden their knowledge, encouraged self-learning, more teacher guidance, enjoyable and applicable for clinical practice.

Discussion and Conclusions: Flipped classroom shows great satisfaction outcomes and should be applied for learning in the 21st century.

Take-home messages: Flipped classroom is a new effective method of learning process. Application of this method should be encouraged.

Medical students' perceptions of 'flipped' respiratory physiology lectures

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Background: Diagnostic reasoning forms the core of medical expertise. Reasoning in medicine requires two kinds of knowledge: 1) Conceptual (biomedical) and 2) Problem-solving. Vertical integration of medical curricula requires that biomedical knowledge be taught in the context of clinical problem solving. One method of promoting vertical integration is by means of the ‘flipped’ lecture.

Summary of Work: First year medical students at the University of British Columbia (n=288) were given notes and podcasts to study ahead of each of three respiratory physiology lectures. Lecture time was used to solve and discuss physiological problems based on this material. All students in the class were asked to complete an electronic survey of their flipped lecture experience.

Summary of Results: The survey response rate was sixty percent. Seventy three percent of students either preferred or were neutral with respect to the flipped lecture approach, whereas the remaining twenty seven percent preferred traditional lectures. Students reported that the online podcasts and summary notes were excellent and helped them better prepare for lectures. Students did not appreciate the focus on physiological calculations during the lectures and requested more clinically relevant problems.

Discussion and Conclusions: Flipped lectures are a potentially innovative way to promote vertical integration in medical education. The pre-lecture note and podcast preparation is time consuming and the learning activities in lectures should be oriented to clinical rather than basic science topics.

Take-home messages: Flipped classrooms are new to medical education and their adoption, as a standard method of teaching, will require further evaluation of efficacy and effectiveness.
#3BB17 (25530)
Evaluating the Impact of the Flipped Anatomy Classroom: What is the Correct Outcome?

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Background: Studies of the flipped classroom (FC) compared to traditional lecture show an increase in retention of material, while others have shown no difference. One reason for the mixed results may be the cognitive level assessed. The FC is designed to promote higher cognitive levels (e.g. application) so a lower level assessment (e.g. recall) may not an appropriate outcome for the FC. In addition, student reaction to the FC could also explain the mixed results.

Summary of Work: In 2014 the University of Utah School of Medicine replaced all first year anatomy lectures (30 hours) with the FC. The FC was evaluated with two levels of Kirkpatrick’s framework—reaction, learning. Reaction was measured with a survey of FC students consisting of close and open-ended questions on the key aspects of the FC. Learning retention was measured by comparing the final examination scores for lecture students (n=100; fall 2013) and FC students (n=101; fall 2014) anatomy performance. Examination items were categorized as requiring lower or higher cognition.

Summary of Results: Reaction: FC students reported being motivated to prepare for sessions and needing less time to study. Learning: FC students performed 5% better than lecture students on higher cognition items (p =0.008, with no difference for lower cognition items (p=0.155).

Discussion and Conclusions: Material delivered with a FC compared to lecture was retained at a higher cognition level and FC students reported positive benefits. Further research is warranted on the FC.

Take-home messages: The FC pedagogue leads to improved performance on higher cognitive items.

#3BB18 (26712)
Can the flipped classroom be a strategy of active learning in medical education?

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Background: Recently, it has been reported that the introduction of the flipped classroom increases examination scores and the attendance rate in classes; however, there are very few reports as to whether the flipped classroom can be a strategy of active learning.

Summary of Work: In 2014, a questionnaire survey was conducted on a 5-point Likert scale (1=totally disagree, 5=totally agree) in 94 fifth-grade medical students of the Faculty of Medicine, Kagawa University who attended the clinical reasoning course that has introduced the flipped classroom. Outcome measures of the flipped classroom as a strategy of active learning were: (1) improvement in the readiness of learning, (2) activation of knowledge obtained from preparation videos in the face-to-face class, and (3) introduction of self-directed learning.

Summary of Results: The collection rate of questionnaires was 100%. The introduction of the flipped classroom yielded the following results: (1) improvement in the readiness of learning (4.12 ± 0.69; mean ± standard deviation), (2) activation of knowledge (4.33 ± 0.75), and (3) introduction of self-directed learning (4.11 ± 0.76).

Discussion and Conclusions: The improvement in the readiness of learning and the introduction of self-directed learning, which are attained by introducing the flipped classroom, are the aims of active learning. Thus, the flipped classroom in medical education can be a strategy for active learning. Further qualitative study is required to evaluate the effectiveness of the flipped classroom at a deeper level.

Take-home messages: The flipped classroom can be a strategy for active learning in medical education.
Assessment of flipped classroom on learning outcome of Thai medical students

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Background: Flipped classroom is an interactive learning method which has been proved to be successful in western countries. This concept is challenging for Thai learning culture in which students are familiar with traditional lecture-based learning.

Summary of Work: This study aims to explore the impact of the flipped classroom method on learning outcome at the Pediatric Department, Chiang Mai University, Thailand. We applied the flipped classroom method in five topics of Pediatric courses for the 4th and 5th year medical students in 2014. An educational outcome, assessed by the same MEQs of the topics taught by lecture-based and flipped classroom methods, was compared in two consecutive years. The student’s preference was also recorded.

Summary of Results: The preclinical educational performance of medical students, according to the GPA, was not statistically different between the two groups. Three of five topics showed the same learning outcome, whereas the remaining two demonstrated a significant change in the learning outcome between two methods. Only one of these two topics showed a better outcome. Sixty percent of students preferred the lecture-based learning.

Discussion and Conclusions: The learning outcome of the flipped classroom alternative was mainly equivalent to that of lecture-based learning. Although the immediate summative assessment did not show significant learning outcome improvement, the flipped-classroom method can theoretically foster adult life-long learning skills. A long-term follow-up study is required to scientifically illuminate this hypothesis for Thai culture. Student preparation is one of key success factors to maximize the outcomes.

Take-home messages: Although learning can be influenced by different backgrounds, flipped classroom is applicable well in eastern countries with comparable outcomes.

Improving student engagement in lectures: the ‘flipped lecture’ in medical education

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Background: Despite the rise in student-centred approaches to teaching, the lecture remains the stalwart of teaching in medical education. One approach to improving engagement and active student involvement is the ‘flipped lecture’ format. The ‘flipped lecture’ centres on delivery of on-line teaching material prior to a ‘live’ session where students can participate by (i) determining the content and (ii) interacting through activities such as quizzes, problems or case-based scenarios.

Summary of Work: Students were instructed to view an online lecture prior to a timetabled session in which subject material was reviewed and expanded (determined by student questions) and formative quizzes were included. The student experience of the ‘flipped lecture’ format was evaluated using a questionnaire and focus group.

Summary of Results: Overall students welcomed the ‘flipped lecture’ as part of a varied approach to teaching delivery. Formative feedback and increased interaction during the ‘live’ lecture were of particular benefit. Students found the online material convenient and useful (‘pausing’ for cross-reference or repeating sections for clarification).

Discussion and Conclusions: The ‘flipped lecture’ format has a positive effect on student engagement. It assists with the development of active learning skills and encourages a deeper understanding of the subject. The inclusion of ‘flipped lectures’ needs careful consideration, however, as it represents an increase in time commitments for students.

Take-home messages: The ‘flipped lecture’ format is a useful tool in the portfolio of teaching methods. It requires a significant time investment from students, so is probably best reserved for complex topics.
Student perceptions of learning in the flipped classroom

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Background: This study aimed to evaluate the success of converting a biomedical course in the Master's Degree Programme in Drug Discovery and Development from a traditional lecture-based to a student-led design. The course focused on the main therapeutic areas of drug development. Total of 20 students participated in the 20-week long course. Each week consisted of assignment presentation in the beginning of the week, independent small group work in groups of 3 to 4 persons, and an in-class session in the end of the week. In in-class sessions, student groups presented their work and students, an instructor and a changing medical expert discussed the topic. In addition, the course had two exams.

Summary of Work: Student perceptions of learning were evaluated with feedback questionnaires in the middle and end of the course. About halfway through the course, we were already able to make improvements based on the mid-course feedback.

Summary of Results: Students mainly considered that they learnt extensively and understood comprehensively the topics. Students found the in-class sessions and exams the most effective in terms of their learning. The group composition affected strongly on the individual perception of learning benefit of the small group work.

Discussion and Conclusions: The structure of in-class sessions was improved and students were asked to perform self- and peer-assessment for assessing individual contributions to the group's work.

Take-home messages: The student-led “flipped” design gives more of the responsibility for learning to the students. In addition, the dynamics of student groups has an important effect on learning.
#3BB23 (25217)
Introducing the flipped classroom in the anesthesia clerkship rotation

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**Background**: The Future of Medical Education in Canada (FMEC) report recommended increased exposure to the community. Expansion in the community created a barrier for students: our central seminars. Videoconferencing was initiated; however, there were technical problems. There was a need to develop a new platform to deliver the curriculum. The "flipped classroom" has been proposed as a model for delivering medical education, where the learning occurs at home and the application of knowledge occurs in the classroom. This was an ideal solution.

**Summary of Work**: A "flipped classroom" was created where interactive e-modules were used to replace seminars (with pre and post tests for self-assessment). Faculty are available through a discussion board. An exit simulation day was developed for the end of rotation. Students working in teams rotated through cases involving pre, intra and postoperative cases using high-fidelity simulation, followed by case-based learning (CBL) and Anesthesia Jeopardy for review and to allow them to integrate core knowledge.

**Summary of Results**: 388 students have rotated through the program. Results are positive, with common positive themes occurring in the evaluations. The e-modules have allowed for more clinical time and the exit simulation and CBL has allowed them to solidify and apply their knowledge.

**Discussion and Conclusions**: In alignment with the FMEC recommendations (community) and enabling recommendations (use of technology), a novel Anesthesia course was developed using the flipped classroom model. Results to date have been positive.

**Take-home messages**: As we move forward to competency-based medical education, this model may be useful for both undergraduate and postgraduate education.

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#3BB24 (27929)
Evaluation of flipped classroom methodology in teaching third year medical students

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**Background**: E-learning enables asynchronous learning which can take place when and where it best suits the individual student. According to the flipped classroom model students are engaged in collaborative learning after prior completion of an e-learning module. In a recent pilot study where the topic taught was viral hepatitis (n=32), 79% of students considered this new form of teaching better than the traditional (M. Hyll & R. Schvarcz, ePOSTER 19068, AMEE 2014).

**Summary of Work**: In a prospective study, participants will consist of 80 third-year medical students who are enrolled in a course on infectious diseases (module viral hepatitis). Group A (n=40) undergoes a “classic” 90 minutes-long lecture about viral hepatitis without the option for e-learning. Group B (n=40) will have access to a video lecture (20 min.) combined with additional text content and a subsequent multiple-choice test with 30 items. As a Learning Management System (LMS) for e-learning, PingPong (www.pingpong.se) will be used. In a short seminar (45 minutes) Group B students will discuss cases of hepatitis.

**Summary of Results**: E-learning activities will be recorded and analyzed (PingPong). A student survey with paraphrased comments regarding students’ opinions of the flipped model will be included besides a questionnaire scored on a 5-point Likert-type scale. Finally, students will be assessed in a written exam covering key topics of hepatitis.

**Discussion and Conclusions**: Assessment of both student groups will show whether replacement of 90 minutes standard lecture by a 45 minutes long case seminar in conjunction with a prior e-learning module will lead to equivalent or even better student results.

**Take-home messages**: This prospective study will demonstrate whether blended teaching based on the flipped classroom model has the potential to increase motivation, satisfaction and performance of medical students when compared to the classic form of lecturing.
How to invent artificial abscess model for OSCE in 6th year medical students

Chaita Sujinpram*, Nathathai Kanoknark, Pakarat Sangkla

Background: Incision and drainage of superficial abscess is an essential clinical skill for health care practitioners. Medical students should be well trained for this procedural skill.

Summary of Work: We developed artificial abscess for Objective Structured Clinical Examination (OSCE) in 6th year medical students. The artificial abscess model composed with three parts, forearm model, skin part and abscess part. Skin part was made of rubber and yellow food colorant was mixed with flour and water then wrapped with plastic sheet for abscess part. The final step was done by taking all three parts together to make artificial abscess model. This model was evaluated by twenty 6th year medical students in term of comparing realistic sensation between the artificial abscess model and the real abscess, the usefulness of this model as an educational tool.

Summary of Results: Twenty 6th year medical students completed the questionnaires. Nineteen of them had experiences of incision and drainage procedural skill. Eighty-five percent had experiences of incision and drainage in the real patients at least 3 cases. Seventy-five percent commented that the model was looked like the real abscess. They felt like doing procedure in real patients. Eighty-five percent strongly agreed that this artificial abscess model is appropriate and benefit for 4th and 5th year medical students to practice before doing incision and drainage in real patients.

Discussion and Conclusions: The artificial abscess model is easy to develop and we can use this model for OSCE in medical students.

Take-home messages: The artificial abscess model is cheap and easy to develop by yourself. We can use this model for training incision and drainage abscess in medical students.
#3CC03 (26811)
Testing Procedural Skills and Communication Skill after Graduation by OSCE

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Background: Thai Medical Council set standard technical and procedural skills for medical graduates into 4 level starting from level 1 in undergraduate which they have to pass national OSCE in order to get medical license. Level 2 is complicated skills and level 3 can be done in emergency situation after graduation. Level 4 can be practiced under supervision. However, workplace assessment and logbook for medical graduates (interns) may not enough to assess competency.

Summary of Work: Cross-sectional study was conducted using seven stations OSCE selected from level 1-3 in medicine, pediatrics, surgery, obstetrics, orthopedics, emergency medicine and communication skill in 307 interns from 21 hospitals.

Summary of Results: 44.63% of examinees passed all 7 stations while 35.5% and 12.7% passed 6 and 5 stations respectively. The rest (7.17%) passed 1-4 stations. The stations that examinees could pass more than 90% were thoracocentasis, long arm slab, trauma, FAST and communication skill. 83.39% passed newborn resuscitation and the least passing station (62.86%) was emergency breech delivery which is level 3 procedural skill but they have to practice while working in community hospitals after internship. The reliability coefficients for 7 stations is 0.5453.

Discussion and Conclusions: Procedural skill assessment of graduates must be improved by close supervision, direct observation and feedback.

Take-home messages: Patient safety is significant issue that every medical school and postgraduate training should more concern to successfully reach medical council standard.

#3CC04 (24678)
We take "Mock OSCE" seriously: Reliability and Quality of Borderline Regression Standard Setting Method

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Background: Mock objective structured clinical examination (OSCE) was administered to the final year medical students to prepare for National License part III. Borderline regression method (BRM), based on the actual performance of the examinees, was used as standard setting procedure for this OSCE. The objective of this study is to assess the reliability and quality of BRM and compare pass-fail rate of BRM to modified borderline method (mBM) and holistic standard setting methods.

Summary of Work: The mock OSCE included 28 stations (10 disciplines) and was taken by 31, 6th year medical students. By direct observation the examiners gave each student a checklist score and global score in all stations. In each station, the checklist score cut-off on regression equation was calculated for the global scale cut off at 3.0. Average of all station’s standard defined the pass-fail standard for OSCE. Root mean square error (RMSE) and Cronbach’s alpha reliability coefficient were calculated to determine reliability, R2 coefficient and inter-grader discrimination for quality of OSCE, and Chi-square for comparison of pass-fail rate.

Summary of Results: The OSCE pass-fail standard and RMSE were 63.10 and 0.06 respectively (α= 0.99). The R2 coefficient ranged from 0.09 to 0.95 and inter-grader discrimination varied from 2.64 to 16.56. Pass-fail rate for BRM, mBM and holistic method were 58.4%, 64.52% and 67.74%, respectively (χ² =1.01, df = 2, P=0.55).

Discussion and Conclusions: BRM should be utilized for standard setting in OSCE because of its reliability indicated by very low RMSE of the pass-fail standard and pass-fail rate was not related to methods used. Examiner scoring skill should be improved because of low R2 coefficient in some stations.

Take-home messages: BRM should be routinely used in setting pass-score for OSCEs. Training of examiner is required to achieve better OSCE quality.
A mock OSCE for Anaesthetists in training: a novel approach to examiner selection

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Background: A pilot, mock OSCE course for Anaesthetists in training was facilitated by an interdisciplinary, multilevel team of examiners at the Whittington Hospital in London in January 2015 one week prior to the Primary FRCA examination. Candidates were invited to attend free of charge.

Summary of Work: 17 volunteer faculty members comprised 4th year Medical Students, Anaesthetics Nurses, Foundation doctors in Emergency Medicine, recent exam candidates and Anaesthetics Registrars. Each examiner was allocated an exam station, provided with a pre-written mark scheme and asked to give written feedback on the course content at the end. The candidates also provided written feedback.

Summary of Results: The feedback from the faculty was positive. The candidates found the experience authentic and a valuable rehearsal. Examiners found it a novel experience during which they could reflect on their own clinical skills, gain a deeper insight into the challenges associated with postgraduate training and cement plans to pursue a career in Anaesthesia.

Discussion and Conclusions: The OSCE examines competency in procedural technique, communication, history taking, physical examination and resuscitation. These skills form the basis of the curricula for all doctors and healthcare professionals allied to Anaesthesia. Participation therefore provides a valuable educational resource for both candidates and examiners. The course ran smoothly but further work is needed on tailored examiner preparation and input from experienced examiners. Suggestions were made to offer pre-course material for examiners.

Take-home messages: Examination of objective skills can be done successfully by postgraduates and undergraduates and still provide candidates with a real-life examination experience.

Value of Trained SP as an OSCE assessor

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Background: Using standardized patients (SP) is growing worldwide and they are used in various situations in medical education for example OSCE. Recently studies revealed satisfaction in using trained SPs as formative OSCE assessors. But SP never have an important role in summative OSCE. This study aims to evaluate SPs as summative assessors.

Summary of Work: Scoring of assessor on the same student under same condition given by trained SP and the medical assessors were compared in 4 different categories including communication skill, history taking, physical examination and procedural skill by using Pearson’s correlation coefficient.

Summary of Results: Unfortunately there is not any correlation between well trained SP’s and medical assessor’s scoring. Thus the in-depth interview of trained SP and medical assessors were performed to describe their points of view in scoring. The interview revealed that trained SP were more likely to make their decision under their feeling of “hospitality, comfortable, safety, admirable”, in contrast to medical doctors’ focus on “completeness, correctness, well performed, professional”.

Discussion and Conclusions: The in-depth interview showed another important opinion in evaluating medical students. During the era of patient safety, the SP’s point of view may be helpful to improve the students’ professionalism in their context and behavior. Thus SP scoring should be included in OSCE assessment in order to accomplish 360° evaluation.

Take-home messages: Trained SPs should be counted as a valued assessor in order to make a 360° OSCE evaluation.
Perception of clinical tasks evaluated by OSCE in UPAEP Medicine students

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Background: From the description given by Dr Harden in 1975, the OSCE has been spread throughout the world. In Mexico, Medicine Faculty of the Universidad Popular Autonoma del Estado de Puebla (UPAEP) began the process of implementing the OSCE in 2011.

Summary of Work: The objective of the research was to determine the perception of students regarding clinical tasks evaluated by OSCE.

161 students were evaluated in the Medicine Faculty in December 2014. A poll obtained information related with the learning of the medical interview, the physical examination, the diagnosis and the treatment, and another poll was used about their clinic experience. Learning was favored in real situations and/or a simulated one without objective clinical assessment.

Summary of Results: From learning process 96.1% have done an interview, 98% have examined someone, 91% have diagnosed and 80.5% average has given a therapeutic process. From the perception “being able to do” a real patient task: 25% realize interviews, 25.9% explore, 15.2% diagnose and 8.42% give treatment.

Discussion and Conclusions: The perception “being able to do” is lower compared with the rates of learning and experience gained. Therefore, we must investigate which factors determine the perceived “being able to do” in the OSCE.

Take-home messages: Self-perception of students can improve their performance in the OSCE.

Can video observation be a reliable method for objective structured clinical examination?

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Background: Objective structured clinical examination (OSCE) is a reliable and valid method for assessing medical students’ clinical knowledge and skills. In Taiwan, many OSCEs were equipped with video monitoring system and recorded simultaneously. This study was to compare the outcomes of the video observation method and direct observation method both used in OSCEs.

Summary of Work: Data were collected during a 12-station OSCE in 2014 involving the scores of 46 undergraduate medical students. The OSCE consisted of 4 clinical skill stations and 8 clinical knowledge stations (4 of communication skill, 3 of history taking, and 1 of physical examination). Examiners and standardised patients in this OSCE were qualified. Examiners rated students’ performance concurrently by direct observation and by real-time video monitor. The study compared the differences in scores and reliabilities between the direct observation group and the video observation group.

Summary of Results: There were no differences between the two group in overall scores (P=0.304). The scores of the video observation group were lower on clinical knowledge stations (P=0.08), but higher on some clinical skill stations (P=0.06). Cronbach’s alpha in the direct observation group were higher than video observation group both on clinical knowledge stations (0.575>0.260) and on clinical skill stations (0.478>0.373).

Discussion and Conclusions: Using video observation in OSCE tended to underestimate the scores of clinical knowledge, but overestimated the scores of clinical skill. The reliabilities were poor (<0.5) both in clinical knowledge and clinical skill stations. Direct observation was relatively reliable in evaluating OSCE performance.

Take-home messages: Video monitoring was not able to completely replace the direct observation in OSCE evaluation.
#3CC09 (27623)
An Investigation of students’ perceptions on learning clinical skills from both the classroom and clinical contexts and its impact on OSCE performance

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Background: The OSCE assessment is the main tool adopted in medical schools to assess the competencies of their medical students, in regards to clinical skills. However, there appears to be a disparity with the clinical skills teaching and what is being assessed in the exam.

Summary of Work: This study aimed to look at how students feel about the clinical skills teaching they receive and whether they feel the teaching, the OSCE and the real setting application of the skills conform or not. Therefore both questionnaires and interviews of clinical year students were carried out.

Summary of Results: The results showed that students find the OSCE to be a poor reflection of their performance on clinical placements. This was mainly due to the artificial nature of the OSCE as well as the high level of subjectivity of this exam. Furthermore, the students felt that the clinical teaching they received in on the wards did not reflect what they were tested on in the OSCE exam.

Discussion and Conclusions: The Students felt that they had to prepare for the OSCE separately to their clinical placements. Therefore raising questions about the validity of the OSCE.

Take-home messages: Further investigation into the OSCE and ways to improve its validity is necessary. With these improvements it can be assumed that students would be more comfortable with the OSCE as a tool to assess their competency.

#3CC10 (27549)
A study to improve medical students’ skills, knowledge, confidence and preparedness in paediatrics using an OSCE approach with limited resources

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Background: Students in the UK find pediatrics a difficult area of undergraduate training. Dundee Medical School is similar with students feeling that they lack skills, knowledge and confidence in this area at the end of their medical training. Furthermore they feel unprepared both for the exam and a job in this field.

Summary of Work: By utilising an outcome based approach we designed pediatric mock OSCE sessions with written feedback made available to students immediately after sessions. The OSCE also utilised junior medical students as simulated patients and foundation doctors as examiners. The medical school helped provide stationery, rooms and recognition for the hard work of these volunteers.

Summary of Results: There were very strong indications from preliminary results of feedback forms that these sessions have improved the skills, knowledge, confidence and their overall level of preparedness. Full results of these sessions will be made available at the time of the conference with the results of the next sessions as well as comparison.

Discussion and Conclusions: The preliminary results have been very reassuring that these sessions are effective. From written feedback from the students, examiners and simulated patients we have identified areas of improvement with the current design of sessions. However theses are minor and can be remedied easily. This will help ensure future rounds of these sessions will be even smoother and easier to run with limited resources by any coordinator.

Take-home messages: With limited resources and good planning simple sessions such as these with the cooperation of the medical school can be organised for maximum benefit to the medical students.
**#3CC11 (28180)**

A peer-led paediatric mock OSCE: Medical students’ perceptions

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Stephanie Potts, University of Glasgow, UK
Jane Hamilton, University of Glasgow, UK
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**Background:**
Peer-led mock OSCEs (PLMO) are an increasingly common construct for developing medical students’ clinical skills without draining faculty resources. A novel paediatric PLMO was offered to students with opinion sought via pre- and post- PLMO questionnaire. Results demonstrated that peer-feedback and real time practice were the most significant subjective contributing factors to paediatric PLMO success.

**Summary of work:**
An 8 station PLMO was delivered to final year medical students at University of Glasgow 3 weeks before summative paediatric OSCE. Post-PLMO verbal feedback addressed problems encountered at individual stations. Pre- and post-PLMO questionnaires explored students’ views on reflecting and perceived benefits of PLMO respectively. Answers on a Likert scale were quantified, open answer responses coded and statistical analysis performed in Excel.

**Summary of results:**
Thirty-eight (86%) and 42 (95%) of 44 candidates completed pre- and post-PLMO questionnaires respectively. Responders stated the PLMO increased OSCE confidence (98%) and clinical skill (90%). ‘Practice in real-time’ and ‘personal feedback’ comprised >94% of post-PLMO open response candidate feedback. All responders valued the post-PLMO feedback session. Responders perceived personal peer-feedback as more useful than marking schemes as reflection tools for improving both clinical competency (9.11 vs 8.28, P=0.012) and OSCE performance (9.31 vs 8.31, P=0.004).

**Conclusions:**
A paediatric PLMO subjectively improves paediatric clinical skill and OSCE-confidence. Real-time practice and personalised feedback, particularly post-PLMO verbal feedback session, were convincingly described as benefits of our PLMO. A preference for peer-feedback over rote learning underlines the dynamic nature of PLMO.

**Take-home message:**
Real-time practice and personalised feedback are the two key factors contributing to paediatric PLMO success.

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**#3CC12 (24748)**

Setting up mock OSCEs for medical students in a small island hospital

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**Background:**
Final year medical students from Southampton University are sent to Jersey for clinical placements. They give good feedback on the placements as it allows them to gain a breadth of experience. As they are far removed from their university and education centre however, studying for exams can be difficult. This project therefore aimed to set up mock OSCEs for students in Jersey.

**Summary of Work:**
Students were informed at the start of their placement that they would be undertaking a mock OSCE at the end that could include any topic from their curriculum. Patients with signs were identified from wards and clinics and consultants were approached to be examiners. The OSCEs consisted of 7-8 stations with mainly consultant examiners. Verbal feedback was given for 1 minute at the end of each station to the students and they were given written feedback on their performance for each station. The students were asked to complete a feedback form at the end of the OSCE.

**Summary of Results:**
All 4 OSCEs throughout the year ran very smoothly. Students gave very good feedback; they were impressed at the calibre of examiners and the fact there were patients with signs for them to elicit.

**Discussion and Conclusions:**
The project was a huge success and was handed over to the newly incoming junior doctors to manage, via a meeting and an information pack, to enable further medical students on placement in Jersey to benefit from it.

**Take-home messages:**
Despite being a small hospital, with commitment and enthusiasm, it is possible to develop invaluable educational experiences.
Socially formative evaluation of the performance of competences of undergraduate internal physicians

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Background: The competences performance evaluation through OSCE is lacking when it does not use reliable instruments. The objective is presenting a socially formative evaluation strategy that allows for an accurate evaluation of the competences performance levels of undergraduate internal physicians (UIP).

Summary of Work: An objective structured clinical examination (OSCE) was applied to a sample of 43 UIP to be evaluated with simulated patients, the competences of their profile through 18 stations with cases of: Pediatrics, Gynecology, Internal Medicine, Family Medicine, Surgery and Emergencies. The evaluation instruments previously evaluated with 0.81 Cronbach alpha are learning maps that integrate four levels: receptive (5), resolution (6-7), autonomous (8-9) and strategic (10). Information was processed by descriptive statistics.

Summary of Results: The UIP reached autonomy in interpersonal communication (8.43) and in showing respect values (8.01). On the other hand, they reached a receptive level when showing the follow-up with the patient (6.91) and when informing of their condition (6.99). This indicates they are resolutive and they require coaching by the clinical tutor. The station with the higher average 8.48/10.00 was pneumonia (Rx and Dx interpretation) of the internal medicine area. The performance levels vary in each station depending on the complexity of the clinical case.

Discussion and Conclusions: The learning maps in the OSCE are a reliable evaluation instrument that, from the socially formative approach, allow for the determination of the performance levels as well as the aspects that require improvement.

Take-home messages: The evaluation of competences contributes to continuous improvement when performance levels are determined objectively and have the support of the clinical tutor.

OSCE programs for both resident doctors and nurse specialists

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Background: From 2011 through 2014, Taipei City Hospital has introduced a practice, formative three- to five-station Observed Structured Clinical Examination (OSCE) for both post graduate year 1 (PGY1) resident doctors and Nurse Specialists (NSP).

Summary of Work: A total of 148 PGY1 and 42 NSP had participated the OSCE in the past four years. Senior NSPs acted as simulated patients (SPs). Our OSCE clinical scenario included a wide variety of topics, such as urinary catheter insertion, operation wound suture, and how to tell patient of diagnosis. The participants filled a questionnaire on satisfaction after joining the OSCE. The satisfaction questionnaire contained two part: examination environment (space, materials, SP) and time-controlling (time in waiting, exam and each station). Higher scores (with 5 in full score) represented better satisfaction.

Summary of Results: Most of the participants responded moderate to high scores in the satisfaction questionnaire. In the aspect of environment, NP participants showed higher degree of satisfaction as compared to PGY1 participants. (4.65±0.46 in NP v.s 4.51±0.43 in PGY1). In the aspect of time-controlling, NP participants still revealed higher degree of satisfaction as compared to PGY1 participants. (3.25±0.28 in NP v.s 3.16±0.27 in PGY1). Fail in passing one or two stations does not influence the degree of satisfaction.

Discussion and Conclusions: For both NP and PGY1 who participated in our OSCE, most participants satisfied in joining the OSCE and learned much.

Take-home messages: OSCE for NP responded higher satisfaction as compared to PGY1. The main function of OSCE is teaching and learning.
A study to assess the effect of simulated long case OSCE teaching on medical student confidence, in preparation for summative medical school examinations

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Background: Final medical school summative examinations often include long case OSCE stations that assess core principles of history taking, clinical examination, prescribing and communication skills. This study aims to assess whether simulated OSCE teaching increases medical student confidence in core elements of examination technique.

Summary of Work: A prospective study of 72 final year medical students attended 6 simulated OSCE teaching courses. Each course was staffed by Junior Doctors who had sat and passed summative long case OSCE examinations. Each scenario included one Junior Doctor simulating the patient, and one acting as the examiner. Students completed a confidence questionnaire before and after the session, which assessed confidence in 6 areas of the OSCE process; clinical examination skills, timing, eliciting clinical signs, fluent examination, formulating differential diagnosis and summarizing and presenting.

Summary of Results: 57 questionnaires were collected before the teaching sessions, and 49 collected after. There was a significant (p = <0.05) increase in students confidence in timing during an OSCE, fluency of examination skills, eliciting clinical signs, formulating differential diagnosis and summarizing and presenting. There was not a significant improvement in confidence in clinical examination skills.

Discussion and Conclusions: This study demonstrates that simulated long case OSCE teaching is a helpful formative assessment of the process of examination, but not as a test of clinical examination skills. Teaching sessions with surrogate patients are most beneficial in areas involving time management, formulating differential diagnosis and summarizing and presenting.

Take-home messages: Simulated long case OSCE teaching sessions may be beneficial for medical students within their formal medical education program, in addition to real patient interaction.

Peer Led Mock OSCE in medical education - a Single Group’s Experience

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Background: Development of a student’s teaching skills, as well as the increased popularity of peer led teaching initiatives in medical school education led a group of final year students and foundation doctors to design a Peer Led Mock OSCE for second year students at the University of Glasgow. This abstract aims to describe how it was designed.

Summary of Work: The Mock OSCE was designed and carried out in six phases. The first phase was Recruitment. This involved actively seeking interested medical students and foundation doctors who believed themselves to have the necessary teaching skills. The second phase involved Focus Group and design of marking schemes. The third phase involved advertising and registering interest. The fourth phase involved detailed planning of the circuit and dividing the groups. The fifth phase was the mock OSCE day itself. The sixth phase involved Feedback and Reflection from both students and peer tutors.

Summary of Results: Feedback was collected from students in the form of a questionnaire. Data was collected covering overall rating, knowledge covered, visual material, enthusiasm, interactivity, communication and structure. Students were asked to rate the tutor on the above categories from 1-6 (6 being the best and 1 being poorest). The mean satisfaction rating across the board was 5.68. Tutor feedback was gained verbally.

Discussion and Conclusions: Students and tutors were highly satisfied with our structured Peer Led Mock OSCE in terms of improving student performance and improving tutor teaching skills.

Take-home messages: A well structured Peer Led Mock OSCE can deliver high levels of student and tutor satisfaction and can be replicated in other centres.
Applying an established assessment method for Clinicians to Scientists: a learning process for all

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Background: The Objective Structured Clinical Examination (OSCE) is an internationally accepted method of assessing the practical skills of clinicians such as doctors, dentists, veterinary surgeons. Under the 2010 Modernising Scientific Careers initiative, which brought all Healthcare Sciences under one umbrella, the OSCE method was adopted and adapted by the National School of Healthcare Science (NSHCS) as a standardised method of final assessment for over 20 diverse specialisms such as Audiology, Histopathology, Genetics.

Summary of Work: In consultation with specialism specific professional bodies, the Objective Structured Final Assessment (OSFA) was designed and delivered for the first cohort of Clinical Scientists completing the newly implemented national Scientist Training Programme in July 2014 within a 6 month timeframe including writing and reviewing 185 individual stations, standard setting using the Angoff method, training assessors. A formative mock OSFA and a modified resit OSFA were also delivered. Real-time e-marking allowed for timely interventions and rapid turn-around of results for Exam Boards and ultimately, to Trainees.

Summary of Results: Whilst a steep learning process for all involved, assessor and trainee evaluation suggests the delivery of this high stakes exit assessment was highly successful.

Discussion and Conclusions: The management and delivery of 20 individual OSFAs in 6 days involving over 200 station writers and assessors was incredibly complex, both logistically and operationally, needing the full collaboration and commitment of all stakeholders.

Take-home messages: Against a background of many challenges to changing from established training pathways and final assessments such as the viva — the standardised OSFA is finding acceptability and even preference within the, rightly cautious, Healthcare Science community.

OSCE with demonstrated constructive feedback as the effective teaching method for blood smear interpretation skill

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Background: Blood smear interpretation is a blood test that gives information about number, shape of blood cells and provides diagnosis of diseases. This skill is essential for internal medicine resident training certificate. This procedure combines not only technical skill with microscope but also interpretation skill with blood film.

Summary of Work: Our division provided various teaching methods in this skill for residency training which included self-practicing, skill demonstration class and work place self-education. The OSCE was used for assessment this skill. Our division has developed the OSCE with demonstrated constructive feedback which can be used for both assessment and teaching method. The evaluation of this new method was assessed by the questionnaire from both teacher and resident and the point from examination.

Summary of Results: The questionnaire was answered by 8 teachers and 50 students. The OSCE with demonstrated constructive feedback was the most effective teaching method among other methods from both teacher and student. Residents had increased the level of confidence in this skill from 64.3±16.9 % to 74±15.3 % after training. This result was also confirmed by the mean points before and after examination which was increased from 65.6±20.6 to 84.3±20.

Discussion and Conclusions: OSCE with demonstrated constructive feedback was not only the good assessment tool but also could be effective teaching method in blood smear demonstrated and interpretative skill. These results were corresponded from teacher and learner questionnaire, the level of learner confidence and OSCE point.

Take-home messages: Effective assessment and constructive feedback can be used as an appropriate teaching method.
An analysis of the internal structure of clinical competence in an OSCE using multidimensional Item Response Theory

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Background: Analysis of OSCE data usually relies on generalizability theory. In this study, we used modelling in the framework of item response theory (IRT) to examine the internal structure of clinical competence in an OSCE for pediatric dentistry.

Summary of Work: Hundred-twenty fourth-year dentistry students participated in a pediatric dentistry OSCE, consisting of 18 stations of six minutes each. Stations were evaluated through 5 to 20 four-category items, with each item being an indicator of one of seven attributes of clinical competence. A hierarchical graded-response IRT model was fitted to the data, which at the lowest level assumes two sources of systematic variance, the first related to the attribute measured by the item and another related to the particular station. At the higher level, structural relations among the seven attribute factors were examined.

Summary of Results: Adequate model fit was observed. The station-specific factors generally have stronger influence on the item score than the general attributes. The structural relations among the attributes could be explained by a single overall second-order factor, interpreted as general clinical competence in pediatric dentistry.

Discussion and Conclusions: Although OSCEs commonly aim at assessing general attributes of clinical competence, the choice of the particular stations may explain a larger portion of the variance in the overall score. Advanced psychometric models can be employed to obtain unbiased estimates of the students’ clinical competence.

Take-home messages: Strategies should be considered to enhance the effect of general attributes of clinical competence over station-specific characteristics.
The relation between a first impression and a station rating when examinee performance changes

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Background: There is evidence that OSCE examiners form impressions of examinees within seconds and these impressions can be predictive of final station scores. This study explored whether or not this relationship is influenced by a change in examinee performance during the station.

Summary of Work: Physician examiners (n=25) viewed seven videos of examinees (i.e., actors) performing a physical exam an OSCE station. They rated the examinees’ clinical abilities on a six-point global rating scale after 60 seconds (first impression rating) and again at the end of the station (final rating). For three of the videos, examinee performance remained consistent throughout. For two videos, examinee performance changed from initially strong to weak and for two videos, performance changed from initially weak to strong.

Summary of Results: In the consistent condition, the correlation between the examiners’ first impression (M=4.76) and their final rating (M=4.04) was r = .48 (p=.02). In the strong to weak condition, the correlation between the first impression (M=4.88) and the final rating (M=2.84) was r = .47 (p=.02) and r = -.22 (p=.30) in the weak to strong condition (M=3.54 and 4.80).

Discussion and Conclusions: The results suggest that examiners are willing to change their first impression rating of an examinee when performance changes but the predictive relationship only changes when examinee ability improves. When performance is consistent or declines over time, examiners are less willing to provide a rating that differs from their first impression.

Take-home messages: Final station scores are related to a first impression but that relationship is influenced by a change in examinee performance from weak to strong.

Nurse Specialist OSCE programs for preparation of license exam

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Background: From 2009 through 2014, ZhongXing Branch of Taipei City Hospital has introduced a practice, formative three- to five-station Observed Structured Clinical Examination (OSCE) for Nurse Specialists (NSPs), as a pretest for their license examination.

Summary of Work: A total of 35 NSPs have participated the OSCE in the past five years. Senior NSPs acted as simulated patients (SPs). The participants were scored by clinical advisers and SPs in each station. Checklists scored by clinical advisor included history taking, physical examinations, differential diagnosis and initial management, with a total score 100. SPs also marked each participant with checklists on physician-patient communication, time spent in listening, satisfaction on clinical service, with a total score 72. After the pretest training, the participant took formal OSCE licensure examination.

Summary of Results: 74.1% participants passed their NSP license exam at the year after they practiced in pretest OSCE, another 14.8% participants passed the license exam the following year. The OSCE score from clinical advisors showed negative predictability for the license exam pass rate (0.93, 95%CI: 0.77-1.13). However, the OSCE score marked by SPs showed positive predictability for the license exam pass rate (1.08, 95%CI:0.84-1.40). The senior SPs observed participants from their point of view, which is different from the clinical advisors.

Discussion and Conclusions: Scoring from senior NSP for the participants provided positive predictability in passing their license exam. Reasons for this phenomenon could be that senior NSP had experienced in passing the license exam and were familiar with the detailed key points of the exam.

Take-home messages: Senior NSP realized the detailed items and keypoints of NSP license OSCE. Therefore, they can play good teaching role as SPs.
Effects of cultural differences on the implementation and application of the objective structured clinical examinations (OSCE) in China

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Background: Western educational techniques have become widely used globally, such as the objective structured clinical examinations (OSCE) in China, as they appeal to medical leaders around the world by the advantage of facilitating students’ gaining of practical competence.

Summary of Work: This study explores the potential impact of Chinese academic culture on the transfer of the OSCE. It does so through an analysis of the differences in Chinese and Western ideas on: the purpose of education, the roles of teachers and students and the relationships between them, the process of teaching and learning, and students’ approaches to learning.

Summary of Results: Though globalization has had significant impact on medical education, some of this impact has been negative. As this study shows China experienced considerable compatibility issues with the OSCE when it was imported and used in China.

Discussion and Conclusions: There are difficulties in cross-national transfers of educational practices and techniques, because ideas of effective pedagogical practice vary from culture to culture. This does not mean that learning from other countries is impossible or improper, but before nation-wide implementation and application, educational techniques should be fully tested and evaluated – and adapted to the Chinese academic culture.

Take-home messages: The implementation and application of medical educational techniques may be significantly affected by different socio-cultural contexts. Incompatibility between Chinese academic culture and the characteristics of the OSCE may be a reason for the challenges China is facing during the process of implementation. Medical leaders and educators should be committed to adapting imported methods or devising new educational models to fit the local context.

Sex inequality in OSCE and MCQ scores in medical students rotating in the surgery clerkship

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Background: Albeit some evidence of sex inequality in medical profession, there is a paucity of data suggesting sex disparity in medical student examination results. The present study was aimed to investigate whether there were differences in OSCE and MCQ scores and grades between male and female medical students rotating in the surgical clerkship.

Summary of Work: Study population included 97 medical students rotating in the surgery clerkships at the Sanpasitthiprasong Regional Hospital during 2011-2014. MCQ and OSCE were used as student summative assessment at the end of each clerkship. MCQ and OSCE examination results of male and female medical students were compared using Man-Whitney-U test. Students’ grades were also compared across sex using chi-squared test.

Summary of Results: Overall, there was no difference in OSCE and MCQ scores between male and female students. However, in subgroup analyses, sex disparity in OSCE scores was observed in Year 4 medical students, with male students significantly performed better than their female counterpart (mean score of 57.851 and 54.471, respectively (p= 0.004). Students’ grades were not different between sexes (p= 0.209).

Discussion and Conclusions: There was sex inequality in OSCE examination results in Year 4 medical students training in the surgery clerkship. Factors associated with this inequality merits further study.
Spy glasses prove paper marking OSCE stations is faster than using tablets, the truth

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Background: Purpose of this study was to investigate whether examiners complete assessment forms faster on paper or tablet. Our hypothesis is that the use of tablets requires less time compared to paper-based solutions and therefore more time is available for observing clinical skills in OSCE stations.

Summary of Work: We recorded 10 examiners’ behaviour during the marking of three pre-recorded final year OSCE stations. Assessment scenario’s were all randomised. We measured the: observing time, time of completing the assessment form amount of head movements while assessing the student for both using a: paper based assessment method tablet based assessment method Examiners observations were recorded while wearing ‘spy glasses’ with a camera in the bridge of the frame. Station scenarios and level of student performance were randomized to prevent memorisation of assessment results. EDU-G (generalisability theory) was used for data analysis. We used Qpercoms’ OSCE MIS for data collection.

Summary of Results: The mean (SD) marking time for paper versus tablet is 110s (36s) and 117s (32s) respectively. There is a statistical significant difference (p-value=0.035) between marking time, depending on the medium that is used. The mean (min; max) amount of head movements (checking the assessment form) is 15 (1;40) for paper and 18 (7;39) for tablets (p-value=0.005). The G coefficient is 0.54 for paper and 0.66 for using a tablet.

Discussion and Conclusions: In contrast to our assumption, marking OSCE stations on paper is faster than electronic marking. This difference (7 sec) is not considered to be educationally relevant. Furthermore, transfer time of paper data was not included in the study. Moreover, examiners using a tablet look at the assessment form more often and this appears to be more reliable. In future research more examiners and cases needs to be included.

Take-home messages: Using an online OSCE management information system is not faster than paper but more reliable
#3DD Posters: Selection

Background: In the view of far exceeding number of students applying to do medicine than the available number of places, the selection committees in most medical schools have been concerned with establishing a suitable criterion of admission into their medical programme. Along with academic qualifications the ability to cope with stressful situations, decision making abilities are considered to be important in some medical schools. The International Medical University (IMU) is a private medical university. IMU uses a whole range of pre-university entry qualifications (e.g. STPM, A'-levels, Australian matriculation, Malaysian matriculation etc.) to select students for admission into its medical programme. The IMU has developed a banding system to equate the grades obtained from the different pre-university entry qualifications to facilitate student selection. All students who meet the minimum entry requirements will be asked to attend an interview which is structured in such a way as to test candidate’s attitudes and decision making abilities, the recommendations from the interview board of the suitability of the candidate is considered in deciding the admission of a student for the IMU medical programme. In this study, we aim to relate the banding scores of these students in the written and clinical (OSCE) scores of these students for all the professional examinations (Sem 1 to 5)

Summary of Work: The banding scores and exam results of around 15000 medical students, admitted to IMU from year 2002 to 2012 and who have successfully completed up to semester 5, were collected from the admission and exam section. Correlation analysis of the data is going on and if accepted by the AMEE the results and conclusions will be submitted by the end of March 2015.

Summary of Results: Data analysis is on process and should be ready by March 2015.

#3DD02 (26428)

Correcting for suppressor effect and range restriction in the assessment of the predictive validity of the student selection test HAM-Nat

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Background: The Hamburg test of natural science knowledge (HAM-Nat) consists of 80 MC items from biology, chemistry, physics, and mathematics. It has been used for the selection of medical school applicants in Hamburg since 2008.

Summary of Work: We investigate the predictive validity of the HAM-Nat for the outcome criterion “mean percentile in the written exams over the course of the first two years of the curriculum”. The assessment is controlled for two complications, (1) the effect of a composite admission score of HAM-Nat and GPA with equal weighting, and (2) range restriction in HAM-Nat scores due to the rigorous admission process. The effect of range restriction was assessed by a classical test theory method and a Monte Carlo method.

Summary of Results: The mean percentile in Written exams was related to HAM-Nat by \( r = 0.39 \) and to GPA by \( r = 0.02 \). The correlation between HAM-Nat and GPA was negative in the subgroup of admitted applicants (\( r = -0.45 \)), but in the total sample of applicants before selection the respective correlation was zero. After controlling for GPA the residual correlation between HAM-Nat and written exams was \( r = 0.49 \). Correction for range restriction yielded correlations of \( r = 0.58 \), (classical test theory) and \( r = 0.63 \) (Monte Carlo method).

Discussion and Conclusions: A compensatory selection procedure leads to a suppressor effect, which results in an underestimation of predictive validity. A second source of underestimation is range restriction.

Take-home messages: Estimating the predictive validity of a selection test requires the consideration of suppressor and range restriction effects.
Background: In Saudi Arabia, selective admission of applicants into medical schools continues to be a topic of argument, particularly in times of unmatched demand-and-supply and determined demands to select those who are likely to become competent and professional practicing doctors. Almost all (if not all) medical colleges in Saudi Arabia regard General Aptitude Test (GAT) scores as a major admission criterion for applicants graduating from Saudi-based high school curriculum.

Summary of Work: The aim of this study is to examine the correlation between Saudi GAT scores and academic performance — expressed as cumulative grade point average (cGPA) — among pre-clinical medical students at Alfaisal University—College of Medicine, Riyadh. METHODS: GAT and cGPA scores were retrospectively retrieved from the University’s Office of Admission and Registration. One-way analysis of variance (ANOVA) test was used to examine for mean differences of GAT and cGPA scores among students. Pearson Correlation Coefficient (r) test was used to correlate between GAT and cGPA scores among students.

Summary of Results: A total of 405 students met the study inclusion criteria. There was a statistically significant difference of means for GAT scores between first-year and third-year students (p=0.0097). Overall, there was a weak positive (yet statistically significant) correlation between GAT and cGPA scores [r=0.26, p<0.0000]. Weak positive correlations between both variables were noted in first-year [r=0.31, p=0.0015] and second-year students [r=0.32, p=0.0002]. As progressing towards clinical years, the strength of Pearson r correlation decreased dramatically in third-year students [r=0.20, p=0.0093].

Discussion and Conclusions: GAT scores have limited values in predicting pre-clinical academic performance (cGPA), and subsequently this raises a concern as whether GAT scores should be considered as a major component of the admission criteria. Additional data is required from other Saudi medical colleges.

Take-home messages: GAT scores do not appear to yield useful validity in predicting academic performance (cGPA) during pre-clinical years [r=0.26, p<0.0000].
#3DD05 (26098)
Multiple Mini Interviews for selection of Medical Students: Does Gender Difference Matter?

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Background: Channels of medical student recruitment in Taiwan have been substantially changed in the past two decades, with increasing percentages of students selected by interview. In parallel, proportions of female students were also found to be gradually soaring. The aim of this study was to investigate whether multiple mini interviews (MMI) have a significant impact on female preponderance in medical student recruitment.

Summary of Work: Entrants to our school and MMI interviewees from 2009 to 2014 were all included for the analysis. Whether student gender per se has distinct impacts on the final student selection between different entrance channels and whether student gender influences their scores at different MMI stations were analyzed.

Summary of Results: Of totally 261 entrants, 96 (36.8%) were female. Among those who were recruited by MMI, 50.6% were female, in comparison to only 30.6% female in those recruited by non-interview channels (P=0.002). There were totally 77 (40.3%) females in overall 191 MMI interviewees. Among female interviewees, up to 70.1% got entrance offer, in contrast to only 38.6% of male interviewees who finally did [P<0.0001; OR 2.23 (95% CI, 1.50-3.31)]. When further looking into each MMI station, we found that female interviewees obtained significantly higher scores at stations evaluating for “learning potentials”, “reasons for studying medicine”, “critical thinking”, “communication skills”, and “mental health” (all P<0.05), with the other 5 stations showing a balanced trend towards both genders.

Discussion and Conclusions: MMI show a significant trend in favor of female interviewees, and thereby, may have a substantially impact on gender structure of medical students, especially for medical schools using MMI as their major way of student selection.

#3DD06 (26746)
Psychodiagnostic technology in assessing personal qualities of medical school applicants

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Background: Psychodiagnostic technology in assessing personal qualities of medical school applicants.

Summary of Work: To assess the personal qualities of applicants to the Medical Institute used the method of computer psychological testing "Proforientator" developed in the Moscow State University. The system allows to analyze the interests, personal qualities and abilities of applicants. It consists of three modules: evaluation of the structure of interest (technology, science, art, communication, business, character, nature, risk); intelligence (computing, vocabulary, learning, logic and attention); personality (activity, consent, self-control, emotional stability).

Summary of Results: The work with 255 applicants was based on the principles of integrating mental properties, psychometric validity, age test standards, final conversation, and the probability of "soft" forecast. Testing results have included the graphic profile (interests, abilities, personality traits) diagram of applicant's correspondence to the profile of training, selection of suitable specialties, interpretation of the results, recommendations for the development of personality, trainings. Analysis of section "structure of interest" showed the high interest in the field of nature, science, and technology. "Intelligence structure" revealed the average computational abilities among applicants in vocabulary, visual and abstract logic. The level of attention was above average. This research testifies the best results in the implementation of hard and monotonous work, work in extreme conditions. High values of self-control, emotional stability and harmony were identified in the area of personality structure. This allows applicants to do the work which demands high responsibility.

Discussion and Conclusions: Analysis of computer diagnostics gave the opportunity to determine the strengths and weaknesses of students.
Background: The Joint Medical Programme between Srinakharinwirot University (SWU), Thailand and the University of Nottingham (UoN), UK; accepted qualified applicants from standard Thai and international high schools. The study evaluated the correlations of student marks in two study modules with the entrance scores and students’ high-school background.

Summary of Work: The final marks of module MDG103; mathematics, chemistry and biochemistry, and module MDG104; biomedical subjects, of all 58 students from five batches starting their course in 2010-2014 were compared among students' high-school backgrounds using one way ANOVA statistics. Univariate linear regression analysis (Pearson's correlation) was performed for all independent factors. P value less than 0.05 was considered significant.

Summary of Results: During the last 5 years, there were 12, 37, and 9 students from Thai standard high-school, international school in Thailand and abroad, respectively. Overall, student marks were similar in students from all three different school backgrounds (range 78.48-81.36, P=0.533 and 75.39-77.62, P=0.291 in MDG103 and MDG104, respectively). There is no significant correlation between either student entrance score or school backgrounds and student performances in the modules. Nonetheless, a significant positive trend of student performances over years was observed (P<0.05).

Discussion and Conclusions: Types of high-school background and entrance scores were not the indicators for student performances, as originally predicted. The positive trend of improving student performances over the last 5 years can reflect the success in enrolling more competent students into the course.

Take-home messages: The selection process for the joint medicine programme is crucial in order to recruit competent students from different study backgrounds.

Background: In 2006, our faculty had 2 groups of medical student consisting of 87 students selected by then standard Consortium of Thai Medical School (CTMS) and 28 students selected from One District One Doctor (ODOD) project. In selecting medical students by different procedures, the scores of Biology, Chemistry, Physics subjects and English language test in the 1st year of CTMS group were significantly higher than that of the ODOD group.

Summary of Work: The performance in learning activities during the 1st year and the pre-clinical (2nd and 3rd) year were compared. The 14 pre-clinical subjects (PS) scores of MCQ were examined. Additionally, National License step1 (NL step1) scores in both groups were examined.

Summary of Results: The active learning during the 1st year (31.4% of scheduled time) increased 59.8% in the subsequent pre-clinical years. Among all PS, only in the first two subjects (PS121 and PS221) CTMS group performed significantly higher than the ODOD group. However, in the NL step1 were both groups performed similarly; 64.24±7.43 for CTMS group; 60.59±8.32 for ODOD group, respectively.

Discussion and Conclusions: During the 1st year of ODOD group had significantly lower knowledge of basic sciences and English language than that of CTMS group. Active learning activities successfully rise the performance of disadvantaged students to the same level of their most examinations, particularly NL step1 by the pre-clinical years the medical curriculum.

Take-home messages: ODOD is an affirmative-action programme to increase the number of rural doctors.
#3DD09 (25328)
Differences on the Perception of Evidence Based Medicine among Medical Students of Graduate Entry Programme and High School Leaver Entry Programme

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Background: Teaching evidence-based medicine (EBM) has become a core content in modern medical curriculum. However, there is a lack of consensus regarding which is the most effective method of teaching EBM. Moreover, medical students were recruited from different entry pathways with a diversified background knowledge, which may affect the learning effectiveness. To teach EBM more effectively, we need to understand the differences of EBM perceptions among medical students from different entry pathway.

Summary of Work: We conducted a survey on EBM perceptions among the first-year and third-year medical students of the 5-year graduate entry (Group 1) and 7-year high school leaver entry (group 2) programmes respectively. Questions with five-point Likert scale relating to EBM steps were asked during course introduction, using interactive response system. The results were analysed and compared by X2 tests.

Summary of Results: A total of 211 students (group 1: 27.5%, group 2: 72.5%) responded to the questions. There were no statistical differences between group 1 and group 2 on: a) Awareness of the importance of EBM in clinical practice (63.2% vs 73.8%), b) Understanding EBM principles (29.9% vs 28.8%), c) Intention to search in EBM databases to solve clinical problems (17.5% vs 24.3%). Group 1 students were more familiar with some of the secondary EBM databases such as Cochrane Library (X2=37.523, P<0.01) and UpToDate (X2=16.484, P<0.01) than group 2. More group 1 students responded correctly to questions regarding validity of clinical trials (X2=12.570, P<0.05).

Discussion and Conclusions: The perceptions of EBM differed among medical students from different entry pathways. Graduate entry medical students were more familiar with secondary EBM databases and understood better in validity of clinical trials.

Take-home messages: The perceptions of EBM differed among medical students from different background and entry pathways.

#3DD10 (24206)
Predictive validity of the UK Clinical Aptitude Test cognitive scale scores: Preliminary findings from a national study

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Background: The UK Clinical Aptitude Test (UKCAT) contributes to most UK medical schools’ selection processes. It includes four cognitive tests (abstract reasoning, quantitative reasoning, verbal reasoning, and decision analysis).

Summary of Work: We will present preliminary findings on the predictive validity of the cognitive subscales of the UKCAT for medical school performance (theory and skills) in years three (n=4449) and four (n=3452), based on a national study.

Summary of Results: All UKCAT cognitive subscales scores significantly predicted both theory and skills performance during years three and four. Controlling for the effect of school educational performance, all four scales predicted both theory and skills performance during the third year. During the fourth theory performance was predicted by all four UKCAT cognitive subscales, but skills performance was only predicted by the abstract reasoning and verbal reasoning UKCAT subscales. School educational performance predicted theory and skills performance during the third year of medical school, but only predicted theory performance during the fourth year of medical school.

Discussion and Conclusions: Preliminary findings indicated that the UKCAT scores can predict theory and skills performance in the later years of medical school, over and above school educational performance. School educational performance did not predict fourth year skills performance, but the abstract and verbal reasoning subscales of the UKCAT did offer predictive validity for fourth year skills performance.

Take-home messages: UKCAT cognitive scores are likely to add value, above and beyond educational achievement, within the medical selection process.
The correlation of Multiple Mini Interview (MMI) and Minnesota Multiphasic Personality Inventory (MMPI) to predict first years of academic performances in medical school

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Background: In the present globalization era, criteria for the selection students are important related to the selection of candidates for enrolment as new students at Faculty of Medicine, Universitas Islam Bandung. Next to academic achievements, the ability of a candidate to adjust and live and study effectively in a new academic and cultural environment of Faculty of Medicine UNISBA depends on many features of the new environment and the student’s personal qualities and capabilities, among others are interpersonal and communication skills.

Summary of Work: The aim of this study is to evaluate the ability of the combination between Multiple Mini Interview (MMI) and Minnesota Multiphasic Personality Inventory (MMPI) 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 2013. Correlations were used to select variables with Spearman correlation test analysis. 38 first year’s students participated.

Summary of Results: The combination of Multiple Mini Interview (MMI) and Minnesota Multiphasic Personality Inventory (MMPI) was correlated positively with GPA score of first year students of medical school. The result show significant correlation and strong relationship with p=0,001 (p≤0,05) and correlation coefficient (rs = 0,56).

Discussion and Conclusions: The combination of Multiple Mini Interview (MMI) and Minnesota Multiphasic Personality Inventory (MMPI) are useful for medical student selection processes.

Take-home messages: The combination of Multiple Mini Interview (MMI) and Minnesota Multiphasic Personality Inventory (MMPI) can be used to predict first year medical student performances.

Selection of candidates to medical schools: cognitive variables, motivation and professional interests. An empirical study

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Background: Throughout the years international debate has emphasized different types of knowledge and skills reflecting contemporary thought on what is necessary to demonstrate readiness to learn in medical school. A critical point is represented by the usefulness of the evaluation of motivational and psychological variables.

Summary of Work: We evaluated a set of motivations to medical studies and interests in medical profession in a sample of 3544 candidates to our medical school. We used latent class analysis to identify possible subgroups. We also evaluated the same variables in 414 students (67.8 percent of the total).

Summary of Results: 85.6 percent of the candidates were included in four latent classes. After the admission test, evaluating cognitive skills and scientific knowledge, we compared the extreme queues of the distribution (100 best vs 100 worst). The first showed a balanced distribution among scientific, professional and personal motivations, while the last showed spread and less coherent characteristics. The distribution of the students was similar to the best performing candidates.

Discussion and Conclusions: Selection of candidates based on cognitive and knowledge variables seems to be useful in order to evaluate personal motivation and interests.

Take-home messages: Selection criteria to medical schools don’t need the introduction of personal variables.
Selection of medical students by a preliminary studying procedure: the influence on early medical school performance

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Background: Prior (cognitive) achievement is known as an important predictor for success in medical school. Furthermore, research indicates that self-selection should be stimulated and that context influences performance. At RUMC in Nijmegen, Netherlands, we designed a selection procedure for medical school based on this theoretical basis; a preliminary studying procedure.

Summary of Work: In 2010-2012, admission was possible by selection, lottery or high secondary school grade point average. Selection candidates studied (in a digital learning platform) a course that closely reflects education in early RUMC medical school and took an exam. Research question: do selected students perform better than lottery admitted students in medical school after year 1 and year 3? 954 students were included.

Summary of Results: During the first year selected students perform better than lottery admitted students, after correction for secondary school GPA (which is nationally uniformly composed) as well. After the two succeeding years of the bachelor, some differences have decreased.

Discussion and Conclusions: The procedure selects students who perform better than lottery admitted students. We assume this is caused by the similarities between the preliminary studying procedure and early medical school; the theoretical background on which the procedure was based. Some differences decrease over time, so students' strategies might become more alike.

Take-home messages: The preliminary studying procedure selects students who perform better in medical school than lottery admitted students, even after correction for GPA. So if medical schools can not use GPA in selection, this procedure is advisable for selection as well. The procedure is efficient; relatively little teacher time is needed.

Assessing decision making aptitude in medical admissions selection


Background: In the UK, the Selecting for Excellence project identified a set of core values, skills and attributes needed to be a doctor. This set included several key factors integral to effective decision making: problem solving, managing risk, and dealing with uncertainty. Decision making, particularly in a clinical context, is complex, involving a multifaceted set of cognitive processes, attitudinal dispositions, and the application of a knowledge involving both clinical and biomedical components.

Summary of Work: Admissions tests are designed to assist in identifying medical school applicants more likely to be successful in their study and ultimately in their careers. Because decision making is central to the role of the doctor, assessment of aptitudes which play a role in the ability to make effective clinical decisions may be a valuable component of the selection process. This session will present an overview of relevant literature related to decision making in general and clinical decision making in particular.

Discussion and Conclusions: Because decision making is complex and multifaceted, there is not a precise and customary way of assessing it. Test sponsors are presented with options. Key questions include:
1. Can decision making ability be adequately assessed through the use of a single task and item type, or are multiple tasks necessary?
2. Is decision making ability best assessed with item types that include knowledge-based content or with item types that are more independent of knowledge? If knowledge-based content is desired, should the content be domain-general or domain-specific?
3. Should the process of making a decision and/or the product of decision making be assessed?
Each of these questions will be discussed in the context of which considerations in the selection of applicants and the circumstances under which admissions tests will be used.
#3DD15 (27926)
Medical school screening tools: how far do Medical Aptitude tests and personality measures predict performances throughout preclinical years?

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Background: The development of screening tools predicting further academic and professional performance is still an unresolved issue. To date, Medical College Aptitude Tests (MCAT) and Grade-Point-Average are the best predictors of performance during medical school, along with, to a lesser extent, some personality measures (e.g. Conscientiousness). Findings are still however controversial about the evolution of predictive validity of these measures, notably personality, throughout preclinical years and further research is needed.

Summary of Work: We investigated for 551 undergraduate medical students the predictive validity (linear regression analyses) of the Swiss MCAT and of personality measures (NEO-FFI) on their exam scores throughout the 3 preclinical years. We analyzed separately scores on basic medical sciences MCQ and OSCE exams.

Summary of Results: MCAT only significantly predicted year 1 MCQ scores (β=.28). Conscientiousness significantly predicted year 1 (β=.24) and 2 (β=.20) but not year 3 MCQ scores. Extraversion predicted lower year 3 OSCE scores (β=-.23).

Discussion and Conclusions: Results confirm that MCAT and Conscientiousness are predictive measures for year 1 performance. However, their predictive validity disappears (MCAT) or decreases (Conscientiousness) during subsequent preclinical years.

Take-home messages: Screening tools relying on MCAT and Conscientiousness measures have limited predictive validity of performance during preclinical training. Further research is needed to develop and test other screening measures in order to select the most suitable candidates for medical school.

#3DD16 (28290)
Selection into specialty training: Assessing behaviour and values based recruitment to improve quality of patient care

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Background: Having completed a two year Foundation training post, doctors in the UK apply for specialty training (ST1/CT1). Currently, most specialties have their own recruitment process that seeks to assess the attributes and competencies required for that specialty. With an aim to improve the way doctors are selected in future for ST1/CT1 recruitment, a single Speciality Selection Test (SST) was piloted with all specialties in the UK.

Summary of Work: 528 doctors took part in the SST pilot in 2014, which comprised a Clinical Problem Solving (CPS) test and Situational Judgement Test (SJT). Psychometric analysis examined the appropriateness of the test for use across all specialties.

Summary of Results: Both the CPS test and SJT demonstrated acceptable to good internal reliability and were reasonably capable of differentiating between individuals. Initial exploration of the criterion-related validity of the SST showed that, for eight specialties, those who performed well on the SJT and/or CPS were likely to score well throughout the relevant interview process. Most participants agreed the SST was set at an appropriate level although reactions were more mixed regarding its relevance to specialty training.

Discussion and Conclusions: This project was endorsed by Health Education England and is part of the Medical and Dental Recruitment and Selection (MDRS) Programme whose aim is to ensure that the UK are recruiting the right people with the right skills, values and behaviours, which will, consequently, improve the quality of patient care.

Take-home messages: A robustly designed SST will ensure that selection into NHS funded training posts incorporates testing of clinical competence and desirable values and behaviours.
#3DD17 (26972)
Transitioning into medical school: a comparison between Manchester Access Programme (MAP) students and non-MAP students

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Background: The Manchester Access Programme (MAP) is The University of Manchester’s flagship widening participation initiative targeting under-represented groups at medical school. This study aimed to compare the experiences of MAP and non-MAP students during their transition into medical school.

Summary of Work: Electronic questionnaires were developed and sent out to all Manchester medical students in Year 1 – 5 to identify factors affecting transition into medical school. Questions included both free text and Likert responses.

Summary of Results: 109 responses were received and analysed (88 non-MAP and 21 MAP). 53% of non-MAP students and only 6% of MAP students stated college as their greatest support when applying to medical school. 14% of MAP students reported finances as their biggest worry before starting medical school compared to 20% of non-MAP students. All MAP students and 96% of non-Map students felt they settled in well at University.

Discussion and Conclusions: All MAP students received a financial bursary and were more likely to have a part time job, which could explain why less MAP students were worried about finances before starting medical school. MAP students were more likely to report social issues, such as not fitting in or making friends as their greatest challenge, which could reflect difficulty adjusting to an environment where those from low socioeconomic backgrounds are under-represented.

Take-home messages: Challenges faced during the transition into medical school differ between MAP and non-MAP students. Overall, MAP supports entry into medical school; but further support for students once in medical school is welcomed.

#3DD18 (26973)
Medical school examination scores: a comparison between Manchester Access Programme (MAP) students and non-MAP students

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Background: The Manchester Access Programme (MAP) is The University of Manchester’s flagship widening participation initiative targeting under-represented groups at medical school. With MAP students forming a significant proportion of the medical student population (13% in 2014-15) it is important to understand how these students perform at university compared with non-MAP students. This study will analyse and compare the assessment scores of MAP and non-MAP students.

Summary of Work: MAP and non-MAP students’ medical examination scores will be statistically analysed and compared. All assessments undertaken in the programme will be used, including end of semester tests, objective structured clinical examinations (OSCEs), and personal excellence pathways (PEPs). Comparisons will be made between MAP and non-MAP students within each year group and year-by-year trends in overall performance will be noted. Rates of participation in an intercalated degree will also be compared. MAP students’ A level grades will be analysed to explore any correlations with medical scores.

Summary of Results: Data analysis will be finalised in March 2015 and the final results will be presented at the conference.

Discussion and Conclusions: MAP students complete a written assignment and have lower academic requirements for entry into medical school. This could potentially improve performance on PEPs where written communication is assessed. MAP students may, however, score lower in other examinations. Nonetheless, there may be no difference between the two groups.

Take-home messages: Understanding how MAP students perform at university will help further evaluate the MAP selection process and the support received by these students once at medical school.
Impact of sociodemographic characteristics on applicants’ score in French Canadian multiple mini-interviews (MMI)

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Background: The three French-speaking Canadian universities use centralised MMI to select medical school applicants. This study aimed at assessing the impact of sociodemographic characteristics on applicants’ scores.

Summary of Work: A questionnaire was given to Montreal MMI applicants. Data collected included age, birthplace, postcode, language background, parental birthplace and education level. Material deprivation index was inferred from postcode. Data were linked to MMI scores and analysed using linear regression.

Summary of Results: 557 candidates responded to the questionnaire (response rate 95.3%) representing 37.3% of all candidates province-wide. Among respondents, 61% were women (n=340). Median age was 20 years [range 17-42]. 77.2% of candidates were native French speakers (n=430). Among Canadian-born applicants (n=462), female gender (β=0.131, p=0.004), number of years spent in a French-speaking school (β=0.146, p=0.002) and Canadian-born father (β=0.127, p=0.007) were predictors of MMI score in a multiple linear regression model (R²=0.062). Among foreign-born applicants (n=95), French as first language (β=0.267, p=0.018) and number of years spent in Canada (β=0.244, p=0.030) were predictive of MMI score (R²=0.143). Material deprivation index and parental education level had no impact on MMI score.

Discussion and Conclusions: Language has a significant impact on applicants’ results. Number of years spent in Canada and birthplace of parents were associated with a better score, suggesting that cultural influence might impact on applicants’ performance. Gender difference was only observed in Canadian-born applicants. Further studies are needed to see if station design or examiners characteristics can modify this effect.

Take-home messages: Gender, language and time spent in Canada have a significant impact on applicant’s performance in French Canadian MMI.

Can we predict residents’ achievement from their performances in the selection process?

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Background: Resident selection process comprises undergraduate academic background and interviewing performance. We aimed to evaluate the association between performance before entering the program and the final outcomes of training.

Summary of Work: Selection process scores among internal medicine residents of Siriraj Hospital in 2011 were retrieved. Scores consisted of undergraduate grade point average (GPA) during clinical years and performance from interviewing. Association between scores from selection process with scores from multisource feedback and board certifying examination were examined.

Summary of Results: There were 42 residents in that academic year, 23 were female and 19 were male. The mean ± standard deviation (SD) for scores of GPA during clinical years and performance from interviewing were 85.5 ± 6.8 and 88.6 ± 4.1, respectively. The mean ± SD for scores of global rating by staffs, and from written and clinical board certifying examinations were 83.9± 3.7, 94.4± 5.0, 63.4± 5.8, and 69.8± 4.2, respectively. GPA during clinical years had modest relationship with staff global rating scores (r = 0.449, p = 0.003) and written examination scores (r = 0.559, p < 0.001), while interviewing scores has modest relationship with staff global rating scores (r = 0.515, p < 0.001), colleagues global rating scores (r = 0.432, p = 0.004), and written examination scores (r = 0.468, p = 0.002).

Discussion and Conclusions: Interviewing performance, as part of a resident selection process, can add more information to previous academic background in predicting future success in term of interpersonal skills achievement.

Take-home messages: Potential for being a competent specialist may result from appropriate selection process.
Is the introduction of national medical postgraduate-level entry exams a fair selection tool for employers?

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Background: The ratio of medical graduates to trainee posts available is rapidly becoming outnumbered and hence increasingly competitive in countries such as England. As a consequence, medical schools are adopting new selection methodologies for postgraduate medical entry.

Summary of Work: Students from various European countries were interviewed and their responses analysed to supplement a literature search of peer-reviewed journal articles relating the subject matter.

Summary of Results: Despite existing data on the efficiency of various postgraduate assessment methods such as the Situational Judgement Test (SJT), there is limited research on the undergraduate students’ perspectives. Interviewees established that the standardised ranking systems rely too much on the one day test evaluation not the general performance over the duration of the entire degree. However, they appreciate that it was introduced to help maintain variations in assessments between different medical schools. On the other hand, in countries without similar national examinations, students report lack of confidence and motivation because the standards are not the same for all graduates.

Discussion and Conclusions: It is crucial to develop a postgraduate exam that answers the expectations of both students and different stakeholders. We believe the real emphasis should be on standardising medical school exams across universities nationwide so that this mitigates the need to introduce further tests for post-graduate positions.

Take-home messages: Medical school exams must be standardised as opposed to introducing post-graduate entry tests.
Students’ perspective on integrating basic research competencies into undergraduate medical curricula

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Background: Participating in research activities for undergraduate medical students is one of the determinants of future career selection. Many students are motivated for basic research and might be excellent physician-scientists in the future. However, medical curricula lack enough training needed to motivate them and shape their interests. This research aims to know students’ perspective on integrating basic research skills into medical curriculum that will allow students to pursue basic biomedical research in variable stages during their undergraduate years.

Summary of Work: A cross-sectional survey targeting undergraduate medical students in different Saudi Arabian medical schools, who have participated in basic research training, the survey aims to determine the following:

1- The level of knowledge of students for listed competencies (5 point Likert scale)
2- Source students acquired the competencies from
3- Student’s opinion of whether the competencies should be taught in medical curricula or not.

Summary of Results: The primary results (n=80) showed that the majority of students were knowledgeable about the basic competencies surveyed. The majority also pointed that they have learned these competencies from extra-curricular training. However, interestingly most of the students stated that most of these competencies should be taught in the undergraduate curricula.

Discussion and Conclusions: Results have suggested that according to students, medical educators should consider adding “Basic Research” training as part of the medical curricula, at least for students who might be interested in that field.

Take-home messages: Medical curricula should adapt to the different demands of the students, to be able to cultivate students interest and further motivate them.
Research in Medicine (RIM) meets the need to engage research strategies to improve clinical care

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Background: The Association of Faculties of Medicine of Canada (AFMC) concludes that physician training must foster research skills. Sophisticated technologies generate unprecedented information and opportunities to integrate research into health-care. Physicians must take the responsibility to both define health-care issues and apply research to improve health-care for their patients.

Summary of Work: In 2013, Dalhousie Medical School embedded research as part of every medical student’s training, becoming the first Canadian medical school to make research mandatory within undergraduate education.

Summary of Results: RIM has facilitated involvement of clinicians in research (as mentors) and generated student interest in research. Students can conduct research throughout the academic year including two summers. Over 89% of first-year students engaged in summer research with 40% participating in publications/conferences. Both mentors and students report that their research experience is positive, providing real-world examples of integration of research with clinical care. Approximately 25% of our students enter medical school with graduate research degrees, and for many without such experience, RIM has sparked interest in pursuing research as part of their medical career. Students also provide formal oversight of RIM and express satisfaction with program. Program outcomes, processes and governance will be presented.

Discussion and Conclusions: Medical students developed their analytical thinking and learning skills from research analyses. Results were proposed to the hospital’s executive committee and put into effect on CHS improvement.

Take-home messages: Students in the RIM classes are more aware of the importance of research and how research impacts their medical profession.

Three-in-one concept: research topic initiation guideline for medical students for community healthcare service improvement

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Background: As class projects, fifth-year medical students in a Community Medicine course conducted research studies aiming to understand health system and relevant problems. Each group was consisted of 3-4 students, supervised by multidisciplinary doctors and required to complete the project within four weeks.

Summary of Work: The author initiated a three-in-one concept for guiding medical students to initiate research topics addressing the following keys. First, the study meets the course objectives. Second, it can evaluate the implemented public health policies regarding accessibility to healthcare services. Finally, the results are applicable for community healthcare service (CHS) improvement.

Summary of Results: Seven out of eight groups of students conducted descriptive, cross-sectional studies in 2014. Four of them focused on public health policies and their results were used for CHS improvement. A study about stroke fast track at Udon Thani Hospital found that, mobilization time to hospital after stroke occurs is associated with locations of occurrence and patient ages. Strategies were developed to reduce the mobilization time, e.g. handing out newly designed posters, informing stroke warning signs using simple language and including emergency medical service telephone number, and developing emergency mapping system for high-risk patients. Overall, the students’ research performances met the course objectives.

Discussion and Conclusions: Medical students developed their analytical thinking and learning skills from research analyses. Results were proposed to the hospital’s executive committee and put into effect on CHS improvement.

Take-home messages: The three-in-one concept was used as a guideline for medical students’ research topic initiation. Topics are apposite if they meet the course objectives and are applicable for CHS evaluation and improvement.
#3EE05 (26575)
Pre-clinical Medical Students' Attitudes toward Research

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Background: Participation in medical research has been associated with clinical research involvement in the future. In Thailand, Suranaree University of Technology medical students were encouraged to be involved in research since the first year of medical school however the attitudes and factors influencing towards it has not been reported. The goal of this study was to establish the attitudes and factors influencing towards research of pre-clinical medical students.

Summary of Work: An anonymous cross-sectional, self-administered questionnaire consisted of Likert Scales was administered to pre-clinical medical student at Suranaree University of Technology in 2014. Descriptive and correlative statistic analysis was used to analyse the attitudes towards previous research experience.

Summary of Results: 127 pre-clinical medical students (58.2% female, 41.8% male). 66.14% had significant involved in medical research. 2% had individual research. 59.05% had involved in because of interest in the field. 66.14% had their medical teacher as a role model in doing research. 49.6% felt that research participation was an important part of future career opportunity although 46.45% unsure about what opportunities are available.

Discussion and Conclusions: Pre-medical students mostly have positive attitudes towards research. The significant differences shown in attitudes towards previous involvement in research and research presentation. The important barrier to research was lacking of time.

Take-home messages: Pre-clinical medical students have positive attitudes towards research but lack of time.

#3EE06 (28159)
Cultivating the “evidence-based medical student” through a research-oriented programme

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Background: Enthusiastic medical students want to get involved in medical research and quality improvement, attracted by the opportunity to publish work, gain skills and develop interest in a specialty. A major barrier to doing so is accessing such projects and finding good mentorship. Acamedics is an award-winning student-led scheme which involves medical students in clinical research and equips them with evidence-based medicine (EBM) skills.

Summary of Work: Acamedics recruits clinician-scientists in all specialties who propose research questions for medical students to which they can apply. These detail the differing time commitments, experience required as well as the skills and benefits medical students can expect to gain.

Summary of Results: Acamedics is in its fourth academic year of operation and has year-on-year increased the number of projects that it offers to medical students from 15 (inaugural year) at one university to 152 (currently) at six universities in two countries (UK/South Africa). These range from audits (most popular) and quality-improvements projects to clinical research, systematic and literature reviews and case series. Over the four years, the proportion of audits has been decreasing and that of research projects increasing although audits currently comprise the largest project-type offered (26%).

Discussion and Conclusions: In summary, Acamedics is a highly-effective international scheme in matching inspiring clinical mentors to medical students interested in EBM/research. Most common project-types are audits, largely because most clinicians are required to evaluate their practice to a “gold-standard” and often are completed in a shorter period of time.

Take-home messages: The increasing popularity of original research projects amongst medical students demonstrates an encouraging shift in mentality towards advancing medical-practice.
#3EE07 (27984)
Medical Education Research Group (MERG); Innovative Approach to Encourage Undergraduate Research Participation

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Presenter: Fareeha Abdulwali*, Alfaisal University, Medicine, Saudi Arabia

Background: Medical Education Research Group (MERG) formed at Alfaisal University in Saudi Arabia, is a student-centered research body. The group aims to encourage undergraduate medical students to learn, pursue research activities, and to make a valuable input to the current literature and medical curricula.

Summary of Work: The hierarchy of the group is as follows: 1-100 students were chosen and teams of 4-5 members were formed. 2- Each team is mentored by a graduate or a senior student with a prior research experience. 3- The group is headed by three expert faculty members in the field of the medical education. Students are introduced to different skills and research competencies through workshops and small group discussions.

Summary of Results: MERG had successfully added into different areas of medical education literature, including: undergraduate research, admission, curriculum development and assessment. In interval of 8 months the group have achieved the following: 1- 10 abstracts were accepted in local and international conferences. 2- 7 manuscripts were submitted for publication. 3- 12 manuscripts are in the process of final review before submission for publication.

Discussion and Conclusions: This initiative through a process with accessible resources was able to equip students with integral concepts of research. Moreover, adding valuable inputs to the literature and medical curricula.

Take-home messages: The involvement of undergraduate medical students and medical graduates is a valuable addition to the medical education literature with a high quality research.

#3EE08 (27964)
Undergraduate Medical Research Courses Adapting to the Demands of 21st Century

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Background: Medical Curricula should be adaptive to the demands of general health. Despite evidence indicating a general decrease in the quality of medical research, physician scientists, and clinical researchers, research integration in medical curricula is still ineffective and ill defined. This research aims to promote the research skills of medical students via the integration of well-structured research components into their curricula.

Summary of Work: A multi-institutional cross-sectional study surveying Research mentors in universities, teaching hospitals, and research centers in Saudi Arabia. The mentors were presented with competencies and asked to rate the Importance (Likert scale) and Mode of Delivery, then to determine the best training style and assessment method for different research fields.

Summary of Results: According to 70 research mentors:
1- All the competencies included were important, with a mean likert score range from 3.4 → 4.8.
2- Using a combination of modes of delivery (passive and active) in training for general research skills and biostatistics.
3- Using both performance based and knowledge based approaches for assessment
4- “General research skills” and “Biostatistics” should be taught compulsorily.

Discussion and Conclusions: The results show the importance of integrating the presented competencies into medical curricula, while recommending to change the traditional delivery and assessment methods to more active and performance based. This in turn will help curriculum developers to effectively design research courses by knowing what to teach and how to deliver the material suitably.

Take-home messages: Enhancing current medical students’ research knowledge and promoting the culture of research early on in the medical curricula will greatly enhance future medical research.
#3EE09 (26710)
**Becoming a scientist? What good supervisors do and what students plan one year after their research project course**

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**Background:** Several medical schools have introduced courses involving authentic empirical research to equip students with skills required for evidence-based medicine. Such a course (20 weeks; 30 ECTS credits; term 7) was introduced at Karolinska Institutet in 2010. The purpose of this study was to evaluate the results of the first 3 years of our research project course in terms of area of research, desired characteristics of the supervisors and students’ interest in science after completing the course.

**Summary of Work:** Through 2010 to 2013, in total 843 students (57% females, mean age 29 years) completed the course. The data were collected from questionnaires filled in by the students at the end of the course as well as one year after it.

**Summary of Results:** The majority (80%) of the projects involved clinical research, predominantly in internal medicine, pediatrics and gynecology. Important characteristics of a supervisor are commitment and interest in supervision, to be available for questions and to give timely feedback. One year after the course (data from 2010-2012; 581 students; response rate 73%), 48% indicated that in 5 years time they would like to be in clinical work in combination with part-time research (≤30% of full-time).

**Discussion and Conclusions:** Students are mostly interested in clinical projects and show interest in continuing scientific activities after the course.

**Take-home messages:** Supervisors are crucial for students’ success during a research project course. Students are perhaps more likely to enter research careers if they are exposed to authentic research opportunities during medical school.

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#3EE10 (25910)
**READ: A Research Education and Development Course for medical students**

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**Amy Green, University of Bristol, Research and Development Department (R&D), Bristol, UK**
**Karen Alloway, Avon and Wiltshire Partnership (AWP), Bristol, UK**
**Hannah Antoniades, Avon and Wiltshire Partnership (AWP), Bristol, UK**
**Jonathan Evans, University of Bristol, Bristol, UK**

**Background:** In spite of their essential contribution to evidence-based medicine, there is a global decrease in aspiring academic clinicians. Medical students are increasingly interested in research opportunities during undergraduate education, but practical research training is not routinely included in the curriculum. READ, a clinical research course for medical students, aims to highlight the importance of clinical research by: 1) teaching how research is undertaken in the NHS; 2) offering clinical research experiences; 3) promoting practice of evidence-based medicine.

**Summary of Work:** This is a quality improvement project using ‘Plan-Do-Study-Act’ methodology. Plan; We identified various clinical research experiences, which were trialled by a medical student and evaluated using an algorithm. Do; The READ course will take place over July for 4 students as a student selected component. It is comprised of a teaching week, followed by 3 weeks of clinical research related experiences and answering a clinical question using systematic review methodology. Study; Students will complete a reflective logbook, and will be surveyed at the beginning and end of the course to gauge their knowledge and confidence levels of research skills. Act; If successful, the course will be offered to more students next year.

**Summary of Results:** Results will be presented at the conference.

**Discussion and Conclusions:** Research education schemes have proven successful in other institutions. This is the first time the University of Bristol has offered relevant, accessible clinical research training to its medical students.

**Take-home messages:** We hope to inspire students to pursue an academic training path, ultimately contributing to the field of evidence-based medicine.
Research-Oriented Series: A Portal into the Culture of Biomedical Research for Junior Medical Students at Alfaisal University

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**Background:** Students' contribution to research has been shown to effectively reflect on their communication and critical thinking skills. Short-term research courses offer opportunities for medical students to excel at their research skills and advance their research experience in subsequent high demanding long-term research opportunities.

**Summary of Work:** ROS was designed comprising 8 sessions. Each session addressed core principles and practice of research concepts and was based on theoretical morning sessions supplemented by afternoon practical sessions delivered by experienced senior medical students and faculty members. Students were assessed comprehensively by the end of the ROS. The series was conducted twice where thirty-five students were involved each time. A total of 70 enrolled students, half of whom were male and half female, with Grade Point Averages greater and less than 3.5, were asked to fill an anonymous, online, self-administered questionnaire assessing their perception of knowledge, skills and confidence post attending the ROS, and evaluating their senior peers.

**Summary of Results:** 90% of medical students responded to the online survey rating the Research-Oriented Series highly in improving their research knowledge, skills, and confidence. Male students reported significant gain in comparison to their female peers (P<.05). The Grade Point Average does not seem to play a role in students' gains post attending the ROS. Qualitative responses were in support of three recurring themes favoring the unique learning environment in the ROS.

**Discussion and Conclusions:** ROS offers a short term systematic approach to fundamental steps and concepts of biomedical research. Alfaisal University Junior medical students perceived it as a beneficial pedagogy to improve their knowledge, skills and confidence in research.

**Take-home messages:** Such courses could be implemented in institutes which support dynamic undergraduate research environment.

Attitudes and factors contributing to an interest in research among medical students at Medical education center Uttaradit hospital, Thailand

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**Background:** Research program was included in an undergraduate curriculum for medical students at medical education center (MEC) Uttaradit hospital which is a 650 bed tertiary care hospital, having limited resources and lacking facilities common to medical schools. We aimed to determine the attitudes and factors contributing to an interest in research among medical students in MEC Uttaradit hospital.

**Summary of Work:** Electronic questionnaires were distributed to medical students studying in their fourth, fifth and sixth-years via social media application. Questions were applied from a previous study to verify student's attitudes and factors involving their interest in research. Data analysis and statistics were made based on their answers from questionnaires.

**Summary of Results:** 77 out of a total of 86 medical students answered the questionnaire (89.5%). Averaged age was 23.1 years. Attitudes were good (13.2%) fair (81.6%) poor (5.3 %). Lacking of interest 55% and factors which were obstacle to less interest were lack of expertise (60.5%), personality factors (53.9%), MEC (48.7%) and colleague (49.3%). The main problem for the individuals was a lack of motivation (94.7%).

**Discussion and Conclusions:** Medical students had studied hard and with overloaded services needed circumstances supporting and motivating them for research. This was the first study of attitudes and factors involving the interest in research among medical students in Thailand. Note: this study is limited to only one MEC was not compared to another MEC or medical school.

**Take-home messages:** Medical students thought research was difficult. If they are well supported and provided motivation they would be more likely to develop an interest in research.
Introducing scientific education in medical school  

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Background: ‘Medical science methodologies’ is one of three themes that run as “threads” throughout the medical program at Karolinska Institutet, Stockholm, Sweden. A review of this thread was performed in 2014 and identified weaknesses included: fragmented teaching events spread throughout all semesters leading to difficulties in learning progression and examination; lack of motivation among students and teachers, and difficulties in recruiting teachers. To face these challenges and to improve the quality of scientific education at the medical program, a new 3-week course in scientific methodology in medicine at the third year was developed.

Summary of Work: The new course comprises: 1) theory/philosophy of science and research ethics; 3) epidemiology and biostatistics; 4) evidence-based medicine and 5) scientific communication. Teaching and learning activities include student-activating lectures, exercises, workshops, seminars and self-studies. Research-active clinical tutors will supervise students in groups of eight and the students will write an individual research plan.

Summary of Results: The review of the Medical science methodologies theme identified weaknesses within the current scientific education and resulted in a 3-week course in scientific methodology in medicine to be given in the third year of the medical program.

Discussion and Conclusions: Our newly designed course aims to develop students’ scientific skills and interest in research, and to increase their understanding of the importance of science and a scientific approach in clinical work.

Take-home messages: In order to increase students’ understanding of the scientific basis of medicine and clinical practice, scientific methodologies need to be integrated in the medical program as a theme, but also in stand-alone courses.
#3EE15 (24713)
Practical medical research ethics: demystifying the approvals process

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David McFarlane, NHS Tayside, Workforce, Dundee, UK
Arlene Grubb, NHS Tayside, East of Scotland Research Ethics Service, Dundee, UK

Background: Research Ethics Committees (RECs) across the UK were concerned about the poor standard of student applications submitted for an NHS REC review.

Summary of Work: We developed a Self Selected Component (SSC) for medical students to help with their 4th year projects; offered by the Universities of Dundee and Glasgow. The SSC provides practical skills of the approvals process; how research ethics relates to patient safety; how a REC reviews applications; different research methodologies; and types of review. Opportunities are provided to ask questions and discuss the roles of Research Governance; Non-Commercial/Commercial research; legal issues; monitoring; and what is considered ‘grey area’ research.

Summary of Results: The number of student enquiries increased generally, with enquiries at a very early stage of the project. The overall standard of student applications including ‘grey area’ research, greatly improved.

Discussion and Conclusions: The SSC aims to equip students/novice researchers with practical research skills; a network of contacts within the approvals teams for advice/support throughout the study and beyond. In doing this, we can work with academic and/or clinical supervisors to give students a positive experience of undertaking research. It is evident from the students’ assignments that they have gained valuable insight and have begun to form a network of support from the wider research team. Students are the researchers of the future. We can assist by building a nurturing, supporting and trusting relationship which will last throughout their research career.

Take-home messages: Help and advice is available at all stages of a research study/project.

#3EE16 (27678)
The Arab Medical Aspirations League (AMAL): An Innovative Student Initiative in Research Education

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Mohamad Altannir, King Fahad Medical City, Riyadh, Saudi Arabia
Akef Obeidat, Alfaisal University, Riyadh, Saudi Arabia

Background: Students are welling to explore research and undertake its path but lack guidance on how to start. Likewise, many faculties and physicians are interested in conducting research but their duties leave them with limited time for research. We tried to fill this gap, and Arab Medical Aspiration League (AMAL) was born.

Summary of Work: AMAL’s consists of five main components: 1- Research teams conducting research in the areas of interest to Arabic communities and AMAL members. 2- AMAL’s “Annual International Research Conference” that provides opportunities for training programs, networking and launching of innovative student initiatives. 3- AMAL’s unique “Journal”. 4- The first “Annual International Prize” for excellence in student research and its promotion. 5- The regional branches in selected Middle Eastern countries that work closely with our local teams in conducting multiregional studies. AMAL’s mentioned services are delivered through specialized committees.

Summary of Results: Since AMAL’s launching, more than 60 students trained under it. Students are distributed among 18 different research projects in medical education, oncology, cardiovascular, and neurosciences. Three extensive basic research training courses were delivered. The conference and journal are planned to launch this year while the prize & international branches are scheduled for next year.

Discussion and Conclusions: AMAL is an ambitious student initiative wishing to establish the Middle East’s first self-sustaining, student driven, nonprofit, and organizational research group. Thus, it presents an innovative model for research education.

Take-home messages: AMAL is a powerful example for how fruitful the partnership between students, faculty and administrators can be once the efforts are supported and conducted in an institutional fashion.
#3EE17 (25570)
Innovative Collaborations: Research Speed Dating

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Alice Hughes, Peninsula College of Medicine and Dentistry, Truro, UK
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Rob Marshall, Peninsula College of Medicine and Dentistry, University of Exeter Medical School, Royal Cornwall Hospitals Trust, Truro, UK

**Background:** In the Royal Cornwall Hospital (RCH) there is a wealth of research opportunities, but insufficient manpower to complete them due to the demands of service delivery. Our aim was to bridge the gap between active research groups within RCH and undergraduate medical students keen to develop their research skills.

**Summary of Work:** 10 specialties from RCH volunteered to host a table at the Research Speed Dating Event. 40 student participant ‘daters’ were split into 10 groups and started at a host table. Each group had 8 minutes per table; the hosts promoted discussion regarding their research field. Students marked their areas of interest on a speed dating card with the results then collated by our research group and the matched individuals set up for an initial meeting to start their projects.

**Summary of Results:** Within 2 months, 32/40 students have commenced active research across RCH. A few projects are nearing completion with students submitting work for publication.

**Discussion and Conclusions:** This project has invigorated and united postgraduate and undergraduate research at RCH and our medical schools. The strengths of the project are the simplicity and ease of application. Research speed dating is an effective method for enabling researchers and students to come together to produce clinical research.

**Take-home messages:** Research Speed Dating is a simple and enjoyable way of engendering enthusiasm for research in undergraduate medical students.

#3EE18 (28210)
Is the clinician-scientist in danger of becoming extinct? A review of evidence-based medicine teaching in undergraduate medical education

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**Background:** The clinician-scientist is he who engages in research and evidence-based medicine (EBM) at any level be it basic, translational or clinical. Some even argue that medical schools should be assessed and ranked on their ability to produce competent clinician-scientists.

**Summary of Work:** In this literature review, we review research studies and articles published between 2005-2014 looking at barriers to medical students becoming evidence-based "clinician-scientists" and programmes that have been developed to help address these problems.

**Summary of Results:** Many agree that introducing EBM early in medical school increases interest in research and likelihood of physicians pursuing research-oriented careers. There is little evidence to suggest this however. Other attempts to encourage research careers include highly-selective MD-PhD programmes which incorporate post-doctoral research as an undergraduate. However, ever-increasing tuition-fees, limited MD-PhD positions, insufficient time during clinical studies and poor mentorship all discourage enthusiastic medical students from doing so.

**Discussion and Conclusions:** The most common themes in EBM programmes include learning to search/appraise the literature and asking clinical questions. Authors use different approaches to this problem employing didactic, blended-learning approaches, use of portfolios and online learning supported by practical assessments but all emphasise good mentorship. Most studies measure outcomes through perceptions of skills gained as posed to actually testing students.

**Take-home messages:** In summary, there is consensus that EBM should be integral in modern medical student education. There are numerous interventional studies showing improvement in skill acquisition. However, this field is plagued by weak and inconsistent study designs which need to focus on validation of skill assessment and more importantly how skills are implemented in clinical practice.
Exploring the barriers and enablers to research among allied health professionals

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Yen Peng Lim, Tan Tock Seng Hospital, Department of Nutrition and Dietetics, Singapore
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Lay Fong Chin, Tan Tock Seng Hospital, Rehabilitation, Singapore
Issac Lim, National Healthcare Group, Health Outcomes and Medical Education Research (HOMER), Singapore

Background: Research is important for testing theories and providing background information for clinical knowledge (Hoffman et al. 2010). Allied health professionals (AHPs) also use research to inform their clinical decisions and improve healthcare practices and patient outcomes (Sackett et al. 1996). The literature reports that the level of interest in research among AHPs is high however factors such as a lack of confidence, limited knowledge and skills, and practical constraints hamper their research capabilities (Harvey et al. 2013, Pighills et al. 2013). There is also a lack of information on supports suitable to enhance the development of high-quality research in the workplace. Hence, this study was conducted with AHPs to identify the barriers and enablers to research, using a sample from a large public hospital in Singapore.

Summary of Work: Face-to-face group discussions with 12 AHPs from five disciplines (nutrition and dietetics, speech therapy, occupational therapy, physiotherapy, and psychology) were conducted. The interview data was audio-recorded and transcribed verbatim. Qualitative content analysis was used.

Summary of Results: Five themes emerged from the data as components that impact on AHPs conducting research: Value and importance of research activities; Work culture and confidence; Time and workload; Resources; Research process and skills.

Discussion and Conclusions: The perspectives and experiences of conducting research among AHPs were discussed, and tensions between work responsibilities and time for research were highlighted. Useful suggestions on how the constraints can be circumvented for support of the conduct research among AHPs were also provided. These results will form the basis to develop an online survey to extend understanding of the topic.

Take-home messages: The five components that impact on AHPs conducting research are not mutually exclusive, and can interact to affect conducting research in a hospital context.
#3FF  Posters: Interprofessional Education - Undergraduate

Location: Hall 4, SECC

#3FF01 (25341)

Differences of opinion: Appreciation of interprofessional perspectives versus conflict

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Background: Veterinary interprofessional education (IPE) is new. IPE should reflect real-life working to engage students. To contextualise IPE developments, a case study of interprofessional working was conducted.

Summary of Work: Two contrasting veterinary practices were chosen as case study sites. Each study consisted of three weeks: general observations, shadowing of six focus individuals and interviews. Focus individuals were two veterinary surgeons, two veterinary nurses and two administrators. Field notes were taken during observations (total 220hrs). Interviews (total 8.5hrs) were transcribed and thematically analysed.

Summary of Results: There is a culture of appreciating different professional perspectives within the sites. Head veterinary nurses and administrators were invited to join practice owners (veterinary surgeons) in meetings. Veterinary nurse opinions on case management are sometimes sought. Interprofessional working is aided by trust: nurses appreciate that surgeons trust them to do their work and to raise issues.

Different perspectives can be a challenge to interprofessional working. Veterinary nurses often remind veterinary surgeons to prescribe pain relief for their patients and can feel like 'a broken record'.

Discussion and Conclusions: Hierarchically, both veterinary practices were organised with veterinary surgeons at the top; however veterinary nurse and high ranking administrator thoughts/work were valued. The professions' different perspectives possibly persist from the historical veterinary surgeon 'cure' ethos and veterinary nurse 'care' ethos.

Case studies allow in depth analysis of interprofessional working within veterinary practices. Ethnographic work should guide IPE development.

Take-home messages: Veterinary professions differ in some perspectives which can be an aid and a challenge to interprofessional working.

#3FF02 (25822)

The Evolution of a Popular IPE Elective

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Background: At the University of Toronto (UT), interprofessional education weaves throughout the undergraduate curricula of all 11 health science programs. IPE during inpatient clinical rotations offers relevancy, but involving multiple disciplines in outpatient areas is more challenging. ARCTIC – Appreciating Roles and Collaboration To Improve Care –Head and Neck Oncology was developed to address the learning needs for dentistry and medical radiation sciences students, but is now an accredited elective available to all health science undergraduates.

Summary of Work: Early workshops concentrating on the professional roles of the learners evolved to a case-based approach, focused on the needs of the patient from multiple professional perspectives. Further iterations included a video highlighting the patient’s firsthand experience and, more recently, attendance of the patient who described his journey in an interactive format with learners. Facilitators, recruited from across disciplines, were trained in a co-facilitator model.

Summary of Results: Word of mouth has resulted in ARCTIC being one of the most popular UT IPE electives, evidenced by lengthy registration wait lists and supported by consistently high scores (4.52/5) across all domains in formal evaluations.

Discussion and Conclusions: Co-facilitation, case based learning, world café and broadened educational communities enhance the student experience and enable collaborative practice. Highlighting the patient voice engages students.

From our early IPE design, experience and innovation has transformed learning with students to working as a team to develop a patient care plan.

Take-home messages: The power of the patient’s voice to engage student collaborative practice.
Implementing Interprofessional Education - How appropriate is the learning experience for nursing students?

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Background: Interprofessional education (IPE) is characterised by joining together two or more professions in an attempt to create a learning opportunity and cultivate collaborative practice among the students of the different professions. With this it is expected that students will exhibit more skills in the execution of healthcare tasks, be able to function more effectively in a team and ultimately contribute to improved health outcomes for patients through quality care. IPE is traditionally reported on from a medical school perspective. The context of this study is that of a non-medical institution and includes the training of students in seven different disciplines.

Summary of Work: The project will follow a mixed method approach with a multi-phase design. Data collected by means of an interprofessional collaborator assessment rubric will be used in reporting on the appropriateness of an IPE learning experience in developing interprofessional skills among a nursing population in a non-medical school.

Summary of Results: Sixty five students replied they changed their behavior after the IPE program. The program seemed to affect “their viewpoint and perspective” more than “the way to treat other health care profession”. Some students mentioned that they tried to observe how other health care professionals treated the patients. The most frequently observed comment was concerning the viewpoint of other professionals. They tried to think not only as a medical doctor, but also as other health care professionals for the better treatment of patient.

Discussion and Conclusions: A three-day-long IPE program affected the attitude of medical students during the clinical clerkship. Also, our program may serve as an IPE model in which students of both medical and dental professions study together.

Take-home messages: An IPE program can affect the attitude of medical students during the subsequent clinical clerkship.

The change in view and behavior of medical students after final-year interprofessional education (IPE) for medical and dental students

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Yuko Segawa, Tokyo Medical and Dental University, Tokyo, Japan
Mina Nakagawa, Tokyo Medical and Dental University, Tokyo, Japan
Jun Tsuruta, Tokyo Medical and Dental University, Tokyo, Japan
Kazuki Takada, Tokyo Medical and Dental University, Tokyo, Japan

Background: An aging society requires coordinated and collaborative care between medical, dental and other health care professionals.

Summary of Work: A total of 297 final-year students from seven schools for health professions, including 79 medical students participated in a three-day-long case-based IPE program. A case that had systemic, oral, and social issues was prepared in order to promote and require active participation of all students in mixed-small-group discussions. Some lectures were also included in the program. Six months later, medical students filled out questionnaires. The results were analyzed quantitatively and qualitatively.

Summary of Results: Sixty five students replied they changed their behavior after the IPE program. The program seemed to affect “their viewpoint and perspective” more than “the way to treat other health care profession”. Some students mentioned that they tried to observe how other health care professionals treated the patients. The most frequently observed comment was concerning the viewpoint of other professionals. They tried to think not only as a medical doctor, but also as other health care professionals for the better treatment of patient.

Discussion and Conclusions: A three-day-long IPE program affected the attitude of medical students during the clinical clerkship. Also, our program may serve as an IPE model in which students of both medical and dental professions study together.

Take-home messages: An IPE program can affect the attitude of medical students during the subsequent clinical clerkship.
#3FF05 (25618)
Readiness of healthcare students for interprofessional education at Keio University

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Eriko Aizu-Yokota, Keio University, Faculty of Pharmacy, Tokyo, Japan
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Background: Interprofessional education (IPE) has been introduced across the schools of medicine, nursing, and pharmacy at Keio University. IPE at Keio University includes a beginner-level half-day workshop for first year students at the three schools, an intermediate half-day workshop for 4th year medical and pharmacy students and 2nd year nursing students, and an advanced one-day workshop for final year students at the three schools. Approximately 360 students attended each program.

Summary of Work: To investigate the readiness of students for IPE, the Japanese version of the Readiness for Interprofessional Learning Scale (RIPLS) Questionnaire was taken before and after the three programs.

Summary of Results: In the beginner program, readiness of students for IPE increased from 74.5±8.0 to 78.2±9.3 in medical students, from 78.4±7.1 to 81.6±7.4 in nursing students, and from 76.3±8.1 to 80.0±9.1 in pharmacy students. In the intermediate program, readiness for IPE increased from 72.8±9.6 to 76.4±11.3 in medical students, from 72.5±6.9 to 78.7±8.5 in nursing students, and from 72.5±7.0 to 79.2±9.0 in pharmacy students. In the advanced program, readiness of students for IPE increased from 71.4±12.5 to 78.6±12.9 in medical students, from 76.5±8.3 to 82.2±9.1 in nursing students, and from 75.2±7.8 to 81.9±8.0 in pharmacy students.

Discussion and Conclusions: The readiness of students for IPE across all schools improved after participating in the workshops. This year is the first opportunity for all of the students to participate in an IPE program. Readiness of students for IPE is expected to improve significantly after completion of these three programs. A longitudinal follow-up study is needed to further assess the impact on students.

#3FF06 (25744)
Interprofessional burn management for students - is this an effective way to learn?

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Background: It has been identified that one of the main benefits of interprofessional learning is improvement in the quality of and delivery of safer patient care.

Summary of Work: A Burn Management study day was held for medical, nursing and physiotherapy students. The students learnt about the theoretical aspects of assessing a burn injury, fluid resuscitation and appropriate management. They worked in a team to "admit" and manage a burn injured patient (ALS simulated manikin) who had moulage burn injuries and responded to interventions. The scenario assessed how the students communicated with each other, assumed roles and worked as a team to care for the patient.

Summary of Results: A questionnaire utilising the Likert scale and qualitative data was given. 97% valued the opportunity to work with different disciplines. 98% thought they would benefit form additional opportunities to learn together.

Discussion and Conclusions: The students thought that they benefitted from the training- not only regarding burn management but also valued the opportunity to work and learn with other disciplines, gaining an appreciation of each other roles. The environment was conducive to learning together and allowed them to actively contribute to a team.

Take-home messages: Interprofessional learning has an important role in providing safe and effective patient care.
Development of joint lessons for interprofessional education in the inter-university collaborative education

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**Background:** Four universities implement a project for promoting inter-university collaborative education, in order to develop human resources capable of collaborating with people from many occupations to discover and solve the issues in the lifestyles of residents in Saitama Prefecture.

**Summary of Work:** To show needs of the new joint lessons on interprofessional education, a world café was held. 52 participants, including 4 university faculties and students, worked with questions about joint lessons and kept notes on large sheets of paper. We analyzed qualitatively the description on the sheets.

**Summary of Results:** 530 descriptions were obtained and classified in the following categories; “learning contents”, “learning in each university”, “actual project working”, “using learning tools”, “application of specialization”, “understanding subject of each lessons”, and “development of educational framework”.

**Discussion and Conclusions:** According to the correspondence analysis, descriptions classified, “consideration learning outcome”, “actual project working”, “using learning tools”, and “application of specialization” were said in a conversation of online lessons to solving problems of geographical distance of each university and sharing educational resource. “Actual project working”, “learning in each university” were said in a conversation of difference between available skills in actual working and learning in university. Participants needed to learn about interprofessional work both ways of online and actual project working to understanding their specialization each other and to share educational resources.

**Take-home messages:** The project includes Saitama Prefectural University, Saitama Medical University, Josai University, and the Nippon Institute of Technology. Regardless of whether the specialization of the university is healthcare or not, joint lessons are viable.

Clinical reasoning and elearning - facilitating interprofessional education

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M Ahlner-Elmqvist, Lund University, Department of Health Sciences, Lund, Sweden
P Lilja Andersson, Lund University, Department of Health Sciences, Lund, Sweden

**Background:** Students need to prepare for future professional needs, including collaboration with other health professionals and be part of effective team work. It may be valuable if some interprofessional preparation can be done before patients are involved. To gain knowledge and understanding of each other’s roles and perspectives it is therefore important to design activities promoting interaction and collaboration also in theory courses.

The aim was to identify and develop structures for meaningful learning and interprofessional collaboration in theory courses.

**Summary of Work:** The work was an iterative action process involving faculty members, hospital staff and students. To create scaffolding structures for student interaction, the decision-making process in narratives told by hospital staff was analyzed from an interprofessional perspective. Based on literature and our findings we developed a model to enhance the interprofessional discussion. Person centered care, health promotion, principles of collaboration and teamwork were our framework. So far, nursing and physiotherapy students have been involved.

**Summary of Results:** The evaluation showed that the scaffolding structure developed based on clinical reasoning in a multi professional context seemed feasible for interprofessional interaction and collaboration in theory courses and was scalable. With elearning activities and a clear structure for discussions in mixed small groups, the groups may benefit from each other. Structured discussions from narratives seem to promote meaningful learning in an interprofessional context also in theory courses.

**Discussion and Conclusions:** Multi-professional encounters with students and staff, were perceived as meaningful and valuable for furthering knowledge and understanding. A structure prompting the different decision making processes seems valuable.
#3FF09 (27103)
The project Intertut: interprofessional tutorials for students of medicine, nursing, occupational therapy and physiotherapy

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Background: Through a lack of cooperation between the different health professions new issues in the practice of caring arise. It is vitally necessary to improve the interprofessional communication and collaboration within the health system. International studies confirm that interprofessional learning during apprenticeships and training already promotes a positive attitude towards interprofessional collaboration. Moreover, it improves the understanding of roles and knowledge beyond one’s profession. Interprofessional education in order to optimize patient care is also a political demand.

Summary of Work: INTERTUT means “INTERprofessional TUTORials” from students for students. It is a peer teaching project. Within this framework, students develop interprofessional workshops. These are designed to connect students from different health professions and to offer them perspectives for their professional development. On the basis of peer-mediated instruction, four workshops are developed in the period between 2013 and 2015. One of the most important objectives is the support of interprofessional communication and collaboration between students of different health professions.

Summary of Results: As a result, students are expected to be better prepared for an interprofessional work environment. During the Peer-teaching and Peer-Assisted-Learning Program, participants will be shown their personal capabilities and deficits within their interprofessional team working. Furthermore, there will be an exchange between the professional groups.

Discussion and Conclusions: The interesting question that arises is in which settings and contexts similar interprofessional learning units are suitable.

Take-home messages: Communication and Collaboration between different health professions are a key aspect of holistic care. It is important to raise students awareness of feeling themselves as a part of an interprofessional healthcare team.

#3FF10 (27943)
Midwife-led experiential teaching sessions enhance pre-clinical medical students’ understanding of labour and encourages interprofessional collaboration

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Background: During years one and two, Obstetrics teaching at Barts and the London School of Medicine is delivered mostly by non-clinicians using non-experiential methods. Examination transcripts suggest a proportion of students continue to hold misconceptions regarding labour processes by the end of year two. The aim of this study was to implement and evaluate midwife-led experiential teaching in order to enhance year two students’ understanding of labour and transprofessional maternity care.

Summary of Work: Twenty-six second year students volunteered to participate in four experiential teaching sessions led by a senior Midwifery lecturer. Students rotated through workshop stations using models, visual aids and labour ward equipment covering predefined learning objectives on labour. Data triangulation was achieved through observation and focus groups.

Summary of Results: Medical students preferred midwifery-led sessions over uniprofessional alternatives as they gained valuable insight into midwifery practice whilst advancing their empirical understanding of obstetrics. Participants recognised that early exposure to the multidisciplinary team could enhance future interpersonal relationships. Amalgamating teaching methods allowed participants to reflect the midwife’s professional thought processes and decision making, enhancing their understanding of a holistic, women-centred approach which unifies the theoretical, clinical and psychosocial aspects of care. Anxieties regarding clinical placements were also reduced as students felt more motivated and better prepared for their clinical firm and assessments.

Discussion and Conclusions: This study demonstrates that midwife-led experiential teaching could be used as a supplementary instructional method to improve early experience of obstetrics and enhance students’ understanding of professional roles. Inviting student midwives to participate in interactive sessions could further enhance this interprofessional learning experience.
Preparing nursing and medical students for clinical placements: Evaluation of an inter-professional simulated ward environment workshop

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Background: Health professional education providers are challenged to provide innovative educational approaches to train health professionals who can work collaboratively to meet the current challenges in an increasingly complex health arena. Inter-professional simulation is a rare event within undergraduate programmes despite being advocated by both the GMC and the NMC. The development of a simulation suite on site, identified an opportunity to develop interprofessional simulation for undergraduate students.

Summary of Work: A simulated ward environment was designed, incorporating scenarios representative of common clinical presentations. Participants were nursing and medical students in their 1st and 2nd year respectively. Common learning outcomes were identified across both curricula. An action research approach was taken, adopting qualitative data collection and analysis methods to carry out the first cycle of the research. Data was collected through focus groups, observational notes and video recordings to explore the views of both the students and faculty on the effectiveness of this educational approach.

Summary of Results: Participants evaluated the inter-professional simulation workshop really positively. Participants felt it had increased their understanding and appreciation of other health professionals' roles, with increasing collaboration and teamwork. An increase in knowledge, skills and confidence in preparation for ward placements were also demonstrated.

Discussion and Conclusions: Inter-professional simulation is an effective learning strategy which is underpinned by established educational theories. Opportunities should be offered to students early in their programmes to exploit the potencies this approach offers. However inherent problems were identified in relation to timetabling and resources.

Take-home messages: Undergraduate inter-professional simulation facilitates collaborative teamworking, increasing knowledge, skills and attitudes to prepare for future professional roles.

Cross-sectional study of teamwork ability among students in seven healthcare disciplines

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Background: Teamwork ability of the individual is important in collaborative practice. The purpose of this study is to compare the teamwork ability among undergraduate 1st year healthcare students of multiple disciplines.

Summary of Work: The survey of Nagoya Teamwork Scale (NTwS) was performed on 780 healthcare students; 97 Medical, 84 Nursing, 118 Pharmacy, 103 Physiotherapy (PT), 53 Occupational therapy (OT), 197 Social welfare (SW) and 128 Dietetic students. NTwS is a validated questionnaire to measure teamwork ability in medical settings with 23 questions of 7-point Likert scale. NTwS scores were examined using unpaired t-test and ANOVA. Curriculum of the 1st semester in each discipline was surveyed.

Summary of Results: Comparison of total NTwS scores among disciplines showed significant differences (p<0.001) with disciplines from the highest; Nursing (114.8±11.1), OT (114.6±12.8), PT (112.1±13.8), Pharmacy (109.8±14.0), Dietetic (107.6±10.0), Medical (107±12.7), SW (105.7±12.6). Comparison in gender, female students' scores were significantly higher (p<0.001). Focusing on each discipline, Medical and OT female students showed significant higher scores than male students. With curriculum comparison, Medical and SW students had less opportunity to learn communication in groups.

Discussion and Conclusions: There was a significant difference in teamwork ability of the 1st year students among discipline and gender. The lack of opportunity of learning communication in groups or pair works may contribute relative low teamwork ability in medical and SW students.

Take-home messages: Medical students especially in male and SW students need more opportunity to practice communication in groups.
#3FF13 (24533)
Moving inter-professional education away from the classroom and into the clinical area - does it work?

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**Background:** Previous work at this medical school exploring experiences of medical students on clinical attachment illustrates that medical students have little understanding of the role of nursing students and vice versa. Students report a desire to participate as part of the team in clinical environments but do not feel confident to do so.

**Summary of Work:** As part of a wider programme of inter-professional education small numbers of Year 4 medical students were offered an opportunity to shadow final year nursing students on clinical placement. Both nursing and medical students will be asked to submit short reflective accounts of their experience and to participate in a focus group.

**Summary of Results:** Results of this study once available will be discussed at conference.

**Discussion and Conclusions:** Offering medical students and nursing students the opportunity to work together in clinical areas increases awareness of each other’s roles and responsibilities within the health care team. It may also allow medical students to feel more comfortable within the clinical environment while giving nursing students the opportunity to practise mentorship skills. It is hoped that this experience may contribute to effective team working in post graduate years. Full conclusions of this study will be presented at conference.

**Take-home messages:**
- Medical students often feel overwhelmed in clinical areas and do not feel part of the team.
- Both nursing and medical students may benefit from interprofessional learning embedded in the clinical environment
- Working with nursing students in the clinical areas may help medical students to feel part of the team.

#3FF14 (27457)
Smaller professions in interprofessional learning

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**Background:** A total of 650 3rd year students from medicine, nursing, social work, physiotherapy, occupational therapy and social education (welfare nursing), bioengineer, radiograph and audiograph took part in a two day educational activity in 2015 with the theme “Competency in Integrated care across professional disciplines”. 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 compare the evaluation from the professions with few students who usually work in specific parts of the health services (bioengineer, radiograph and audiograph) with the other students regarding their Readiness for Interprofessional Learning Scale (RIPLS) and satisfaction with the program.

**Summary of Work:** A cross sectional survey at the end of the two day program. Students were asked to rate RIPLS and score their satisfaction on a 0 to 10 scale with 5 being their average experience with educational activities.

**Summary of Results:** A total of 562 students completed the survey (response rate 94%). Their total RIPLS score was 80.5. The students overall satisfaction was 7.0. There were differences between the different professions, with the professions with fewer students, together with students from medicine, reporting lower total RIPLS score. Their overall level of satisfaction was also lower.

**Discussion and Conclusions:** Although being satisfied with the educational activity, students from bioengineer, radiograph and audiograph along with students from medicine were less satisfied than students from other professions and also less positive towards interprofessional learning.

**Take-home messages:** Special attention is needed to the role of students from bioengineer, radiograph and audiograph, and medicine, in interprofessional learning.
#3FF15 (27375)
Trans-professional learning improves understanding and attitude of medical students to other professions

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Background: The feedback from other professions in the rural healthcare team mentioned that some graduates seemed to work in isolation, independently and not with much empathy. We try to improve the inter-professional relationship in our medical students.

Summary of Work: At the mid-clinical studying period, half of 4th year medical students were set to work as nurses and pharmacists in our medical school under the supervision of these particular professions. We collected the changes of their understandings, and also compared with the other half after shifting back from the rural care practicing prior to this approach.

Summary of Results: The medical students found out that they understood more about the daily multi-tasks of both professions. They could recognize humanized and holistic healthcare, as one of the students stated, “Doctor’s round focuses more on physical illness, but nurse’s touches the patient as human”. They committed to become ‘good doctors’ and will support their healthcare team in the future. Both the medical students and the professionals (nurses, pharmacists) appreciated this intervention and counted it as a value to continue this project in the future.

Discussion and Conclusions: Medical students can understand other professions in the workplace more authentically by engaging them in the ‘situation awareness’ method, which help them work well as a member in a team.

Take-home messages: Engaging medical students to peer professions help them become future good healthcare team members.

#3FF16 (25465)
Exploring the perceptions of hospital chaplains and medical students at Dundee Medical School

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Background: Spiritual Care is person centred care which seeks to help people (re)discover hope, resilience and inner strength in times of illness, injury, transition and loss. In the GMC’s Tomorrow’s Doctors 2009 the need to respect patients’ rights regarding religious or other beliefs was highlighted as an outcome for graduates. The Scottish Government, NHS Scotland and NHS Education Scotland produced policy documents supporting the integration of Spiritual Care within the NHS. NHS Tayside now have their own Spiritual Care Policy and Strategic Framework in which they highlight the need to integrate spiritual care teaching into the undergraduate curriculum at Dundee University. From this, a student-selected component on Spiritual Care in the undergraduate medical curriculum at Dundee University was developed.

Summary of Work: Using a grounded theory approach, this research project aimed to explore the perceptions chaplains and students have toward each other within the context of inter-professional learning during spiritual care teaching. Focus groups were used to collect data from chaplains and medical students who had, and had not, taken part in this “opt in” part of their course.

Summary of Results: Results will be available at the time of presenting.

Discussion and Conclusions: These will be available at the time of presenting.

Take-home messages: Failings in patient care in the UK have prompted the government to address the need for more holistic, compassionate care of patients. This is an innovative project exploring the relationship between students and chaplains during inter-professional teaching, as well as determining the value of spiritual care teaching in the wider context of creating empathetic, compassionate young doctors.
#3FF17 (25823)
Interprofessional simulation training: Perceived benefits for final year medical and nursing students

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Background: Good Medical Practice (GMC, 2013) states that doctors “must work collaboratively with colleagues, respecting their skills and contributions”. Simulation is an effective method of medical student training but interprofessional simulation is an uncommon occurrence and there is little evidence of the benefits of interprofessional simulation over single profession simulation.

Summary of Work: Final year nursing and medical students attended joint simulation sessions in a dedicated simulation suite while on placement at Walsall Manor Hospital. Students were instructed to act as they would on their first day as qualified staff. Nursing students were required to perform an initial assessment of an acutely unwell patient and escalate the care to allocated medical students. After this handover, the medical students entered the scenario and the students cared for the patient as a team. Feedback was given by clinical teaching fellows and a senior resuscitation nurse. Self-assessment questionnaires with visual analogue scales (VAS: 0-10), to assess confidence in interprofessional domains when caring for acutely unwell patients, were completed before and after the session.

Summary of Results: The questionnaires contained 8-10 questions. The average VAS score for nursing students (n=14) was 6.55 pre-session and 8.37 post-session. For medical students (n=14) pre-session was 7.01 and post-session was 8.20.

Discussion and Conclusions: Across all domains, perceived confidence of looking after an acutely unwell patient in an interprofessional team increased. All students stated that they would recommend interprofessional simulation sessions over single-discipline.

Take-home messages: This study suggests that interprofessional simulation may prove a valuable tool for improving team-working when caring for acutely ill patients as newly qualified professionals.

#3FF18 (26111)
Relational coordination in interprofessional learning

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Background: Relational coordination may be operationalised as to inspire some other parts to interact for mutual benefit and for the benefit of the whole, and is becoming increasingly popular as an management style especially within interprofessional education.

Summary of Work: Centre for interprofessional learning (TVEPS) trains final year health profession students in workplace based team work. TVEPS is a collaboration between the University of Bergen and the University College of Bergen and two municipalities. The interprofessional student teams reflect knowledge about the nurse home patients they have examined back to health workers at the nurse homes. Students, patients, health workers and the study program boards all learn from the process.

Summary of Results: By relational coordination we have inspired:
• The city community of Bergen in co-work with TVEPS to do research on what their health workers learn from the students.
• We are relating master students in law with the communities. Law students with master projects within health law participate in the student teams in TVEPS working on patient rights.
• Norwegian School of Economics wish their students to join our clinical teams and carry on their master degrees with research on health administrative systems. The leaders of the Municipality invite them in as a part of their administrative renewal process and we include them in the interprofessional teams within limits determined by patient rights.

Discussion and Conclusions: Combining interprofessional learning with relational coordination may destabilize administrative systems enough to open for entirely new possibilities.

Take-home messages: Basing interprofessional learning on relational coordination may give mutual benefits to all involved parts.
#3FF19 (28064)
Issues discovered when developing an Interprofessional Education Course

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**Background**: Training students to work in interprofessional teams is difficult when students are taught in silos.

**Summary of Work**: Leaders from the Schools of Social Work, Nursing, Medicine, Dentistry, and College of Pharmacy came together to develop an Interprofessional Clinical Decision Making Course for students to work with, learning about, and from other health professional students.

**Summary of Results**: It was quickly realized that the barriers were not just the walls of our buildings, but the curricular requirements, infrastructure, and culture of each institution.

**Discussion and Conclusions**: Not all schools were willing to make major additions to their curriculum without outcomes data. Students who elected to attend were more engaged compared to those required. Several school’s tuition is a fixed for graduate level degree, while others paid per credit. There were 280 student enrolled in the course and not all schools had a room large enough for 1/5 the class or rooms ideal for small group sessions. Each school had their own grading policy, policy for late work, make-up work, and excused absences. Not all students knew the course director and some challenged her more on late assignments. Some campuses follow “Michigan Time,” classes start 10min after hour and end on the hour and others started on the hour and ended 10 min to the hour. The starting date for the semesters were also different between schools. There were many barriers to IPE course development, some we were overcame while others were delayed until later time.

**Take-home messages**: When trying to create a new IPE course there are many barriers, and you may not be able to fix all of them on initial development, but this should not prevent developing the course.

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#3FF20 (23522)
Knowledge and Attitude of Medical Students towards Interprofessional Collaboration

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**Background**: Interdisciplinary healthcare teams are central to improving patient outcomes. Strong interprofessional 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 Interprofessional 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 interprofessional 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 interprofessional collaboration. Most of the Students did not know the importance (89.29%) of interprofessional collaboration and education. Very few students enjoy team work (12.86%). Majority of them do not know how to implement (68.57 %) interprofessional collaboration.

**Discussion and Conclusions**: We can conclude 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 interprofessional 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 ‘interprofessional collaboration’ complete.

**Take-home messages**: As knowledge and attitude of medical students towards Interprofessional collaboration is poor, education regarding this should be included in current curriculum.
Piloting a near-peer interdisciplinary learning forum for the development of medical students, junior doctors and nurses

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Background: Health care professionals are trained in a variety of aspects of care delivery. While some topics are taught to all professionals, many are covered in variable levels of depth between professions. As such, some members of the multidisciplinary team are better trained in certain aspects of patient care compared to colleagues from other health professions.

Summary of Work: An educational website, F1 to One, was established which aimed to engage users from a variety of health professions to promote interdisciplinary learning and the professional development of users. The website featured a forum for medical students, nursing students, junior doctors and nurses to share knowledge and questions about clinical issues. Videos were also created and curated to further educate registered users about suggested topics from the forum.

Summary of Results: 53 users registered to the website, of which 38 were from a medical background and 15 were from a nursing background. Forum discussions included clinical governance, surgical sutures, hand hygiene in theatres and clinical examinations. Videos were created or sourced to further educate registered users about suggested topics from the forum. Created videos have been viewed over 5000 times around the world, and received unanimously positive feedback.

Discussion and Conclusions: The website presented a near-peer distance learning facility where professionals from a variety of clinical backgrounds contributed to discussions and shared knowledge. The project illustrated the benefits that interdisciplinary forums offer to the educational development of health workers.

Take-home messages: - When targeted to learner requests, distance learning is well received.
- Near peer, inter-disciplinary forums benefit continuous professional development of Doctors and Nurses.
- Future work to study the effectiveness of near peer interdisciplinary mentoring and teaching relationships would be valuable.

Difficult consultations with simulated patients - interprofessional education in focus

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Background: In our Professional Development (PD) course at Umeå University, Sweden, fifth year medical students, in groups of nine, must undertake a difficult consultation with a simulated patient (SP), and participate in a subsequent 30-minute, semi-structured feedback session.

Summary of Work: In January 2015 we undertook a pilot 15-minute consultation to illustrate interprofessional communication. The student acted as an emergency physician. A skilled nurse presented a patient having a myocardial infarction. The nurse was instructed to communicate with the doctor regarding treatment. The patient was instructed to ask questions about what was happening. Interprofessional communication was discussed in the feedback session. After that followed a short evaluation session, in which students, teachers, and faculty management answered open questions such as, ‘What did you think of the case?’. Two days later the students were e-mailed a questionnaire; ‘Was the case clinically relevant?’ and ‘Did it make you reflect on interprofessional relations?’

Summary of Results: Students, teachers and faculty management thought the case and the following discussion on interprofessional communication were valuable and clinically relevant, and wanted more interprofessional cases. Some students didn’t realise they were expected to communicate further with the nurse. The questionnaire is not yet fully analyzed but indications are that the case was clinically relevant and made the students reflect on interprofessional relations.

Discussion and Conclusions: These difficult consultations seem to have been an appreciated and clinically relevant form of interprofessional education.

Take-home messages: Interprofessional education in difficult consultations with simulated patients has had very positive evaluations from students, teachers, and faculty management, but still has room for improvement.
CanMEDS roles as framework for analyzing Taiwanese medical students’ reflective journals: a pilot study

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Background: CanMEDS framework articulates a comprehensive definition of the key competencies for medical education. However, whether it can be seamlessly applied to a non-Western context still needs to be examined. This pilot study aims at evaluating the compatibility of the seven roles descriptions with clinical setting in Taiwan in order to establish a database for continuous reflective learning in TMU in the perspective of “glocalization”.

Summary of Work:
* Method: Template analysis approach with purposive sampling
* Material: 149 reflective journals of Year-6 medical students (M/F = 45/12)
* Tool: Coded with MAXQDA 11
* Inter-rater reliability: Cross checked by two researchers

Summary of Results:
* The local scenarios embodied all CanMEDS key competencies.
* Only one (0.7%) scenario cannot fit in with the CanMEDS framework.
* The role expectation for a good Communicator and Medical Expert were mostly emphasized.
* In most scenarios, more than one role were involved.
* The connection between the emerged roles in the same scenario were unclear, except two cases (1.3%) showing role conflict (among Health Advocate and Manager).

Discussion and Conclusions:
* The connections among various roles in one scenario might need to be further inspected and discussed.
* The specification of these 7 roles may overlap in some cases.
* Doctors in different phase may have different role interpretation for one case.

Conclusion: CanMEDS key competencies have no apparent cultural incompatibility in Taiwanese clinical and educational contexts. A database of clinical reflective journals will be constructed within CanMEDS framework in TMU (http://reflective.tmu.edu.tw/).

Take-home messages: CanMEDS key competencies is cross-cultural and can be contextualized in self-directed learning by Taiwanese doctors based on reflective writing.
Challenges in the Implementation Of Competencies In The Preclinical Years of Medicine: Academic Factors

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Background: The implementation of a curriculum based on competencies in Medicine involves planning and application of strategies centered on student learning. Despite the development and diffusion of programs using competencies in medicine, they basically concern the clinical areas and rarely basic sciences.

Summary of Work: The objective of the present study is to describe and analyze the challenges presented in an attempt to change from a traditional teaching of medicine to one that introduces the competencies in basic sciences. For this purpose our interdisciplinary group of teachers designed some strategies and materials that were used by professors of five basic disciplines and evaluated by a SWOT (Strengths, Weaknesses, Opportunities and Threats). The analysis and assessment of the observed problems were described as: challenges, implemented solutions and what the team learned.

Summary of Results: The teachers’ group found six challenges. Among them: changing traditional teaching; strategies to employ; teachers’ and students’ behaviors and, appropriate instruments to assess competencies in large groups of students.

Discussion and Conclusions: To solve these situations to achieve a new model of teaching based on competencies we modified the teaching and learning skills, proposed workshops for teachers in competencies supervised by experts, and developed better learning materials.

Take-home messages: It’s possible to apply competencies in basic sciences if we prepare and commit professor to the change and develop clear and precise working materials for students.

Entrustable professional activities in competency-based veterinary education

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Background: Many graduate medical education programs have started to consider and adopt entrustable professional activities (EPAs) in their curriculum. EPAs could increase transparency in the workplace regarding students' abilities and competencies, and help to ensure safe and quality patient care. Nowadays, there is an increased interest in competency-based veterinary education at the clinical workplace. The motive of this study was to describe EPAs and explore its feasibility in veterinary clerkships.

Summary of Work: A Delphi procedure was conducted to validate a framework of EPAs amongst 83 veterinary (education) experts. Two rounds resulted in a list of 35 EPAs. These EPAs are intended to serve as a guide to develop meaningful, work-based assessments that inform the students’ competency development. The EPAs will be implemented in a competency-based clinical assessment program using an electronic portfolio.

Summary of Results: The Delphi procedure resulted in a list of 35 EPAs for assessing students competency development. Examples of these EPAs are: ‘History taking, general impression and general examination’ and ‘Pain relief’ and ‘Managing a respiration problem’.

Discussion and Conclusions: The EPAs will be employed in the undergraduate training program, with the focus on the practicability to give insight in students’ performance on the clinical workplace. Further research should focus on how EPAs could be implemented for enhancing competency development and making entrustment decisions.

Take-home messages: EPAs could be used to bridge the gap between a competency based approach and daily clinical practice.
The importance of chairperson feedback for the monitoring and improvement of competency-based curricula and associated training programs

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Background: For the AO Trauma Residents’ Education Program, a competency-based curriculum has been implemented starting September 2013, affecting 150-200 courses worldwide. One element of the rollout is a training program for local chairpersons (CTP), helping them to learn more about their tasks and creating a course program. To ensure that the CTP meets its goals and allow for feedback after having applied the learnings in practice, a chairperson survey has been designed.

Summary of Work: An online survey with 32 questions about value and ease of use of the framework and support material, faculty management, assessment, logistics and improvement suggestions has been developed. The survey was sent to 17 chairpersons after their first face-to-face course of the curriculum. Based on the experiences the survey has been modified, concentrating on course framework and support material. Starting March 2015, it will be sent to all chairpersons involved.

Summary of Results: So far, 8 of 17 chairpersons (47%) participated in the survey. All chairpersons considered the curriculum framework very helpful or helpful and made use of the faculty support material. Extensive feedback has been given on potential improvements. It is expected that by August 2015, another 20-25 responses will be available for evaluation.

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).

Take-home messages: Chairperson feedback is an important component in the monitoring and continuous improvement of competency-based curricula and associated training programs.
Shared Educator Competencies: A Synthesis toward Common Learning Outcomes for Masters Programs in Health Professions Education

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Background: The movement toward competency-based education in the health professions became apparent with the Institute of Medicine report, Health Professions Education: A Bridge to Quality. However, an initial scan of the literature for “educator competencies” revealed no consistently embraced framework that could be applied to instructors and faculty across health professions.

Summary of Work: A systematic search of electronic databases including PubMed, CINHAL, ERIC, Google Scholar, Google, and others resulted in 477 articles and resources. These were examined through qualitative methodologies of constant comparison for emergent common themes, which were developed into a list of common domains and educator competencies that could be shared across the health professions.

Summary of Results: The emergent domains included:
• Shared philosophy of experiential and reflective learning;
• Educator as teacher;
• Educator as assessor;
• Educator as leader;
• Educator as scholar

Discussion and Conclusions: These competencies were implemented as the framework for curriculum development and program evaluation for an explicitly interprofessional masters degree in health professions education, and the efficacy was evaluated through surveys of students and alumni and through a review of program impact. Early results indicate that this framework robustly defines the competencies required of instructors and faculty across the professions of medicine, nursing, physical therapy, pharmacy, occupational therapy, and beyond. Additionally, this model was thought to capture all relevant outcomes and impacts at levels of the scholars, their programs of employment, and their students.

Take-home messages: Shared educator competencies can form an effective framework for meeting the increasing demand for highly qualified faculty across professions, and is an effective model for program evaluation.

From Novice to Expert, recognition of early learning goals

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Background: Young residents just graduated from university are typically former diligent students; they are theoretically well-founded and focused on the medical expert role. However, to accommodate the patients needs the resident must bring the remaining roles; Communicator, Collaborator, Manager, Health Educator, Scholar and Professional, in action too.

Summary of Work: Aim of this work is to create educational tools to clarify and visualize individual learning goals according to the 7 roles. Uninterrupted video recordings of the resident’s encounter with real life patients in the emergency ward form the background for the supervisor’s assessment of the novice. Focus is initial assessment of young resident’s individual competences according to the 7 roles of expertise. The resident receives feedback and a customized educational guidance according to the individual needs and capability. The assessment and feedback will be repeated three times during half a year of employment. Focus group interviews on participants have been used for immediate evaluation.

Summary of Results:
• The method is applicable in an emergency ward.
• The method uncovers educational challenges and goals not identified by conventional supervision.
• Intervention is appreciated by the residents.
• Since February 2014 twenty-three out of twenty-three possible residents participated in the project.

Discussion and Conclusions: Our data shows that the enhanced focus and bringing all the 7 roles into play enhances the young resident’s self-reflection on their competences and learning strategy. Conclusion: Early needs recognition support and improve professional development.

Take-home messages: Video recordings of real-life patient encounters in a clinical setting form a valuable tool in clarifying and visualizing individual learning goals.
#3GG09 (27056)
Core competencies medical students need after graduating – do we really know what they are?

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Jussi Merenmies, University of Helsinki, Finland
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Background: Medical education is struggling to keep up with the rapid healthcare development. The predominant hospital orientation may dominate at the expense of primary care teaching. The Faculty of Medicine at the University of Helsinki is currently undergoing a reform to adapt competence-based goals to the pregraduate curriculum.

Summary of Work: The goal was to provide evidence-based knowledge on what conditions primary care work consists of to redirect education to ensure that medical students master the essential competencies. We analyzed ICD-10 diagnoses by one letter and two numerals for 12.9 million visits to primary health care professionals between 2009 and 2013, listed them to predetermined specialties and revealed how this correlates to our curriculum.

Summary of Results: We detected that the proportions between specialties in primary care and our clinical curriculum were mostly consistent, though some areas such as internal medicine and orthopaedics and traumatology require more attention and that a part of the volume of pediatrics and obstetrics and gynecology could be elective. We also describe how lists of most common diagnoses for specialties were offered to help cover the essential conditions during clinical courses.

Discussion and Conclusions: This study demonstrates how we compared primary care clinical work to what is teached to medical students.

#3GG10 (26823)
Learner reflections can contribute to decisions about progression and entrustment

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Background: In 2014 four second year medical students at the University of Colorado entered a new pediatric pathway which uses a structured approach for reflection in the clinical setting.

Summary of Work: Students use a framework that blends Core Entrustable Professional Activities for Entering Residency (CEPAERs) and Reporter, Interpreter, Manager, Educator (RIME), which provides a road map for clinical work. They are coached to reflect using the framework, before, during and after a clinical action/seeing a patient. Reflections are reviewed by the clinical competence committee (CCC) every 3-6 months.

Summary of Results: Reflections before action provide data about prior experience with similar cases/clinical situations, anticipated challenges, potential knowledge, attitude and skill gaps, and suggested actions for success; reflections during action about actual challenges, both anticipated and unanticipated, real learning needs, and thought processes about clinical action choices. Reflections after action, often written after talking with faculty, frequently reference ‘before’ and ‘during’ reflections, give critiques of their performance and suggestions for future improvement and learning. The CCC mapped reflections to RIME and discussed levels of supervision needed for CEPAER addressed by the students’ reflective narrative.

Discussion and Conclusions: Over time, students’ reflections provided the CCC with narratives about clinical work that complemented and were usually congruent with faculty narratives and provided rich data to make judgments about progression and entrustment decisions.

Take-home messages: Reflection done by learners in the workplace using a framework they understand provides rich narrative data that closely matches faculty interpretations of learner performance and supports development of clinical expertise.
Knowledge, skills, and attitudes towards patient safety in medical students in Thailand

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Background: Patient safety has been integrated in clinical year medical student’s curriculum in Sunpasitthiprasong hospital. Little evidence to describe medical students’ attitudes, knowledge and skills regarding patient safety. The present study was aimed to examine the attitudes, theoretical knowledge and skills among medical students, to examine factors associated with their attitudes, and their intentions regarding patient safety.

Summary of Work: 50 4-6th year medical students were invited to answer the self-administered questionnaire, which included information on students’ characteristics, theoretical knowledge, skills and attitudes towards patient safety, and their intentions regarding patient safety. All items were scored on a 5-Likert Scale. Factors associated with attitude, knowledge and skills were examined using logistic regression.

Summary of Results: A total of 50 questionnaires were distributed, 100% of survey questions were answered. The students’ attitudes to learning about patient safety and their intentions regarding patient safety were fairly good, although their knowledge of medical error and how to report the medical error was poor. There were no statistical differences among different age, sex, religion, study year, GPAX, and curriculum type in any item.

Discussion and Conclusions: Although medical students’ understanding of patient safety is poor in Sunpasitthiprasong hospital, the students have a positive attitudes to learning about the knowledge of patient safety in their future careers.

Take-home messages: Patient safety should be included in formal curriculum.

Medical Student Identification: Removing anonymity

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Background: The need for strengthened identification of hospital staff was highlighted in the Francis report (2013). Misidentification of medical students as doctors is commonplace and causes a range of potential problems.

Summary of Work: A prospective 6-week observational study reviewed the impact of “MEDICAL STUDENT” (MS) labelled lanyards on student identification and inclusivity in a University Hospital. Quantitative data was collected pre and post implementation via structured questionnaire and analysed using descriptive statistics. Qualitative data was collected via focus groups and underwent thematic analysis.

Summary of Results: 44 students were allocated to the intervention (n=25) or control group (n=19). Students perceiving themselves identifiable to staff increased from 20% to 89% in the intervention group versus 20% fewer students in the control group. Similarly the percentage that felt identifiable to patients in the intervention group increased from 12% to 84% versus a 13% control increase. Self-reported misidentification in the intervention cohort fell 43% versus a 19% decrease for controls.

Discussion and Conclusions: Qualitative methodology demonstrated staff and student support for the lanyards. Main themes identified qualitatively included increased confidence and assurance in the clinical environment. The study is limited by small sample size and lower control group response rate to post-implementation questionnaires. There was a reduction in the misidentification of students. Students and staff were very positive regarding the intervention and its potential impact on patient safety.

Take-home messages: Medical student lanyards have been successfully implemented in our University Teaching Hospital with a significant increase in students perceived level of identification.
#3GG13 (27236)
Communications, seniority and medical errors for healthcare professionals

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Background: Many studies indicate that medical errors decrease as the healthcare professional get more experienced. However, due to diversity and complexity of medical errors, current literature have limited evidence on the individual’s experience of medical errors among different types of medical errors. This study aims to examine the association among medical errors, communication and seniority for healthcare professionals.

Summary of Work: Using multi-source approach, this study collected 2474 samples from surgeons (n=250), nurse anesthetists (n=550), surgical nurses (n=669), physical therapists (n=445), and pharmacists (n= 560). The surgeons filled out the semi-structured questionnaires which included diagnosis errors, treatment errors, procedural errors, and communication errors. The nurse anesthetists, surgical nurses, physical therapists only filled out procedural errors and communication errors. In addition, in-depth survey for 110 healthcare professionals were conducted.

Summary of Results: Our research finding indicate that types of medical errors for surgeons differ from those of paramedical personnel. Surgeons involved in broader types of medical errors, while the other personnel involved more in specific types of errors, i.e., procedural errors. When all personnel get experienced, all types of medical errors decreased, the percentage raged from 50 % to 10 %. However, communication errors only decreased from 35% to 50%.

Discussion and Conclusions: The study results indicate that medical errors results from communication appear to be harder to be improved for healthcare professionals. Educators or administrators in hospitals should utilize their resources of soical capitals to help clinicians and their team members to minimize the risk of medical errors and keep the quality of care assured.

Take-home messages: Medical errors in procedure type are easier to be improved and corrected. Educators should be aware that medical errors resulted from communication are not that easy to be improved by designed intervention or as the age increased.

#3GG14 (25203)
Training in Raising Concerns - a survey of a cohort of postgraduate medical trainees

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Background: The Francis Report demonstrated that failing to raise concerns can lead to devastating consequences. Consequently, all NHS bodies now have a duty of candour; to offer information and apologies regarding any safety incidents. All frontline healthcare staff, including postgraduate medical trainees, thus have a responsibility to raise concerns about patient safety and other healthcare professionals. However, there is a lack of clarity with regards to correct process of reporting concerns, which could lead to underreporting of these incidents. The training in reporting concerns for postgraduate medical trainees is neither uniform nor standardized. The General Medical Council has set out guidance about raising and acting on concerns but these are not specific to regions or trusts.

Summary of Work: In view of this, I carried out a survey to establish the understanding of a cohort of postgraduate medical trainees about how to raise concerns. I designed an anonymous survey which was emailed to all Obstetrics & Gynaecology trainees in Health Education North West.

Summary of Results:
• 18% of trainees have wanted to raise concerns but did not know how
• 21% of trainees who raised concerns found that no action was taken as a result of the concern raised while 46% of trainees did not receive feedback
• 12% of trainees have been actively discouraged to raise concerns

Discussion and Conclusions: Postgraduate medical trainees are responsible for raising concerns and reporting incidents where patient safety has been compromised. However, significant numbers of trainees lack the knowledge of how to raise concerns and this could represent a training issue.

Take-home messages: There is a need to improve the training of postgraduate medical trainees about how to raise concerns.
#3GG15 (25729)
The perceived needs for improvement in teaching and learning patient safety at Maharaj MEC, Thailand

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Background: Although patient safety has been integrated with other disciplines in the medical training programme at Maharaj MEC, the evaluation have not been done.

Summary of Work: The study was performed in medical students who graduated from Maharaj MEC during 2011-2013 and still worked in the rural areas; there were 58 graduates. Questionnaire and telephone interview were applied to explore any aspects the graduates recognised about patient safety during the medical training programme; the importance, knowledge and adequacy of patient safety in their practice.

Summary of Results: There were 36 out of 58 graduates responding the questionnaire and telephone interview afterward. Most of the respondents recognised that they had learned patient safety particularly during clinical years while some had not recognised. The graduates encountered many problems involving patient safety such as understanding and managing clinical risk; improving medication safety. All the respondents agreed that if they had learned more about patient safety during medical training programme focusing on a variety of case discussion, it would help them having more confidence in daily practice.

Discussion and Conclusions: To meet the needs for graduates, there should have more study on patient safety focusing on case-based learning.

Take-home messages: Case-based teaching should be used for promoting patient safety study.

#3GG16 (25154)
Learning from incidents: Patient safety for foundation doctors

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Background: Although patient safety is at the forefront of the agenda in medicine there is currently limited integration of its principles into medical education at both undergraduate and post graduate levels. Basildon Hospital has recently been subject to an investigation. A questionnaire of outgoing foundation doctors revealed patient safety was not adequately covered in their curriculum. An attitude that incident reporting was an arduous process and not a worthwhile exercise because nothing would change was also elicited.

Summary of Work: Through teaching sessions throughout the year, foundation year 1 doctors (FY1) will be given selected sections of real patient notes from previous incidents at the hospital and asked to perform an ‘after action review’ which is taken from the airline industry. Sessions are to be facilitated by a core medical trainee, consultant and a member of the patient risk group.

Summary of Results: The outcome of the teaching programme will be measured by pre and post course questionnaires and the measurement of incident reporting by FY1s will be compared to the previous year’s cohort. Initial results are promising with universally positive feedback.

Discussion and Conclusions: Through the implementation of a new education programme it is hoped that patient safety can be increased through the hospital’s frontline. By educating the FY1 doctors we intend to prevent the negative attitude towards incident reporting from developing at an early stage and demonstrate that negative patient outcomes can be turned into positive educational outcomes. The programme is currently being delivered in its first year with a view to expanding to other multidisciplinary groups in the future.

Take-home messages:
• Patient safety needs to be covered more comprehensively in medical education.
• Learning from incidents can be used in formal teaching.
• Teaching programmes can be developed in any hospital with incident reporting.
#3GG17 (26179)
Integrating Tactical Decision Games (TDGs) into the medical undergraduate curriculum: The students’ perspective

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Background: Errors in non-technical skills (NTS) such as communication, teamwork, task prioritisation, situational awareness and decision making contribute to a large proportion of clinical incidents, some of which have severe or fatal outcomes. Tactical decision games (TDGs) are low-fidelity, easy-to-stage, classroom based exercises where participants are presented with an emergency scenario e.g. a shipwreck. They have been widely used in high-risk occupations, such as in aviation and the military, to develop NTS. This study explored medical students’ perspectives on using TDGs to teach them about NTS.

Summary of Work: 29 final year medical students participated in a TDG session including a presentation and discussion around NTS followed by a simulation session requiring the application of NTS behaviour. Focus groups were then used to evaluate students’ perceptions of TDGs and to facilitate the iterative development of the sessions.

Summary of Results: Students valued TDGs as a method of introducing them to NTS and supported their introduction into the medical undergraduate curriculum. Some students suggested that TDGs should be introduced earlier in the curriculum to encourage progressive NTS development. Students also emphasised the importance of NTS training in later years when they are focussing on preparation for clinical practice.

Discussion and Conclusions: Students supported the introduction of TDGs into the curriculum as a method of teaching them about the importance of NTS. They also supported the use of non-medical TDGs as this encouraged focus on NTS. There is widespread student support for increased NTS training throughout the curriculum.

Take-home messages: Students view TDGs as a feasible and acceptable method of teaching them about NTS.

#3GG18 (25522)
A regional, blended approach to education in patient safety: development, delivery and future prospects

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Background: There is a lack of focussed safety education for healthcare trainees, with indistinct competencies that are assumed to be achieved during training. Furthermore, the best modalities for delivery are uncertain. We describe our development of a blended learning approach to safety education.

Summary of Work: The East Midlands Patient Safety and Improvement Science (EMPSIS) course has been developed for regional healthcare trainees incorporating multiple modalities: e-learning, workshops and simulation. Initial development defined a curriculum focussing on key competencies achieved through focus-group and individual interviews with key national (including the GMC) and international experts and mapped to international safety curricula. The final curriculum is therefore focussed.

Summary of Results: The curriculum has been structured into six domains. To date, four domains have been completed and e-learning is under evaluation by the first user groups (medical trainees). The resources are being well received based on content and usability. Workshops are being developed with positive feedback for a piloted “wellbeing workshop.” Evaluation is in progress for the integration of EMPSIS into a regional vertical, interprofessional simulation day.

Discussion and Conclusions: EMPSIS is a developing, blended approach to education in patient safety and improvement science for healthcare trainees. Current evaluation has shown a positive reaction and an increase in learning. Future work will include evaluation in relation to changed behaviours (through feedback and portfolio reflections) and results in changes in healthcare culture (through questionnaires) and increases in healthcare trainee reporting.

Take-home messages: Via a patient centred, interprofessional, blended learning approach, EMPSIS aims to change behaviours and show results through improvement in the quality of care.
Can we improve attitudes towards patient safety in final year medical students?

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Background: Patient safety education is vital in the undergraduate curriculum. The GMC has recently recommended a single set of standards for medical education, putting patient safety at the core of training. This promotes a culture that learns from mistakes or clinical incidents and it reinforces the professional duty of doctors to be open and honest with patients when things do not go as planned.

Summary of Work: Our aim was to introduce a workshop for fifth year medical students to address the GMC guidance. Outcomes are based on the WHO patient safety curriculum. Subsequently the new Foundation Year 1 doctors will be assessed to ascertain if this intervention has improved attitudes towards patient safety. A workshop involving case based discussion and role play- using viable small group methods, will be delivered to approximately 40 fifth year medical students. A questionnaire to rate satisfaction and attitudes to patient safety will be distributed pre and post workshop.

Summary of Results: The results will be presented during the AMEE conference.

Discussion and Conclusions: A complete analysis and conclusion will be presented at AMEE. Our hypothesis is that our workshop will be well received and improve attitudes, however impact on future practice needs to be investigated to assess enhancement in delivery of care. Further work will include using semi-structured interview and quantitative investigation via critical incident reporting.

Take-home messages: Incorporating GMC standards on patient safety into the undergraduate curriculum is vital and finding a successful format of delivering this to medical students is essential.
#3HH Posters: Postgraduate Education: Speciality Training
Location: Hall 4, SECC

#3HH01 (24191)
Evaluation of a Quality Improvement learning intervention in General Practice training

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Background: Leadership skills are required for the development and implementation of quality improvement initiatives aiming to improve patient care. Although leadership skills are often set within medical curricula, the teaching of these skills and their acquisition in practice are often challenging.

Summary of Work: This poster outlines an evaluation of an education intervention designed to support GP trainees in the implementation of a quality improvement projects within their work place, thus supporting the development of their leadership skills.

Summary of Results: Evaluation included a before and after confidence questionnaire and interviews with GP trainees and their GP trainers. Thematic analysis followed.

Discussion and Conclusions: The educational intervention was shown to improve GP trainees’ knowledge and understanding of Quality improvement principals and provided practical experience to develop leadership skills within this context. A number of barriers and facilitators for the implementation of projects were identified. Many trainees felt the experience enhanced their CV and made them more confident when applying jobs post qualification

Take-home messages: It is possible to teach quality improvement skills within General Practice training. The intervention was well received by practices, trainers and trainees.

#3HH02 (26793)
Indicators for ad hoc knowledge of family doctors in Germany

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Daniel Bauer, Klinikum der Universität München, München, Germany

Background: Family doctors occupy a key position in Germany’s healthcare system and act as gatekeepers between the various medical disciplines. Their explicit medical knowledge levels, however, can be quite disparate. This study analyses family doctors’ performances in a standardised knowledge test.

Summary of Work: The survey was based on the Progress Test Medicine (PTM), a standardised test on graduate level. After formal blueprinting and item analysis, 60 items of PTM were selected (“PTM-FamDoc”). PTM-FamDoc was then presented ad hoc to family doctors and internists from Germany and Austria at a number of professional meetings in 2011. 161 volunteers completed the survey. For evaluation, ANOVAs were calculated and compared.

Summary of Results: Overall, three indicators turned out to be highly significant for the performance, namely: (a) the time that had passed since graduation, (b) the grade received in the licensing examination, (c) the site of postgraduate training.

Discussion and Conclusions: Recent graduates performed better in the PTM-FamDoc; a doctor’s licensing examination grade as well as training at a university hospital correlated positively with PTM-FamDoc performance. While memorised facts are important, however, they are not the only form of knowledge relevant for professional performance.

Take-home messages: A family doctor’s knowledge level is highly influenced by exam grades, time since graduation and the institutional affiliation of postgraduate training. Individual needs of the aging physician have to be deliberately considered in lifelong learning. In consequence, the on-going teaching of medical knowledge should not just be a part of university hospital education in Germany, but should equally be integrated into family doctors’ everyday practices in non-academic environments.
Development of a general practice specialty training DVD resource using formative assessment consultation recordings

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Background: A formative clinical skills assessment (fCSA) is run annually in South East Scotland for general practice specialty trainees (GPSTs). GPSTs complete four simulated consultations and receive formative developmental feedback. The fCSA is video recorded; the potential teaching value of recordings was recognised.

Summary of Work: A feasibility study was conducted (2012-2013) to determine whether fCSA consultation recordings could be used for a GP training resource. Material was piloted with GP educational supervisors (ESs). Process recommendations facilitated subsequent resource development (2013-2015). A designated lead oversaw development (ethics, consent, video recording, consultation selection, resource writing/production). Consultation analysis by ESs/ a CSA examiner formed the basis of written resource material.

Summary of Results: In the feasibility study, 94.9% of GPSTs (total=59) consented to use of recordings. 87.4% (mean) of ESs thought recordings would be useful for teaching. 72.6% (mean) of ESs (total=44) had no concerns about using recordings for teaching. 27.4% (mean) had concerns (audio-visual quality, informed consent, trainee confidentiality).
In the development process, 76.2% of GPSTs (total=63) consented to use of recordings. 16 appropriate consultations were selected; 4 were excluded following consent withdrawal.

Discussion and Conclusions: Feasibility study findings indicated a positive ES response and guided audio-visual and consent process improvements. Development challenges included budgetary constraints and trainee consent aspects. The lower rate of GPST consent during resource development may reflect more explicit consent information/heightened reality of the decision. Time and resource permitting, it is possible to develop a training resource using formative assessment recordings.

Take-home messages: This educational resource concept/development process may be applied in similar clinical education settings.
#3HH05 (23435)
Family Medicine Residents’ Attitudes Towards Depression and the Impact of Residency Psychiatry Training

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Background: A hands-on, closely-supervised once-a-week outpatient psychiatric training was set up for family medicine under a new residency programme in 2011.

Summary of Work: The participants were asked to complete these questionnaires:
1. The Depression Attitude Questionnaire (DAQ), at the start and again at the end of the six-month outpatient clinic experience in psychiatry.
2. A general questionnaire which gathered participants’ information.
From Jul 2013 to Dec 2014, 20 such residents completed their outpatient psychiatric training. A description of the participants’ profile and preliminary findings of the DAQ scores are presented.

Summary of Results:
The characteristics of participants were: age (mean 28.5 years); sex (male 9, female 11); ethnic group (all Chinese); marital status (married 7, single 13); highest level of medical training attained (MBBS 17, MD 2, postgraduate diploma 1); previous attendance at postgraduate continual medical education related to psychiatry (talks/seminars/workshops 8, none 12); previous experience in clinical psychiatry (only 1 had a three-month elective, rest none).
Depression attitude scores before and after training: Family medicine residents at the end of their six-month outpatient psychiatry outpatient training experience show changes in various attitudes towards depression. In particular: the increased recognition of biological causation of depression; ability to diagnose depression; feeling more comfortable dealing with depressed patients and thinking it is less heavy going but instead more rewarding; and believing that a GP can use antidepressant treatment with satisfactory result.

Discussion and Conclusions: Residents undergoing family medicine residency psychiatry outpatient training show positive changes in attitudes towards depression.
Take-home messages: Outpatient psychiatry training for family medicine residents can increase their confidence in managing depression in primary care.

#3HH06 (25456)
Setting up a quality improvement project for final year GP registrars - the pilot in SE Scotland

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Background: The Quality Improvement project (QIP) is part of the RCGP’s proposals for the final year in an Extended GP Training programme. The aim was to enable GP trainees to learn leadership and QI skills and apply these to practice. The Scottish deanery Southeast region was chosen as the national QIP pilot site for a selected trainee group.

Summary of Work: The pilot involved testing out structured meetings between educational supervisor and trainee, creating materials and support systems for trainees as well as those for their educational supervisors, setting up facilitated peer-support groups, and trialing methods of assessment.

Summary of Results: This poster describes the structure, tools and materials put in place for participating ST3s and educational supervisors. 11 GP trainees completed the QIP pilot. Subsequent evaluation has shown that trainees reported a huge sense of achievement from setting up projects that had the potential to make a difference to patients.

Discussion and Conclusions: Despite the short timeframe for the projects, and initial scepticism from some ESs, the pilot process described was successful and has led to increased trainee interest.
Take-home messages: Trainees welcomed the opportunity to translate leadership theory into practice. An educator team with clearly defined roles helped to engage stakeholders and trial a variety of processes.
Feasibility of Pediatric Resident Training in Developmental Screening on Rotation

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Background: Developmental screening is an important skill for pediatric care; however, Developmental Pediatrics (DP) is frequently cited by physicians as an area of insufficient training. We studied implementation of a new developmental screening curriculum and its effect on resident attitudes and behaviors towards screening tool use.

Summary of Work: During their DP rotation, General Pediatric (GenPeds) residents received didactic sessions on using a validated screener, managing positive screens and providing families with information on community resources. They then attended a “screening day” in a GenPeds clinic to practice the screener. Each resident recorded number of screens as well as screening outcome on a logsheet. Residents were interviewed at start and end of rotation to assess attitudes about screening.

Summary of Results: Over four years (April 2011—December 2014), 49 residents participated and screened a total of 475 children. Mean screens per resident day was 14 (range 3-27). Resident feedback showed overall positive experiences with improved knowledge of community resources. They expressed a need for screening opportunities to be available in more and varied settings during training. The most commonly expressed obstacle to screening was time.

Discussion and Conclusions: Integrating screening education into GenPeds residency during the DP rotation was feasible, i.e., residents were able to complete, score and interpret a base number of screens, and highly acceptable to residents. Subsequently, screening curriculum was expanded to all GenPeds clinics.

Take-home messages: Strong core teaching from DP educators in conjunction with massed practice in community GenPeds clinic was successful in beginning to develop a developmental screening practice in pediatric residents.
Background: Death and bereavement are important aspects of medicine often neglected in formal medical education. We aim to study the attitudes and responses of residents towards patients’ deaths and differences of perspectives between paediatrics (PD) and adult internal medicine (IM) residents.

Summary of Work: An anonymous survey was conducted amongst all PD and IM residents in a tertiary hospital in Singapore. Questions addressed their attitudes, emotional responses and coping mechanisms towards a patient’s death.

Summary of Results:
- 37 PD and 85 IM residents participated (100% response rate). PD (84.0%) and IM (71.0%) residents had no previous education on bereavement. Less PD residents (54.1%) reported to be always or often able to function normally after a patient dies compared to 89.4% of IM residents (p<0.01). PD residents had more symptoms, with poor concentration (35.1% PD, 16.5% IM, p=0.02) and lethargy (35.1% PD, 9.4% IM, p<0.01) being the commonest. More PD (29.7%) than IM (16.5%) residents took longer than a few days to get over a death (p=0.09). More than 80% of PD and IM residents coped by sharing, 97% of both PD and IM residents felt that bereavement support was inadequate and believed that a helpful senior, a listening ear and informal discussions would be helpful. Most residents (PD 94.6%, IM 76.5%) felt that bereavement education was necessary.

Discussion and Conclusions: Residents can be adversely affected by patients’ deaths, with PD residents being more affected than IM residents. This may lead to burnout if left unaddressed.

Take-home messages: Bereavement education and sharing sessions should be included in the residency curriculum.

Regional teaching programme for level 3 (ST6-8) paediatric trainees: Is it beneficial? And what are the other deaneries doing?

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Background: All deaneries have specific compulsory training days for paediatric trainees from ST1 to ST5. While the grid trainees continue their training days, general paediatric trainees do not necessarily have a dedicated teaching programme during their final years of training. We introduced specific training days for level 3 trainees (ST6-8) in our deanery for a trial period of 2 years. Trainee feedback was assessed to decide on continuation and/or modification of the programme. We also undertook a survey amongst the head of schools (HODs) of paediatrics within UK with the help of RCPCH to evaluate training days for level 3 trainees.

Summary of Work: The training days were organised by senior trainees 4-5 times per calendar year from October 2012 to October 2014. Clinical topics were covered in mornings and afternoons were dedicated to management topics. Written feedback was collated after each training day. An online survey was distributed to the HODs in all deaneries by RCPCH in October 2014. This was designed to explore provision of separate training days for ST6-8 trainees in other deaneries, topics covered and trainee involvement in organising them.

Summary of Results: The feedback was consistently excellent despite initial challenges and now has >90% attendance. After review by organisers and deanery, these teaching days have been incorporated into the training programme indefinitely. 7 HODs responded to our survey and 5 deaneries had separate ST6-8 training days. These were held between 5-10 days every year and all deaneries had trainee input in organising them. The main topics covered were risk management, leadership, clinical governance, START (external assessment for senior paediatric trainees), child protection and handling complaints.

Discussion and Conclusions: We strongly feel that introduction of separate teaching days for senior paediatric registrars has been a major development in our deanery as it meets the learning needs of trainees embarking on the final step of becoming a new consultant. It has also created opportunities for trainees to develop management and networking skills whilst organising these sessions.

Take-home messages: Based on our experience and feedback we would advocate introduction of bespoke training days for senior trainees in Paediatrics across all deaneries.
#3HH11 (27711)
Mentorship in Canadian Anaesthesia Residency: A Needs Assessment

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Background: Mentorship in medical education is an important factor in deciding choice of specialty and direction of clinical practice and provides social and professional benefits for both mentor and mentee. There is scant anaesthesia resident-specific mentorship literature.

Summary of Work: Local research ethics board approval was obtained. Mentorship program characteristics most important to mentees in Canadian English-language anaesthesia residency programs were determined by survey. Data were analyzed using the chi-squared statistic with a level of significance of 95%. The authors have no conflicts of interest to declare.

Summary of Results: 122 residents (of a total of 531) from 14 programs completed the survey. Some notable results include: 58% of first and second year residents (PGY1-2) stated there should be no formal curriculum of mentorship activities compared to 87% of PGY4-5 (P<0.005). 66% of all respondents stated mentorship pairing should occur in the second year of residency. 98% stated staff participation in mentorship should be voluntary, and 62% felt that anaesthesia staff should be educated on how to mentor.

Discussion and Conclusions: This qualitative study is the first to investigate the characteristics desirable for a mentorship program in an anaesthesia residency using a sample of Canadian anaesthesia residents. Desired characteristics change as residents become more senior, and features such as voluntary anaesthesia staff participation, mentor education, and mentorship initiation in second year may contribute to mentorship satisfaction. PGY1-2s may prefer a more structured mentorship.

Take-home messages: This information will be used to improve the local mentorship program and may be beneficial to the creation or improvement of mentorship in other residency programs.

#3HH12 (26835)
A survey to explore the experience of London anaesthetic trainees returning to work after a period of break

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Background: Increasing numbers of doctors, in particular females taking maternity leave, experience breaks in training and this trend is likely to be accentuated in the future with the feminisation of the medical profession. A structured return to work is recommended by the Royal College of Anaesthetists (RCoA).

Summary of Work: We surveyed a cohort of London anaesthetic trainees (980) during June and July 2014 regarding the number of breaks in training, reasons for breaks and their experience on returning to work.

Summary of Results: Two-hundred and thirteen trainees (21.7%) participated in the survey. Eighty-three (38.9%) experienced one or more breaks. The majority were females taking 9-12 months maternity leave with 50% returning to a Less Than Full Time (LTFT) work pattern. On return to work, half of the trainees worked in supervised sessions, but only a minority (10%) had a structured and gradual return to work and/or were formally assessed. Most of the 83 participants (n=60, 72%) rated their level of knowledge and skills as being adequate or more, whereas for confidence level this was the case for only 41 (49%) participants. A low level of confidence was particularly prevalent in female trainees returning from maternity leave.

Discussion and Conclusions: Forty percent of participants experienced a break in training. Resuming clinical practice is associated with difficulties, both practical and personal, and does not meet RCoA recommendations.

Take-home messages: We encourage the adoption of a formal and structured return to work package after a break, to support trainees’ needs, ensure high quality care, and to meet RCoA recommendations.
The case for change; designing an anaesthetic education programme to better serve the needs of the trainee

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Background: The UK anaesthetic Primary FRCA examination demands a depth of basic science knowledge that is intimidating for the core trainees who simultaneously face the challenge of a new clinical environment which demands rapid acquisition of new clinical skills. We aimed to redesign a teaching programme to better serve core anaesthetic trainees; supporting exam preparation whilst maintaining clinical relevance.

Summary of Work: The key aims of the programme changes were to reduce cognitive load through a reproducible educational framework, replace didactic lectures with an interactive style which would engage participants in a manner conducive to adult learning, and to remain multifaceted: incorporating critical appraisal, basic science and clinical knowledge. We employed a problem based structure; weekly case scenarios were provided, each highlighting a problem or concern encountered in everyday practice; an accompanying journal article focussed on the topic under consideration; 2 trainees were selected to prepare micro-teaches on relevant basic science curriculum topics. A facilitator guided the discussion, using Socratic questioning to encourage reflection on individual experience and clarify concepts when necessary.

Summary of Results: The modified Dundee Ready Education Environment Measure was used to evaluate the success of the change in programme; trainees were surveyed anonymously before and after the change. Student t test demonstrated significant improvement across the domains of perception of learning, organisers, academic self and atmosphere (p<0.05).

Discussion and Conclusions: We have been successful producing a novel anaesthetic education programme, integrating clinical and examination knowledge in a manner conducive to adult learning.

Take-home messages: Problem based learning can be used successfully to produce an integrated, multifaceted educational programme which addresses the learning needs of a specific trainee group.
#3HH15 (25594)
Health Preventive Curriculum Influences Self-Awareness and Knowledge of Internal Medicine Residents on His/Her Self-Health Prevention of Diseases and Health Promotion

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Background: Non-communicable diseases such as diabetes, hypertension, and obesity relate to inappropriate behaviors. Those can be prevented by having good lifestyles. Previous studies showed that many doctors overlooked their health such as smoking, inactive lifestyle, and overeating; moreover, those doctors tended to neglect their patients' health in the same aspects. This study aimed to evaluate the effect of health preventive curriculum in self-awareness and knowledge of 1st year internal medicine residents after implementing health preventive program.

Summary of Work: All 1st year internal medicine residents in 2014 were included in health preventive curriculum and provided for high risk patients’ education. The preventive program consists of a series of self-management tasks: diet, exercise and psychological based intervention. Questionnaires of awareness and knowledge were collected before and after implementing this program.

Summary of Results: Eighty nine questionnaires were replied by 1st and 2nd year residents before establishing this preventive curriculum and fifty eight questionnaires were responded by 1st year residents who attended this program. There was significant higher total self-awareness in the group after implementing the preventive program (71.4% vs. 29.0%; p<0.001, OR 8.46). The average knowledge scores of 1st year internal medicine residents before and after preventive program are 44.2 and 50.6, respectively (p<0.001). Moreover, the average knowledge scores of 1st year residents after attended this curriculum were quiet similar with 2nd year residents.

Discussion and Conclusions: The preventive curriculum could promote self-awareness of internal medicine residents: in addition to, this program also increases their medical knowledge.

Take-home messages: The good preventive curriculum may encourage residents in both attitude and knowledge.

#3HH16 (25091)
Creating a new curriculum for teaching and learning clinical procedure skills – SingHealth Emergency Medicine Residency Clinical Procedure Skills Training Programme

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Background: The introduction of ACGME I advanced specialty requirement for procedural skills competency with its shortened training duration (from 8 to 5 years) provided the impetus for the redesign of the curriculum to enable our residents learn and acquire competency within the curriculum time. The current Halstedian approach of “see one, do one and teach one” is considered to be an outdated teaching model for acquiring procedural skills in a patient safety conscious environment.

Summary of Work: The objective is to ensure that a EM R1 resident will be able to achieve virtual competence in clinical procedural skills as specified by ACGME I before embarking on performing clinical procedures on live patients from R2 onwards. Situational competence is to be attained by end of R4 year prior to graduation.

Summary of Results: The number of procedures a resident is required to attain competence on graduation: total of 66 procedures (of which 11 procedures are to be logged and tracked through ADS of ACGMEI). Airway (6), Resuscitation (10), Anesthesia and Acute Pain Management (3), Abdomen/Gastrointestinal (6), Cardiovascular/Thoracic (6), Cutaneous (5), Head, Eyes, Ear, Nose and Throat (7), Infections/Infectious diseases (2), Musculoskeletal (5), Nervous system (1), Obstetrics/Gynaecology (3), Psycho-behavioral (2), Renal/Urogenital (5), Toxicologic (1), Other Diagnostics (2), Ultrasonography (2). Mapping of procedures and how this is to be taught will be presented.

Discussion and Conclusions: There was initial difficulty in making the leap from traditional to the new framework. Task training and simulation was initially viewed as the last resort when residents do not fulfil the minimal number of procedures required. Attainment of virtual competence can help prepare residents for procedure performance in live patients.

Take-home messages: Rational use of task training and simulation can help residents achieve competence with patient safety in mind.
#3HH17 (24911)
Improving the Feedback to Internal Medicine Residents Following Clinical Competency Committee Performance Evaluation: A Pilot Study

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Background: Review of residents’ performance by Clinical Competency Committees (CCC) and subsequent post-CCC meetings between faculty members and residents to provide feedback and to plan for follow-up actions is an integral to residency programs. It is important to constantly improve this process to ensure timely feedback and guidance. This pilot study takes an action research approach to look at the impact of improvements, which are motivated by the feedback-goal-plan-action loop (Frese & Zapf, 1994), made to the post-CCC meetings.

Summary of Work: A series of improvements were made to the Internal Medicine post-CCC meetings - providing qualitative comments, previous performance data and action plans. Surveys with Internal Medicine faculty members (n=15) and residents (n=17) were conducted between improvements to measure their impact.

Summary of Results: Most residents (60%) found the additional qualitative comments very useful as compared to other information (range from 17%-40%). Faculty members were confident in providing feedback (mean = 7.5 out of 10) but less comfortable in setting goals (mean = 6.9) and formulating action plans (mean = 6.7) for the residents. They also felt that information from the previous meetings would be very helpful for post-CCC meetings.

Discussion and Conclusions: Faculty members and residents found improvements to post-CCC meetings to be useful. Looking at how feedback translates into feasible action plans that are followed up and developing faculty members in formulating action plans are the next steps.

Take-home messages: Inclusion of qualitative comments during post-CCC meetings is important as they give residents specific strength and weaknesses to work on. Continuously examining and introducing improvement to feedback process is essential towards residents’ learning.

#3HH18 (26301)
Strategies of medical residents to deal with situations of uncertainty in clinical practice

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Background: Based on a conceptual theoretical model of the process through which residents face uncertainty and the results of a previous qualitative study, a quantitative instrument was built to explore the strategies that residents use in typical situations of uncertainty according to its type and their academic level.

Summary of Work: The sampled population was 8,596 physicians enrolled in the Medical Specialties Program at UNAM during 2013. A total of 2,481 medical residents accepted the invitation and answered the questionnaire online anonymously and voluntarily. The questionnaire had two parts: one with socio-demographic questions and the main section with 36 typical situations of uncertainty. The response options were "I have not been in that situation", and eleven more strategies identified in the qualitative study.

Summary of Results: Two variants of logistic regression analysis were performed by type of uncertainty and academic level. The probability that a resident reported that he/she found him/herself in a situation of uncertainty is 0.69 globally. The most prevalent strategy to deal with uncertainty is to consult a physician of higher hierarchy with a probability of 0.71. The response "I have not been in that situation" tends to diminish in frequency as the resident’s academic level increase.

Discussion and Conclusions: Uncertainty is inherent in the everyday practice of physicians and even more for residents.

Take-home messages: The exposure to uncertainty should be addressed in medical education to help residents cope with different type of situations during their clinical practice. This will promote patients’ safety, improve residents’ learning and satisfaction, and help achieve institutional goals.
#3HH19 (26980)
Teaching therapy to young psychiatrists: Surveying self-efficacy towards learning and application of psychotherapy

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**Background:** In 2010, formal psychotherapy training in postgraduate psychiatry training was introduced in Singapore with the implementation of the residency system. Previously, trainees’ exposure to psychotherapy was limited to courses and ad-hoc clinical rotations. The introduction of this unprecedented change created the need to evaluate the trainees’ learning outcomes, pre- and post-implementation.

**Summary of Work:** We compared self-efficacy in psychotherapy competencies between year 4 & 5 residents who went through psychotherapy training, and those who were from the previous training system (advanced specialist trainees: AST), using a survey on psychiatry trainees’ attitudes and knowledge toward clinical practice.

**Summary of Results:** Eleven residents and 14 ASTs (response rate: 81%) completed an online questionnaire. The mean years of practice in psychiatry are 4.7 (SD = 1.5) and 5.4 (SD = 1.9) years, respectively. Residents’ self-efficacy in various aspects of psychotherapy is higher (medians from 7-8) compared to ASTs, (medians from 4-7) on a 10-point Likert scale. When compared separately for cognitive behavioural therapy (CBT) and psychodynamic psychotherapy (PDP), residents’ self-efficacy, compared to ASTs, is much higher in PDP (mean Cohen’s D=0.78) than CBT (mean Cohen’s D=0.36).

**Discussion and Conclusions:** Residents who underwent formal psychotherapy training displayed greater self-efficacy in psychotherapy as compared to ASTs who went through non-formal psychotherapy training. Differences in confidence to conduct psychotherapy in PDP were larger as compared to differences in confidence to conduct psychotherapy in CBT.

**Take-home messages:** Formal training in psychotherapy equipped psychiatry residents with the confidence to conduct psychotherapy, especially PDP.

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#3HH20 (23795)
High Fliers - Developing a postgraduate course for pre-hospital and retrieval practitioners

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**Background:** Seriously ill and injured patients require early critical care interventions and safe transfer to definitive care. The Emergency Medical Retrieval Service (EMRS) is a consultant led team who undertake primary trauma missions across Scotland and secondary retrieval missions in remote and rural environments. Like many transfer and retrieval teams we employ paramedics and nurses as part of the team in the role of ‘critical care practitioners’ (CCPs) however there is no recognised training programme or academic qualification for these clinicians in the UK. We set out to develop a clinically based postgraduate programme in advanced practice for retrieval CCPs that would form part of service development as well as personal career and payscale advancement.

**Summary of Work:** In collaboration with Glasgow Caledonian University we developed a bespoke work based learning course. This involved two 30 credit masters level learning contracts covering a wide range of clinical and non clinical topics but specific to the critical care retrieval environment. We created a Moodle Virtual Learning environment for the curriculum, candidates’ portfolios and links to teaching resources. Candidates were assessed using supervised learning events (directly observed procedural skills [DOPS], mini clinical evaluation exercise [mini-CEX] and case based discussions [CBDs]), case presentations, supervisor feedback and an OSCE type exam.

**Summary of Results:** Five CCPs (one nurse, four paramedics) enrolled in and completed the course. They have been awarded a Postgraduate Certificate.

**Take-home messages:** A bespoke postgraduate teaching programme for a unique and challenging area of medicine is both deliverable and advantageous.
#3HH21 (26436)
People, place and time, Feedback that matters in surgical practice

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Background: As Professionals, surgeons need to assess their performance regularly. This study aims to provide individual surgeons with meaningful, timely feedback in several areas of team performance and patient care. This feedback may promote mindful practice, enhancing the ability to engage in self-monitoring, and promote safety and quality in surgery.

Summary of Work: Following individual pre-interviews, 10 participant surgeons at a new orthopaedic centre in Calgary, Canada were evaluated by two surgeons using the Observational Teamwork Assessment for Surgery (OTAS) tool. Participants also received up to ten evaluations from co-workers using a standardized tool to assess the surgeons’ clinical practice, communication, and teamwork. Participants were provided with a summary report and an opportunity to review their feedback with a peer, followed by a post-interview. Two researchers coded transcripts from the interviews to identify themes.

Summary of Results: Participants thought that receiving regular feedback would help identify gaps in their own practice. A majority believed greater mindfulness would be beneficial, and would specifically contribute to exposing blind spots, identifying deficits in practice, preventing automatization, and challenging core assumptions. Observations using the OTAS tool and 360 evaluations from the surgeons’ co-workers will be completed by May 2015.

Discussion and Conclusions: Surgeons report that they want feedback, and can learn from it. We anticipate that after final observations, surgeons will recognize that feedback is a mechanism for mindfulness, and that mindfulness can help improve individual and team practice.

Take-home messages: • Surgeons want timely feedback on their practice from peers and co-workers to improve mindfulness; • Improving mindfulness could expose gaps in practice/performance and thus improve patient safety and care.

#3HH22 (27162)
A mixed methods study of psychiatry trainees investigating the factors in their undergraduate medical training which may have contributed to their decision to train in psychiatry

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Background: There is a long-term concern as to why psychiatry is relatively undersubscribed as a specialty. Research suggests undergraduate teaching in psychiatry and students’ initial experience with patients with mental illness is important in determining views and subsequent career choice.

Summary of Work: Aim: To improve understanding of how the undergraduate psychiatry curriculum can impact on recruitment into this specialty by examining the trainees’ perspectives. We will develop suggestions for the optimal undergraduate psychiatry curriculum, aiming to enhance positive attitudes towards mental health in general and improve recruitment to a career in psychiatry in particular.
Method: A mixed methods qualitative study with two parts:
1) Survey of all psychiatry trainees in London asking their views about the undergraduate teaching they received in psychiatry and what impact this had on their career choice. We will document which medical schools they trained at, which will be triangulated with a complementary study investigating the content of curricula at UK medical schools.
2) This will be followed by in depth interviews with a purposively sampled group of psychiatry trainees to gather more detailed information from a representative range of perspectives.

Summary of Results: The results will be analysed alongside the data about curriculum content at UK medical schools to identify important factors in undergraduate psychiatry teaching which are likely to influence attitudes towards psychiatry and career choice.

Discussion and Conclusions: To be completed- data collection will be completed by May 2015 and analysed results will be presented.

Take-home messages: The impact of undergraduate teaching in psychiatry on future career choice.
Practicing Evidence-Based Medicine; Comparison Barriers Among Pediatrics Residents And Faculties In ACGMEI Program In Qatar

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Background: Evidence-based practice (EBP) has been widely explored; little research focused on comparing challenges of EBP among residents in training and physician’s. Aims of our study is to determine barriers that residents and physicians experience in implementation of EBM in daily practice, to explore recommendations can overcome challenges.

Summary of Work: Cross-sectional Survey included details of demographics, perceptions and barriers to use EBM in clinical practice conducted from July till August 2014 among pediatrics residents and attending’s at main tertiary teaching hospital in Qatar.

Summary of Results: Out of 81 responses, 36 (44.5 %) were residents, 45 (55.5%) staff attending’s. (36%) of residents considered lack of qualified teachers as most cited barrier and surprisingly (68%) of attending has similar responses (P<0.013). Major proportion of attending’s and residents (62% and 48% respectively)(P<0.026) reported lack of access for databases from home and lack of institutional resource and facility as a significant barrier; Nearly(56%) of residents consider time constraint as barriers for practicing EBM compared to (40%) of attending’s (P<0.012). factors such as Influences from staff members during clinical round and low possibility for implementation of research findings to practice were described in (30%) of attending’s compared to (15%) of residents(P<0.001), participants identified several strategies such as hiring staff with EBM training and offering annual structural workshop in critical appraisal.

Discussion and Conclusions: Residents and faculties shared similar concerns on barriers in implementing EBP. Our study will be useful to design and implement basic education in EBM early in residency.

Take-home messages: Transfer evidence into practice is not always optimal, several challenges related to acceptance and application limiting use of EBM.

Medical Education for Primary Health Care: A view from students and teachers

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Background: The paradigm of medical education gives importance to a biopsychosocial model, emphasizing promotion, prevention and claiming the presence of social and human sciences. This frame was considered in Chilean health care reform, establishing Primary Health Care as a national strategy. However, whether medical schools prepare future physicians to serve at Primary Health Care settings is unknown. To know if medical education prepares physicians for working in primary health a qualitative study in four Chilean schools of medicine was done during 2013.

Summary of Work: Semi-structured interviews with 8 key teacher informants and 6 focus group with students were applied. Content analysis for education for general practice, primary health care orientation and preferred settings for practice was done in blind method for ethical implications.

Summary of Results: Graduate profiles of schools declare an orientation to general practice, but clinical experiences are hospital based supervised by specialists while primary care is not valued and seen as temporary.

Discussion and Conclusions: Medical Schools are not preparing professionals for Primary Health Care but for Hospital and specialized medicine. Recommendations from international organizations point out the need for community based health orientation, what does not seem to be the case in Chile. It is suggested that regulations of medical education in the country be strengthened to make the educational process more consistent with the health needs of population.

Take-home messages: There is a need in Chilean medical education, to progress from a hospital-centered culture to a community and primary health care orientation.
Background: Clinical anaesthetics rotations during medical school offer several benefits to medical students. It is therefore important to monitor the provision of anaesthetics training to ensure that standards are consistent at a national level.

Summary of Work: We performed a preliminary cross-sectional evaluation of clinical anaesthetics training in fifteen medical schools throughout the United Kingdom. We adopted a mixed methods approach using a standardised questionnaire and semi-structured interviews of clinical medical students.

Summary of Results: Data were collected from 65 medical students, with a response rate of 86.7%. Two out of the fifteen medical schools (13%) did not provide compulsory anaesthetics training, and only offered rotations as part of student selected modules. Within the remaining thirteen institutions, there was significant variation in the length of rotations (median: 2 weeks, range: 2 days-6 weeks). Ten institutions (67%) consistently provided students with learning objectives, which ranged from knowledge of airway equipment to anaesthetic pharmacology. Only two institutions (13%) have introduced supervised assessments of clinical and procedural skills as essential requirements to successfully complete the rotation. Students at three medical schools (20%) cited specific concerns regarding the variation in experiences between hospital sites.

Discussion and Conclusions: Based on our preliminary results, we recommend that: 1) A minimum length for clinical rotations is established to ensure adequate exposure; 2) Assessment of procedural and clinical skills is formalised to facilitate student learning; and 3) Institutions aim to minimise variation in experiences across hospital sites.

Take-home messages: We advocate that the General Medical Council acts to standardise undergraduate anaesthetics training across the UK.
Chicken-and-egg problem: learning preferences of students and curriculum efficiency

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Background: There is an open debate in medical education literature whether the medical curriculum should account for multiple personal characteristics of learners (such as cultural and language background, individual learning styles, and personality traits) or focus on developing the desired characteristics in learners.

Summary of Work: In our large-scale research of 6605 students of Karaganda State Medical University, we collected the progress test data for three years, surveyed the students on their preferences to learning styles, disciplines, and methods of instruction, looked into their verbal creativity and had focus-group discussions on learning efficiency. The demographic characteristics of our students served as confounding factors. For statistical analysis, we used the advanced methods - ANOVA, Factor Analysis, SEM, Multiple Regression, etc.

Summary of Results: We confirmed that convergent learning was the most efficient style, but it was not the primary style of learning in our students. The senior students displayed reduced affection for basic sciences, reduced creativity and increased stereotype thinking. The junior students questioned the application of basic science knowledge to clinical context, but were more creative. The demographics played a role, but was secondary to direct curriculum influences. The focus-group discussions confirmed the findings and clarified some cause-effect interactions.

Discussion and Conclusions: As a result, we could argue that the undergraduate curriculum rather shapes personal characteristics of learners than is influenced by them. However, monitoring students' individualities could bring medical school a valuable information on efficiency of its curriculum.

Take-home messages: The medical schools should regularly monitor the learning strategies and preferences of their students to initiate curriculum interventions timely and directionally.

The Relation Between Learning Styles and Types of Personality in First-Year Medical Students

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Background: Learning is a process that takes place through interaction with the environment and derives from different ways of acquiring, analyzing, organizing and processing of the information. According Messik (1984) cognitive styles consist in individual differences in cognitive organization, and this acts as a mediator between the skills and the personality. This work aims to verify whether there is a relationship between the preference in learning style and personality type in students of 1st year of Medicine FCS-UBI.

Summary of Work: The data, to prepare this work were collected on the first day of admission in the Faculty, to students who are attending the 1st year of the MSc in Medicine. The scales used were the Inventory Mini-Mult Personality and the Honey-Alonso Learning Styles Questionnaire.

Summary of Results: Through IBM SPSS Statistics 22 package, we are going to proceed with the application of different statistical tests that allow us to see if there is relationship between the preference for a particular learning style and personality.

Discussion and Conclusions: This work seems to us extremely interesting because it allows to better understand the characteristics of students and check if the results obtained from this study are similar to those obtained in studies conducted in other countries.

Take-home messages: If it is established relationship between these characteristics it will be possible trying to adapt the teaching to the learning style of students.
#3II03 (27934)
Using ICTs to promote self-regulated learning in Embryology courses
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Background: The use of ICTs in medical education has been introduced mainly for dealing with specific subject matter purposes. It becomes necessary to take advantage of this educational context by providing students with self-regulated learning skills.

Summary of Work: The objective of this study was to analyze first-year medical students’ perceptions and experiences about the implementation of ICTs in academic tasks oriented to develop self-regulated learning in their Embryology course. During the first semester, four professors used the university web page to establish a virtual environment in order to complement course units, using different resources and activities. Five hundred and forty eight students who were enrolled in the Embryology course took part in the study.

Summary of Results: Results show, in general, that about 76% of the students gave positive evaluations to their experiences with the use of ICTs focused on self-regulated learning, indicating that they have not only motivated them to search for additional scientific information but also helped learning Embryology content. Most of the students (87%) affirmed that access to this type of resources provided a more in-depth approach to medical terms and greater study autonomy.

Discussion and Conclusions: Based on the results of the present study it is possible to state that the integration of ICTs and self-regulated learning experiences in undergraduate Embryology courses seem to represent a relevant educational strategy.

Take-home messages: To gain deeper knowledge of the potential that ICTs offer in the area of self-regulated learning may improve, to a great extent, classroom practices at a university level which, in turn, implies enhancing undergraduate medical curriculum.

#3II04 (27848)
Comparison of students’ self-directed learning perception at different stages of a problem based medical program in Argentina
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Background: Student-centered strategies like problem-based learning promote self-directed learning (SDL). The Universidad Nacional del Sur (UNS) medical program is based on these strategies so SDL should increase across the program.

Summary of Work: Aim: To evaluate the perception of students on their self-directed learning across the program, and compare both cycles: cycles: initial (IC) and clinical rotations (CC). Subjects and methods: Descriptive cross sectional study. Aceves and Cazares’ Questionnaire of Investigation of Self-directed Profile (CIPA in Spanish) was applied to students of all years of the medical program of the UNS in both cycles during 2012. The self-direction score (SDS) is a weighted aggregation of five components: planning and execution of learning strategies, use of experience, internal potential, and social and technological interdependence. The lower the better (Range 205 - 41).

Summary of Results: 241 students completed the questionnaire (72.1 % of eligible students). SDS was 1st yr 85.7 (CI95%75.6-95.7), 2ndyr 81.5 (CI95%71.6-91.4), 3rdyr (CI95%74.9-69), 4thyr (CI95%68.7-72.1), 5thyr 55.4 (CI95%52.3-58.4) and 6thyr 54.8 (CI95%51.3-58.4). From 1st to 3rd yr there is no difference but all has a statistically significant difference to 5th and 6th (p <0.001). Comparing cycles SDS for IC was 60.37 and 80.8 for CC (p <0.001).

Discussion and Conclusions: The perception in the IC compared with the CC is better. The program characteristics could be one of the factors that promote these changes.

Take-home messages: Self-directed learning increases along the curriculum. Proper strategies should be implemented to achieve an earlier development.
Two Profiles of Medical Students According to Levels of Self-Directed Learning Readiness

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Background: There are studies about levels of SDL and the predictive factors of this skill in medical students. However, they treat to SDL as a continuous phenomenon. This study identifies profiles of medical students according to levels of SDL readiness and their academic learning and sociodemographic factors associated.

Summary of Work: Quantitative and non-experimental study sponsored by FONDECYT n° 1140654. All first year medical students between 2010 and 2014 were surveyed. Sample: 527 students, of which 60.34% (n = 318) were men with average age of 18.78 (S.D. = 1.55). They responded Fisher’s Self-Directed Learning Readiness Scale (SDLRS, validated in Spanish by Fasce et al.) and a sociodemographic questionnaire.

Summary of Results: Two clusters were identified using Ward method of hierarchical cluster analyses. K-Means of non-hierarchical cluster analyses were used to assign each student to their profile, showing 242 students (45.92%) in the first cluster and 285 (54.08%) in the second. Comparing the clusters, the second one showed significantly higher scores on the five factors Planning Levels (F=9.22; p<0.001), Self-Confidence (F=3.92; p<0.001), Self-Management (F=3.18; p<0.05) and Self-Evaluation (F=3.09; p<0.05) were found.

Discussion and Conclusions: The results support the existence of a homogeneous phenomenon of self-directed learning, although multifactorial, identifying two different profiles of students according to their self-direction

Take-home messages: As SDL is important for professional performance of physicians, it is necessary to identify students who are located in the lower self-direction cluster to design activities that strengthen their skills.

Has the medical student changed? Differences in self-directed learning of University of Concepcion’s medical students from 2010 to 2014

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Background: Nowadays in medical education is perceived that students have changed, which could be due to the current Chilean educational system, massification and diversity of students. However, there’s scarce research to support such a statement. Universidad de Concepcion has assessed during 5 years, its first year Medical students, considering their Self-Directed Learning level. Objective: To compare the Self-Directed Learning process from the cohorts that were enrolled in the Faculty of Medicine of the Universidad de Concepcion, Chile, from 2010 to 2014. Sponsored by FONDECYT # 1140654.

Summary of Work: Quantitative, transversal, non-experimental study was made. 527 Medicine student were assessed, 318 (60,34%) were men, with ages from 17 to 29 years old (M=18,78; D.E.=1,55). All of them answered the Self-Directed Learning Scale, after an Inform Consent process, approved by Universidad de Concepcion’s Ethics Committee.

Summary of Results: Changes were appreciated in the general Self-Directed Learning scale (F=5.76; p<0.001), showing that students from the last cohort presented significant lower levels of self-directed learning than prior cohorts from 2010 to 2012. Also, differences on Planning Levels (F=9.22; p<0.001), Self-Confidence (F=3.92; p<0.001), Self-Management (F=3.18; p<0.05) and Self-Evaluation (F=3.09; p<0.05) were found.

Discussion and Conclusions: Self-Directed Learning is an important competence, both for medical student’s graduate profile and for training process. However, evidence shows a lower Self-Directed Learning level in 2014 first year students cohort, in comparison with previous years, standing a challenge to fulfill training objectives.

Take-home messages: To ensure the quality of education, curricular activities that facilitate the development of self-directed learning competence must be considered.
#3II07 (26005)
Medical students’ motivational beliefs, learning strategy use, and performance

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Background: There is a lack of research that examined how the components of self-regulated learning, the significant predictors of medical students’ performance, may change over time. This study examined any changes in medical students’ motivational beliefs and learning strategies as they proceed to upper grades and investigated if different groups (e.g., gender) show distinct patterns.

Summary of Work: Thirty-nine students in a medical school in South Korea completed five subscales, self-efficacy, intrinsic value, task anxiety, cognitive learning strategies, self-regulated learning strategies, from the Motivated Strategies for Learning Questionnaire (MSLQ) when they first entered the medical school and during the first week of Year 2.

Summary of Results: Overall, intrinsic value and test anxiety significantly increased but use of cognitive and self-regulated learning strategies significantly decreased (p < .05). High-performers showed a significant increase in test anxiety (whereas low-performers showed a significant decrease in self-efficacy and self-regulated strategies (p < .05). Both male and female students showed a significant increase in test anxiety (p < .05); however, a significant decrease in cognitive and self-regulated learning strategies (p < .05) was found among female students.

Discussion and Conclusions: A majority of students experienced an increase in test anxiety and a decrease in learning strategy use after the first year of medical school. Low-performers showed a significant decrease in self-efficacy.

Take-home messages: Encouraging self-efficacy and use of learning strategies may promote better learning of medical students.

#3II08 (23953)
Facilitating Optimal Motivation in Dental Education: Strategies to Promote an Autonomy Supportive Clinical Learning Environment

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Background: Self-Determination theory (SDT) postulates studying motivation from a multidimensional approach, based on autonomous motivation, controlled motivation, and a motivation. Internalisation of students’ motivation towards an autonomous form has been associated with increased interest, effort, and wellbeing. To achieve autonomous motivation, SDT suggests that teaching environments should satisfy students’ needs for feeling autonomous, competent, and related to significant others. Consequently, an autonomy-supportive clinical teaching environment becomes crucial for satisfying these needs and promoting students’ autonomous motivation. The aim of this study is to describe and understand how clinical teachers promote an environment that supports these needs, in order to facilitate dental students’ autonomous motivation.

Summary of Work: A qualitative case study approach was adopted. Data were collected through semi-structured interviews with nine experienced undergraduate clinical teachers from one dental school in Chile, and analysed through a thematic analysis.

Summary of Results: Overall teachers stressed the relevance of empowering, supporting and building a horizontal relationship with students. Emerged themes included the control of external motivators; gradual transference of responsibility; encouragement of personal interests; timely and constructive feedback; providing a vicarious learning experience; teamwork, and providing a safe environment.

Discussion and Conclusions: Despite cultural differences we believe our findings are transferable to different dental and health professions education contexts, as they raise awareness on the relevance of autonomous motivation in educational settings and provide insights on how teachers may support students to internalize their behaviours.

Take-home messages: An autonomy-supportive environment may lead students to value and engage in academic activities, and eventually foster the use of an autonomy-supportive style to motivate their patients.
Surface or deep learning strategies in medical students: do sociodemographic factors matter?

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Background: Since 1997, first-year students attending a Canadian PBL undergraduate medical program have a workshop presenting a repertoire of learning strategies. Engaged in a curriculum renewal, we documented students’ current use of these strategies to ensure that the new curriculum learning and assessment activities are coherent with promotion of depth-oriented strategies.

Summary of Work: A web-based survey was conducted in May 2014 among 144 first- and 150 second-year students. On a 5-points Likert scale, participants reported their preferred learning strategies among a list of surface-oriented and depth-oriented strategies. Using Chi-square and t-tests, we compared the number of preferred strategies (i.e. rated as 4-often or 5-always used) between 1) women and men, 2) first- and second-year students, and 3) students with or without university education prior to admission in medicine.

Summary of Results: Differences in learning strategies were observed according to gender, prior university education and level. Women preferred surface-oriented strategies, in particular selection (mean=3.3 strategies in women versus 2.9 in men, p=0.017), and men preferred depth-oriented strategies, in particular elaboration (mean=3.5 in women versus 4.3 in men, p=0.008). Depth-oriented strategies were also more frequent among students with previous university education (mean=4.3 in those with prior university education versus 3.6 in others, p=0.023) and first-year students (mean=4.1 in first-year versus 3.5 in second-year students, p=0.031).

Discussion and Conclusions: Medical students use different learning strategies according to their gender, program level and prior learning experience. Factors that lead medical students to favour surface-oriented strategies while progressing in their studies should be explored.

Take-home messages: While progressing in their studies, students privileged surface-oriented learning strategies.

Changes in student learning styles over the course of postgraduate taught programmes and the impact of learning styles on achievement in various assessment modes

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Background: The impact of students preferred learning styles on their performance has been investigated in medical and nursing education but little has been done for students enrolling on postgraduate taught programmes in Public Health and Epidemiology.

Summary of Work: We use the 40 item Honey and Mumford (1986) learning styles questionnaire that identifies four learning styles (Activist, Theorist, Reflector and Pragmatist) and administered it at the start (Oct 2014) and end of the course (May 2015). We plan a classroom discussion (May 2015) to understand whether and how students used this information in the course of their studies. On completion of the programme associations between learning styles and assessment scores across the course will be analysed.

Summary of Results: Twenty of 27 enrolled students (12 Females) participated (response rate 74%). Half of them have acquired their previous education in Asia (1) or Africa (9) indicating different learning experiences. Students had average 6.7 years of work experience. Preliminary results from round one indicate that none of them were Activists, seven each were Reflectors and Theorists. Five of them were Reflectors and Theorists equally and only 3 showed Pragmatist as their dominant learning style.

Discussion and Conclusions: Five (25%) showed more than one learning style. We expect the learning styles to evolve over the course and to find associations between individual learning styles and grades. Although difficult to confirm at this moment, we hope to find significant results in May 2015.

Take-home messages: Students have different and multiple preferred learning styles and they adopt new ones as they learn. These should be taken into account in designing and delivering post-graduate courses.
#3II11 (26947)
Academic integration and study skills among first-year students at Finnish universities

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Background: The objective of this study is to examine perceived study challenges and academic integration of Finnish students during their first year at university.

Summary of Work: Web-based surveys were administered to all Swedish-speaking first-year students from eleven different study programs at two universities in Finland, two of these study programs being Medicine and Dentistry (at the University of Helsinki). The surveys focus on challenges encountered by the students, as well as on how the students experience their academic integration on different levels. All surveys include both multiple choice questions and open-ended questions. This study is part of a longitudinal study within the network Justice through Education in the Nordic Countries.

Summary of Results: Our first survey (Autumn 2014) showed that all students at the Faculty of Medicine considered themselves motivated or strongly motivated for their studies. The degree of motivation was statistically significantly higher among medical and dental students than among students in any other faculty (Science, Social and Behavioural Sciences, Arts and Economics) (p<0.05). The second survey (to be distributed in April 2015) will focus on the students’ learning strategies and perceived academic integration.

Discussion and Conclusions: The students accepted to the Faculty of Medicine all considered themselves motivated for their studies. The results of the second survey will deepen our understanding about factors influencing the first-year experience at university.

Take-home messages: The results will give us information about the first-year experiences of students of various disciplines and can provide us with tools for supporting their academic integration.

#3II12
Role of Pre-Session Instructional Video to Improve Quality and Learning Outcome in Practical Session

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Background: Practical session is a type of learning activity requires multiaspect capacity of students. However, the density of curricular activities in medical education, resulting in the limited time available for the preparing each activity, an improvement should be made in assisting students to prepare themself better in practical session.

Summary of Work: An instructional video of ”Physical Fitness Test using Astrand PO” practical session is developed and can be accessed independently by students through GAMEL (Gadjah Mada Medical E-Learning). Student’s performance and learning outcome in the practical session was then measured through a pre-test, and compared between those who did and did not access the video. Additional qualitative evaluation by focused-group discussion is conducted.

Summary of Results: A better and significant results revealed in the pre-test students who accessed the preparation videos (mean = 7.48; median = 8) compared with control group (mean = 8.52; median = 8). A total of 86.2% of the students who watched the video were ready to follow the practical session, which is significant compared to the control group (66.4%, p = 0.00). Additional qualitative study explored more student’s perspective of the instructional video use.

Discussion and Conclusions: Pre-session instructional video can be implemented as an alternative learning modalities, considering improvement in student’s pre-test score as well as readiness perception.

Take-home messages: A creative and attractive learning methods and tools should be considered in facing various learning activities and different characters of students.
Session 4: Simultaneous Sessions
Monday 7 September 2015: 1300-1515

#4A Symposium: The perfect Postgraduate Training Program (PGTP) – how far are we? An AMEE Postgraduate Committee Symposium

Location: Clyde Auditorium

Rille Pihlak*, European Junior Doctors, University of Tartu, Estonia
Jason Frank*, [University of Ottawa & RCPSC, Ottawa, Canada]
Linda Snell* McGill University & RCPSC, Centre for Medical Education, Montreal, Canada
Juliana Sa* Faculty of Health Sciences University of Beira Interior, Portugal
Lawrence Sherman* Educational Strategy at Prova Education, USA

The heterogeneity of PGTPs in the world has created a belief that there could never be a perfect global programme and although that might be true we want to emphasize the possibility of getting very close to the ideal. During our symposium we will be discussing the idea of a perfect PG curriculum through different viewpoints - the developer (university), the participant (resident), the funder (country) and the facilitator (programme supervisor). The aim of our symposium is to openly discuss the pitfalls of making or changing a PGTP and to give great examples of the amazing work that has been done in this field. Participants will learn about the current state of PGT curriculums around the world and be encouraged to openly debate on the possibility of creating an ideal one.

#4B Symposium: Shaping the Future of Technology Enhanced Learning: Take home messages from the eLearning Symposium

Location: Hall 2, SECC

Stephen Downes*, National Research Council of Canada’s Learning and Performance Support Systems Research Program, Canada
AMEE eLearning Committee Members*

If you were not able to join in the eLearning Symposium, or even if you were, here’s a chance to catch up on and discuss the key take-home messages from the Symposium. Some of the questions that will be addressed are: What will be the impact of emerging technologies in educating the reflective practitioner of the future? How will the role of the educator and the student change? Will the same pedagogies be better served by technology? What will the ‘landscape’ of technology and learning look like in the health professions? Are MOOCs set to continue as an important medium for delivering learning? What is the role of social media in learning? These are issues that no educator can ignore. Come and ask questions of the panel and share your views with the audience in this lively, interactive session.

#4C Symposium: Interprofessional Education in the Basic Science Curriculum

Location: Lomond Auditorium

Jennifer McBride*, Cleveland Clinic Lerner College of Medicine, USA
Wojciech Pawlina*, Mayo Clinic College of Medical, USA
Richard Shields*, University of Iowa, USA
Bruce Wainman*, McMaster University, Canada
Claire Smith*, University of Southampton, UK
Anja Böckers*, Ulm University, Germany

Over the last several years, interprofessional education (IPE) has received increased attention in the clinical and student education setting. Originally described in the 1960s, the premise of IPE is to improve collaboration between healthcare providers with the outcome of improved patient care. As healthcare becomes more complex and new models of healthcare emerge it is clear that a team-based approach to patient care is a necessary solution to address an aging population and increasing prevalence of chronic diseases. But what does this mean at the basic science level in undergraduate medical and other professional healthcare programs? Is there a place for interprofessional education within the basic science years? In this symposium four speakers will discuss their experiences with developing an interprofessional curriculum in the basic science curriculum with medical, physician assistant and physical therapy students. Emphasis will be placed on assessment methods, objective outcomes as well as student and faculty perceptions.
Physical Findings Progress Test at a Medical School

Heeyoung Han*, Southern Illinois University School of Medicine, Springfield, USA
Reed Williams, Indiana University School of Medicine, Springfield, USA
Debra Klamen, Southern Illinois University School of Medicine, USA
Ted Clark, Southern Illinois University School of Medicine, USA
Susan Hingle, Southern Illinois University School of Medicine, USA
Regina Kovach, Southern Illinois University School of Medicine, USA

Introduction: Detection of physical findings is a core aspect of clinical performance ability that medical education curriculum should teach, assess, and remediate. However, there is a limited understanding of medical students' development of physical finding skills. The purpose of this study is to investigate medical students' physical findings skills progress across all four years of the curriculum to understand student achievement of these skills over time. The findings of this progress study can guide individual students in their developmental progress and curriculum improvement by informing faculty of students' longitudinal and cross-sectional progress in their physical findings skills.

Methods: We developed a computer-based physical findings progress (PFP) exam to measure students' diagnostic abilities of visual and auditory discriminations. Sixty-five test items were created in collaboration with six clinical faculty members. The exam includes detection and description of ecg, x-ray, heart sounds, breath sounds, skin lesions and movement findings, which were based on the book, Evidence-Based Physical Diagnosis. The exam was implemented at the beginning of the year with incoming students in July 2014 (Year 3) and August 2014 (Year 1, Year 2, and Year 4). Descriptive statistics and one way ANOVA were used to determine group differences in physical findings detection.

Results: Two hundred eighty-two students completed the PFP exam (98%). Students spent 31 minutes to complete the exam on average. The reliability of the exam was .860 (Cronbach’s Alpha). Descriptive statistics showed that the data have normal distributions for each year. One way ANOVA and Tukey HSD showed that students' physical findings skills increased by training year \(F(3, 278)=230.04, p=.000\) :
- Year 1 (Mean=21.35, SD=4.66),
- Year 2 (Mean=28.13, SD=5.00),
- Year 3 (Mean=35.91, SD=5.19),
- Year 4 (42.51, SD=5.70). While group means increased, within group variation did not change across four years. That is the class did not become more homogeneous in physical findings skills abilities as they went through the medical curriculum. Box plots showed that performance of the bottom quartile of incoming fourth year students was not much higher than the performance of the top quartile of incoming first year students who had not had medical training.

Discussion and Conclusions: The role of medical schools is to take their students from novice to higher levels of competence in the practice of medicine. A progress test can help medical students and educators know how well they achieved the goal. This study found that the medical students' physical finding skills increased each training year. However, the physical findings skills of the students within classes did not become more uniform suggesting that growth is opportunistic rather than through planned curriculum. Generally, students are expected to become more homogenous in terms of learned skills and knowledge as they go through planned instruction. The current study findings may indicate that there is a need for planned curriculum for physical finding skills in medical education.

The overarching theme from the focus groups was that taking the NBME team test was not popular but nevertheless perceived as valuable for students regardless if they were in TBL teams or not during the psychiatry clerkship. Students in both groups expressed not wanting to take the team NBME test and described feeling a range of emotions, including frustration, fatigue, embarrassment and anxiety. Despite this, both groups of students described the experience as valuable to their learning (i.e., learned more about psychiatry). Other themes that surfaced included interpersonal dynamics (i.e., reflected on how team functioned and strategized approach to taking the team test); and insights into self (i.e., ways to improve their individual test taking strategies) and into others (i.e., gained appreciation for how others think and how the psychiatry clerkship prepared them to take the subject test).

Discussion and Conclusions: The qualitative study provides a detailed description of students’ experiences taking the NBME team test and how the experience impacted them personally and their education. The experience of taking the NBME psychiatry subject test as a team was fraught with anxiety. Despite this, both groups of students described the experience as valuable to their learning (i.e., learned more about psychiatry). Other themes that surfaced included interpersonal dynamics (i.e., reflected on how team functioned and strategized approach to taking the team test); and insights into self (i.e., ways to improve their individual test taking strategies) and into others (i.e., gained appreciation for how others think and how the psychiatry clerkship prepared them to take the subject test).

Conclusion: Taking the NBME psychiatry subject test as a team was not popular but it was deemed valuable to student learning. Interpersonal dynamics and insights into self or others were also identified as themes.


Stefanie Roder, The Foundation for Medical Practice Education; University of Ottawa, Family Medicine, Ottawa, ON, Canada

Introduction: Learning in interactive small learning groups that incorporate active reflection is accepted as an effective approach in CPD. Testing itself has been shown to promote learning in medical school, but its impact in CPD is unknown. The Practice-based Small Group (PBSG) Learning Program in Canada has been providing family physicians with evidence-based educational material focussed on gaps between current practice and best practice. Physicians use this material to discuss clinical cases in small peer learning groups, with the intent to apply new knowledge to clinical practice. A practice reflection tool is used to document planned practices change in the form of commitment-to-change (CTC) statements.

This study was done to determine to what extent pre-testing can impact knowledge, CTC statements and subsequent implementation of planned practice changes among participants in the PBSG program.

Methods: Family physician members of the PBSG learning program were recruited across Canada. Prior to studying educational material provided, participant groups were randomised to either answer a pre-test (test group) or read a relevant review article (control group). They then discussed the educational material in small groups and recorded CTC statements on a practice reflection tool. Post-tests were administered to both control and test groups a week after the learning session. Three months later, participants reviewed their CTC statements and reported whether practice changes were made. Post-tests, CTC statements, and reported practice changes documented impact of the pre-test.

Results: Data was collected from 118 study participants who had discussed educational material in small groups for two different clinical topics. The results were consistent for both clinical topics and are summarized as follows: Study participants who completed the pre-test scored significantly higher on the post-test (66.8% test group versus 59.5% control group; p=0.007). There was no significant difference in the number of CTC statements recorded on PRTs (1.51 versus 1.48; not significant). However, more practice changes were reported by participants who completed a pre-test compared to those who read a control article (63.8% versus 49.0%; p=0.07).

Discussion and Conclusions: This study, involving family physicians who regularly discuss and reflect on issues in clinical practice in small peer learning groups, provides evidence that pre-testing influenced knowledge gain as measured using post-tests. Of greater importance in CPD, results suggest that pre-testing may impact the rate at which family physicians reported having implemented planned practice changes. This impact occurred despite the fact that pre-testing had no significant influence on the number of documented CTC statements.
Conclusion: The use of pre-testing, when linked to educational material for family physicians who already participate in small learning groups, influences knowledge gain and appears to have potential to lead to enhanced clinical practice outcomes. Further study is needed to explore possible impacts with learners in other CPD programmes.


Physicians’ perceptions of the value of testing as part of an established continuing medical education program

Stefanie Roder*, The Foundation for Medical Practice Education, McMaster University, Hamilton, Canada
Jacqui Wakefield, The Foundation for Medical Practice Education, Department of Family Medicine, McMaster University, Hamilton, Canada
Tom Elmslie, The Foundation for Medical Practice Education, Department of Family Medicine, University of Ottawa, Ottawa, Canada
Kevin Eva, University of British Columbia, Department of Medicine, Vancouver, Canada
Heather Armson, The Foundation for Medical Practice Education, Department of Family Medicine, University of Calgary, Calgary, Canada

Introduction: Using “testing” to facilitate learning is a recognized approach in medical education. Studies have shown testing can influence knowledge indirectly through motivation and directly by enhancing memory. Whether this strategy is effective for continuing professional development (CPD) in health practitioners is unknown. The Canadian Practice-based Small Group (PBSG) Learning Program focuses on identifying the gap between current practice and best practice using evidence based educational material in the context of small group discussions of clinical cases. The focus is on practice change and a practice reflection tool has been used to document planned practice changes, and identify barriers/strategies for practice implementation. This paper will discuss to what extent physicians perceive testing as a valuable activity/strategy to identify gap in knowledge and make decisions to change practice and whether it should be included as part of PBSG Learning Program.

Methods: Family Physicians belonging to a PBSG learning program were recruited across Canada. Prior to discussing educational material as part of their normal learning sessions (which includes documentation of planned practice changes), participant groups were randomized to either complete a web-based pre-test or read a relevant review article. After the learning session, they completed a web-based post-test and documented any planned practice changes on a practice reflection tool. An on-line survey inquired about their perceptions of the value of testing for continuing medical education.

Results: Study participants (n=118) who completed a pre-test performed better on a post-test and also reported more practice changes compared to those who read a review article. Of these participants, 66% (n=78) completed the online survey asking about their perception of the value of testing. In comparison to reading a review article, participants agreed that pre-testing was helpful for identifying gaps in knowledge (89.4% vs. 64.5%), while the review article was more helpful for deciding how to alter practice (55.3% vs 35.5%). Both were seen as helpful in improving knowledge (60.5% and 67.1%). Participants indicated that small group discussions were seen as helpful in identifying gaps in knowledge (90.7%), improving knowledge (93.4%), and deciding how to alter practice (90.7%). Despite the positive results, doing pre-testing as part of regular CPD was met with skepticism. Of participants who commented about the value of testing in CME, a quarter commented about the value of testing, while almost half expressed concerns that testing was helpful for identifying gaps in knowledge (90.7%), improving knowledge (93.4%), and deciding how to alter practice (90.7%). Despite the positive results, doing pre-testing as part of regular CPD was met with skepticism.

Discussion and Conclusions: Pre-testing not only improves performance on post-test, but also influences the rate at which physicians report practice changes. Physicians participating in a PBSG learning program agreed that pre-testing is helpful in identifying gaps in knowledge and know it improves knowledge. This was not the case for deciding how to alter practice. Physicians may not be aware of the potential effects of testing on practice change, and concerns about testing may override any perceived benefits.

Conclusion: Testing is a good assessment method for determining gaps in knowledge. Implementing pre-testing in an established PBSG learning program will be met with skepticism.

The effectiveness of instructional-design based simulation training for postpartum haemorrhage

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Background: The application of instructional design (ID) guidelines is currently recognized as a method to improve effectiveness of simulation-based healthcare education (SBHE). Postpartum haemorrhage (PPH) is a high-risk situation in which simulation-based training of healthcare personnel may be beneficial. The aim of the study was to compare the effectiveness of ID-based simulation with conventional non-ID-based simulation in PPH.

Summary of Work: An experimental simulation-based PPH training was developed based on proven ID guidelines. A pretest-posttest non-equivalent groups design was used to compare learning outcomes of residents who participated in the ID-based training and residents who participated in a conventional training, based on descriptions in the literature. The number of correctly performed tasks was measured for pretest and posttest on eight different subscales (e.g., communication, teamwork, drug management, exams).

Summary of Results: The ID group showed a significantly higher increase from pretest to posttest on the proportion of all correctly performed tasks (.45 percentage point) than the conventional group (.11 percentage point, p<0.01). The effects are strongest for the communication (.54 vs. .22, p<0.01) and exams (e.g., ordering: cross & type, coagulation panel; .78 vs. .17, p<0.01) subscales.

Discussion and Conclusions: The presented results underscore the power of the use of ID guidelines in SBHE. Additional analyses are being conducted and will be presented at the conference. A simulation-based training using ID guidelines demonstrated to be effective in the learning of complex skills, particularly communication skills. This is essential to the management of high-risk complex situations, such as PPH.

Take-home messages: ID guidelines contribute to better learning outcomes in SBHE.
Ensuring resident competence: a qualitative study of group decision-making to inform the work of clinical competency committees

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Background: Medical educators often make group judgments about learners’ competence for advancement. This procedure has been formalized in United States residency programs through clinical competency committees (CCC). The literature on how groups are comprised, share information and render decisions can inform such committees by highlighting vulnerabilities and best practices for groups. This study explored residency program directors’ experiences with group decision-making about residents’ performance.

Summary of Work: We used a qualitative design with deductive content analysis. We interviewed 34 United States residency program directors about their clinical competency committees’ or performance review procedures. We analyzed this information using concepts from the literature on group decision-making to clarify how group procedures influenced their outcomes.

Summary of Results: Results highlighted three themes. Group member composition indicated the value placed on diverse membership. However, they defined diversity narrowly, and prioritized members’ experience with performance review. Group processes revealed strengths and limitations related to the group’s understanding of its work, leader role, and information sharing procedures. Time pressure was perceived as a threat to the thoroughness of the performance review process and members’ ongoing participation.

Discussion and Conclusions: These findings reveal risks for committees that arise through insulated experience rather than deriving from well-articulated purposes of their work. Group leader strategies to invite member participation and share information from multiple sources can optimize decision-making.

Take-home messages: Recommendations for maximizing the effectiveness of clinical competency committee processes address access to performance information and procedures for interpreting it to yield evidence-based, well-reasoned judgments.

Turning the basic sciences on their head: what are the fundamental aspects of learning that could inform the design of a flipped classroom in medical education?

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Background: The basic sciences form the foundation of medical education and practice. Challenges for the learner include the ever increasing expanse of biomedical knowledge and a disconnect between theoretical concepts and future application. The Flipped Classroom (FC) has been proposed as a solution to best meet the needs of the modern ‘digitally native’ learner.

Summary of Work: Fifteen medical students participated in interviews to investigate fundamental aspects of learning to inform the design of a FC in medical education.

Summary of Results: Four themes emerged from thematic analysis of interview transcripts: (1) Context and meaningfulness, (2) Behaviourist and cognitivist learning, (3) Self-directed, self-regulated learning skills, and (4) Information technology (IT) affordances.

Discussion and Conclusions: IT affordances provide underutilised opportunities for access, distribution, and networking, which the FC could employ. The FC could facilitate a transition from traditional, linear teaching to a socially-constructed, collaborative model. Students could be guided to develop their own FC resources to distribute amongst peers for review, followed by discussion in the physical classroom. Current self-directed learning approaches are undermined by traditional resources, and uncertainty regarding boundaries and relevance. Students seek certainty by reverting to the confines of assessment outcomes. The FC could operate via the use of context and graduated complexity to equip students with cognitivist skills to manage uncertainty.

Take-home messages: The use of IT affordances in the FC must not serve as a means to merely shift the physical location of didactic teaching, but rather enact a shift in pedagogical ideology. This paper details new insights into the implementation of a FC in medical education.
Learning Analytics: early warnings and predictors of performance in online learning environments for trainees in surgery

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Background: Virtual Learning Environments (VLEs) allow for the capture of a broad range of data relating to user interactions. As online components to teaching and learning become increasingly ubiquitous and cultural trends towards large scale online distance learning (ODL) continue to rise, the more pressing it becomes to analyse these data in order to ascertain effectiveness and value. Challenges exist surrounding the quantity, collection and management of data, and the ethics of presenting analytics data to learners, to which this work will speak.

Summary of Work: We have developed integrated bespoke learning analytics solutions that allow teachers to record and interrogate student activity in various VLEs associated with postgraduate ODL programmes which support surgeons in training. Students are presented with a ‘dashboard’ of progress, highlighting their achievements in relation to each of their peers, as well as the class average. An online anonymous questionnaire gauged students’ perceptions of the data.

Summary of Results: Student behaviour and cohort comparison data suggest that there are significant links between patterns of use and academic performance, and offer early warning signals for students at risk of failing. Presenting anonymised comparative progress data to students may also increase learner motivation in ODL programmes, especially true for surgical trainees who are naturally competitive. 89% of respondents (n=27) found the data relating to their engagement in the programme useful, and 70% perceived the data provision as an element of feedback.

Discussion and Conclusions: Learning analytics data provide a means of monitoring student engagement, helping staff to identify those at risk and assisting students in taking greater ownership of their learning. Take-home messages: Predictive analytics cannot itself influence academic performance and successful outcomes; rather it can be used as a catalyst to identify ‘at risk’ students, and affect interventions by programme teams, in order to facilitate achievement of their true potential.

‘Doctor On Call’: A novel, interactive teaching series to prepare medical students for working as foundation year 1 doctors

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Background: Traditionally there is little emphasis on the practical aspects of being a foundation year doctor (FY1) in undergraduate medical teaching. A survey of final year students revealed the main anxieties relating to FY1: managing bleeps, treating sick patients and coping alone. In light of this, we created a novel teaching series; ‘Doctor On Call’. This harnesses the benefits of case-based learning to discuss scenarios encountered as the FY1. The purpose was to enable a new wave of doctors to feel confident on call.

Summary of Work: Final year students completed preliminary forced-choice and open space questionnaires to determine their self-perceived confidence in managing clinical scenarios. Based on perceived weaknesses, a 4 week programme was designed. After sessions, students completed a second questionnaire rating their confidence in managing the scenario as an FY1. Suggestions for improvement were acted on to continually refine the series.

Summary of Results: Data was collected over 8 series. Prior to teaching, 14.4% of 42 student responses claim confidence in managing common scenarios. Following completion of the series this increased to 98.3%. Free text commentary reflected positively on this teaching initiative; ‘what I’ve needed all through medical school’.

Discussion and Conclusions: We have completed a successful pilot for a novel teaching series whose results support improved student confidence in managing common scenarios on call. Take-home messages: ‘Doctor On Call’ series facilitates application of knowledge to clinical scenarios whilst addressing the practicalities of being a junior doctor. This is precisely what is needed to bridge the difficult transition from medical student to FY1.
Screencasts improve anatomy knowledge retention compared to textbooks

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Background: Anatomy drawing screencasts have been shown to improve student engagement and assessment outcomes in numerous MBChB modules within the School of Medicine, University of Leeds, UK. These are simple anatomical videos that simultaneously draw and narrate relevant structures.

Summary of Work: Year 2 MBChB students were randomly assigned to either a screencast or textbook group and were given 45 minutes to study the gluteal region of the lower limb. The students had received no formal teaching on this area previously and learning objectives were provided. A pre-test was used to assess their base-line knowledge and then a series of post-tests (immediate; 1-week; 4-week) were used to assess knowledge retention.

Summary of Results: The results from the pre-test showed no significant difference between the screencasts or textbook group (37.14%, n=28 v 32.38%, n=21). Data from the immediate (81.21%, n=28 v 71.43%, n=21), 1-week (71.67%, n=24 v 48.42%, n=19) and 4-week (63.20%, n=25 v 48.42%, n=19) post-tests showed an increased level of knowledge retention with the screencast group.

Discussion and Conclusions: The data from this study suggest that students exposed to anatomy drawing screencasts are able to retain more information for a longer period of time compared to students who only have access to textbooks. The design of the screencast and their ability to manage cognitive load, compared to the traditional textbook, may influence the ability of students to retain, and then access learned information.

Take-home messages: Screencasts may serve to support medical students in retaining knowledge for extended periods compared to the traditional textbook learning.
#4F Short Communications: Implementing an OSCE
Location: Argyll I, Crowne Plaza

#4F1 (27893)
Being a test centre for national OSCE in developing country: lesson learned
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Background: National examination has been implemented in some countries as one of the methods to quality assures medical graduates. Starting in 2013, clinical skills were assessed in national examination for medical graduates in Indonesia using OSCE format.

Summary of Work: Faculty of Medicine Universitas Gadjah Mada (FM UGM) has been a test centre for national OSCE since 2013. The OSCE was conducted in Clinical Skills Laboratory. In February 2015, FM UGM will have been running national OSCE for thirteen times. To ensure the success of national OSCE, this institution carried out four examiner trainings for faculty members and clinical teachers, item writing trainings, and developed test centre facilities.

Summary of Results: Since its involvement in pilot project of national OSCE in 2011, FM UGM has carried out several improvements. Now this institution has 36 examining rooms, more than 100 manikins, 173 examiners, 80 standardised patients, and computer-based scoring for OSCE. An item bank is developed to give contribution to national item bank. Final year OSCE is designed using rubric format; referring to national OSCE format.

Discussion and Conclusions: Being a test centre for national examination brought changes in medical schools. It is a challenge to conduct national-scale high stakes examination in developing country. However, changes in facilities, human resource and assessment system give benefit to the institution.

Take-home messages: This study highlighted the influence of OSCE implementation as national examination in Indonesia for an institution. We call for further study to explore the impact of national examination on other institutions and other stakeholders in the country.

#4F2 (23949)
Perceptions and Attitudes of Faculty and Students towards the Use of OSCE in Alexandria Faculty of Medicine

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Alaa El Sheikh, Alexandria Faculty of Medicine, Public Health, Alexandria, Egypt
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Background: OSCE has been introduced in AFM since 2008. Arguments for and against using the OSCE were aroused. This study aimed to explore perceptions and attitudes of OSCE examiners and students towards OSCE as an assessment tool.

Summary of Work: Structured questionnaires were used to collect information on perceptions of various aspects of OSCE. Seven domains were assessed by 56 faculty/OSCE examiners from Internal Medicine Department (38 items), and six domains were assessed by 300 fifth year students (28 items). A five point Likert scale was used. Satisfaction index was expressed as a percentage, and categorized: <50% (Poor), 50-<60% (Acceptable), 60-75% (Good) and >75-100% (High).

Summary of Results: Faculty rated Practical Arrangements of OSCE, and Fairness and Reliability more positively (74% vs. 67%, 68% vs. 61% consecutively). Acceptability of OSCE was significantly more valued by students (68% vs. 62%). Faculty satisfaction levels were good regarding: Students Response to OSCE, Real or Simulated Patients Used, and Adequacy of Staff Training. Students’ satisfaction with Content Validity was good, while their satisfaction with Construct Validity and Reliability was acceptable. The Overall satisfaction index of faculty was significantly higher than that of the students (66% vs. 62%).

Discussion and Conclusions: Findings revealed a considerable congruence among faculty and students regarding their perceptions of the shortcomings of OSCEs, and the necessity to institute the appropriate changes. Responses to each of domains’ items reflect strengths and weakness that need a corrective action plan.

Take-home messages: Strengths and limitations of OSCE should be considered for making evidence-based suggestions regarding ways in which OSCEs can be most effectively utilized.
START – a novel assessment of consultant readiness for Paediatric trainees in the UK

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Background: In 2012 the Royal College of Paediatrics and Child Health (RCPCH) devised a novel assessment of consultant readiness for trainees in their penultimate year called the Specialist Trainee Assessment of Readiness for Tenure (START). Contrary to the exit exams of other Colleges, START is a formative assessment.

Summary of Work: START consists of 12 ‘OSCE-style’ scenarios and is compulsory in the final years of Paediatric training. Consultant paediatricians, trained as assessors, facilitate a professional conversation within each scenario station. Performance is benchmarked to agreed standards of a newly appointed consultant paediatrician. Written feedback is sent via ePortfolio some weeks after the assessment. The trainee and their educational supervisor devise a personal development plan addressing any areas for development detailed in the feedback. There is triangulation with other assessments. We report START’s acceptability to trainees and assessors.

Summary of Results: Over 5 sessions, a total of 507 paediatric trainees performed the assessment. 273 responded to a survey on acceptability (response rate = 54%); of 181 assessors, 112 responded (62%). Responses show acceptability by trainees and assessors.

Discussion and Conclusions: START has been delivered successfully, has been generally acceptable to trainees and assessor and is now embedded in the College’s assessment strategy as a formative end-of-training assessment.

Take-home messages: A formative assessment at the end of training is deliverable, acceptable to trainees and assessors and is a novel way of approaching high stakes assessment of trainees in postgraduate medicine, challenging traditional views of exit exams for medical specialists.

Development, dissemination and outcomes of a tailored e-OSCE Application across 2 medical schools

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Background: Having undertaken gap analysis of our existing paper-based OSCE processes, the UNE School of Rural Medicine (partner in the Joint Medical Program) designed and trialled a bespoke computer-based e-OSCE application. Existing electronic OSCE interfaces were reviewed and found not to integrate seamlessly with our current workflow practices.

Summary of Work: The UNE e-OSCE innovation was created as a flexible, risk managed, independent, portable platform maximising data security, incorporating accountability of user actions, protecting data, whilst being visually and functionally simple.

Summary of Results: UNE e-OSCE incorporates:
• Database driven back-end service.
• open source development platform.
• a mobile tablet user interface.
• On-line training.
• automated immediate student email feedback of competency.
• a comprehensive summary of cohort performance, enabling feedback to tutors.

Discussion and Conclusions: UNE e-OSCE has been implemented successfully over 2 years and has demonstrated improved workflow efficiency, integrity of assessment, data collection and reporting, reduced risk in administration, data entry, collation, exam paper preparation, storage and retrieval and enabled immediacy of standard setting and student feedback. This Application has not only delivered a cost effective platform, but has delivered the architecture for engaging faculty in continuous quality improvement in both teaching and assessing clinical competencies.

Take-home messages: Technology innovation with design simplicity and seamless integration into the behaviours of end users and workflow practices can remove the need for significant implementation planning and reduce adoption barriers among busy, time poor end users. Simplicity of design and smart functionality draws users to adopt while creating continuous options for creative improvement of skills acquisition.
Objective Structured Clinical Examination (OSCE) and Quarantine. What are the student views about this? Do they differ from the current evidence?

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Natasha Yates, Bond University, Bond University Medical Program, Gold Coast, Australia

Background: There is limited evidence about the impact of sequestration on OSCE performance. Most research is based on American medical licensing examinations (USMLE). Many universities continue to quarantine students to maintain exam security. Others have stopped, as did our University two years ago.

Summary of Work: We surveyed our final year students’ beliefs about being sequestered for OSCE exams. The majority of students responded (60% of 79), and stated their opinions. We have analyzed early and late groups mean scores. Our findings and the existing literature will be presented in our paper.

Summary of Results: Regardless of whether students were for or against sequestration, their opinions were heated. The reasons they gave were varied and fascinating. Many believe a performance advantage from later groups receiving information. Despite this over 70% did not want sequestration. Discussion and Conclusions: OSCEs are an evaluation of clinical competence focused on showing more than knowing. Sequestration is a time-honoured tradition, aimed to provide a fair platform to assess performance. Because there are negative aspects to the process most students would prefer not to be sequestered. While it is interesting to consider student opinions and experiences, we need to consider the broader implications of sequestration (including the actual impact on performance, the cost to the University, logistical challenges, and psychological impact on the students).

Take-home messages: Despite its widespread use, sequestration is surprisingly under-researched. There is little data to support or refute its impact on student results. The majority of students are against quarantine despite believing that later exam groups gain information and unfair advantage.

Influences of OSCE design on students’ diagnostic reasoning

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Background: Why and how some OSCEs positively ‘drive’ learning remains unknown. OSCEs can be designed as coherent meaningful whole tasks (e.g. examining a patient based on his complaint to find the diagnosis) or divided in part tasks (e.g. demonstrating the physical exam of a pre-specified disease).

Summary of Work: In this randomized controlled mixed-methods experiment, forty medical students were randomly paired and filmed while studying together for two imminent physical examination OSCE stations: either a part-task OSCE (exam of a healthy patient) or a whole-task OSCE (Hypothesis Driven Physical Exam). Mentioning a diagnosis in association with a sign was scored as a backward association, and the opposite was scored as a forward association, both revealing the use of diagnostic reasoning. Qualitative data were obtained by group interviews.

Summary of Results: Studying for whole-task OSCE stations resulted in more backward associations (M = 19.99, SD = 14.96) than studying for part-task OSCE stations (M = 5.06, SD = 4.23), p < 0.001. Although the difference was somewhat smaller, whole tasks also induced more forward associations (M = 11.05, SD = 6.62) than part tasks (M = 7.85, SD = 6.18), p = 0.040. Qualitative data triangulate these findings and show the precedence of cues from student grapevine.

Discussion and Conclusions: When compared to ‘traditional’ part-task OSCEs, whole-task OSCEs like the Hypothesis-driven physical examination increase students’ use of diagnostic reasoning during study time. To our knowledge, this study presents the first direct observation of students studying for medical assessments.

Take-home messages: This study provides evidence that there is a considerable added value in terms of diagnostic reasoning of designing whole task OSCEs.
Peer Assessment in Veterinary OSCEs

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Background: Glasgow Veterinary School administers a total of 7 OSCEs each year, costly in both time, and staff involvement. As a solution, senior students were recruited to peer assess junior undergraduates during their formative OSCEs.

Summary of Work: 51 fourth year students peer assessed 354 undergraduates. It was essential that the fourth year PAs were competent both at assessment, and in giving constructive and useful feedback. The junior undergraduates should also have confidence in the PAs’ assessment and feedback. PAs were trained not only in the skills to be assessed, but also in how to provide constructive feedback. Participant feedback was obtained by questionnaire.

Summary of Results: >97% students highly rated the PAs’ ability to provide constructive feedback, believed they had been given helpful advice on improving future performance, and that they had been fairly assessed. >74% of students reported that they would accept peer assessors in a summative OSCE. 63% of PAs had little or no difficulty in giving negative feedback, although some reported disliking informing students that they had failed. 92% felt comfortable giving feedback. All of the PAs believed that peer assessing would benefit them in their own OSCEs, because of their inside knowledge of the OSCE scenarios, and that they would feel more confident. Some also reported that faculty assessors were now less intimidating, as they had an increased understanding of the assessment process.

Discussion and Conclusions: Students appeared to welcome the much more relaxed experience, and peer assessors valued being part of the assessment. Most students felt they had been fairly assessed and were given helpful feedback.

Take-home messages: Currently, Peer Assessors are now used almost exclusively during first, second and third year formative OSCEs.
#4G Short Communications: The Patient in the Education Process
Location: Argyll II, Crowne Plaza

#4G1 (27395)
Utilising the patient's perspective and experience in undergraduate medical education

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Anna Potts, Brighton & Sussex University Hospitals NHS Trust, Diabetes Centre, Brighton, UK
Hazel Ainsley, Brighton & Sussex University Hospitals NHS Trust, Patient, Brighton, UK

Background: Tomorrows Doctors (2011) highlights the importance of patient involvement in undergraduate education, especially within chronic disease. Diabetes is a chronic condition that requires patients to self-manage complex elements to reduce the risk of acute and chronic complications.

Summary of Work: In 2011 we designed an 8 week programme to enable 2nd year students to experience the complexity of diabetes management. A patient with diabetes reviewed the curriculum and participated. The programme incorporated different practical elements of living with diabetes. Students completed a pre/post questionnaire about degree of difficulty maintaining the individual self-care elements and were assessed by presentation.

Summary of Results: 21 students have completed and 10 students have started the programme in 2015.

Discussion and Conclusions: All students struggled to maintain a ‘diabetes regimen’ more than a few days. Although pre / post questionnaires revealed very little change in how well they felt that they could manage diabetes, they demonstrated a significant change in their understanding of the complexities of managing a chronic condition in their presentations. From the patient's perspective she felt that students had a greater appreciation of the impact on the patient’s life and translated this to the necessary quality of any interaction between doctor and patient. Students demonstrated a greater appreciation for the role of health care professionals and the patient in diabetes management.

Take-home messages: Engaging patients with chronic disease in undergraduate education provides the students with a deeper empathy of the relentless nature of chronic disease self-management and patients with confidence in the holistic approach of tomorrow’s doctors.

#4G2 (23415)
Patient involvement from the beginning: User integration from inception of a new Medical School in the UK

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Janet Garner*, University of Central Lancashire, Preston, UK
Paul Milne, University of Central Lancashire, Preston, UK

Background: The General Medical Council (GMC) ‘Tomorrow’s Doctors’ states that ‘patients should be involved in quality management’ of medical schools.

Summary of Work: The University of Central Lancashire in the UK has founded an independent medical school, currently attracting international applications. The university has a community engagement and service users’ support group (Comensus). Comensus are a group of diverse individuals who are interested in shaping the education of future healthcare professionals by sharing their lived experiences.

Summary of Results: Comensus were invited to join the design team from its earliest meetings to ensure the principles and values of a patient centred approach to medical training were embedded within the school. Service users and carers sit on all academic committees within the school quality management structure. The GMC cited this authentic involvement in their examples of good practice in their most recent report.

Discussion and Conclusions: Patient and Public involvement is now mandatory within a large amount of health and social science research output, as well as being encouraged within medical training by bodies such as the GMC. We present a unique model of integral and on-going partnership working with users from the ‘ground up’. Further works are needed to study how and why such involvement is valuable from the student perspective and within other settings.

Take-home messages: Patient and Public involvement can and should occur at all stages of undergraduate medical education. The UCLAN model of on-going partnership working with service users within the medical school seeks to produce doctors who truly understand and value their local community.
**Exploring Ways of Gathering Feedback from Patients Involved in Undergraduate Medical Education**

*Kirsty Egan*, The University of Edinburgh, Centre for Medical Education, Edinburgh, UK

**Background:** The GMC in Tomorrow’s Doctors (2009) state ‘Quality Data will include feedback from patients’. This research explores ways in which feedback can be gathered from patients involved in undergraduate medical education at The University of Edinburgh. A literature review has identified a scarcity of relevant existing research.

**Summary of Work:** Questionnaires were distributed to UK medical schools assessing their processes of gathering patient feedback. Following ethical approval, focus groups were undertaken with patients who help in planned teaching sessions. Questionnaires were used for patients assisting in opportunistic clinical bedside teaching. Data collection was transcribed and thematically analysed.

**Summary of Results:** Medical institutions agree gathering feedback from patients is important. This research reveals real patients are keen to have a greater level of involvement during assessments yet are fearful of shouldering responsibility for students failing. Not all patients wish to extend their role in education beyond that of the ‘patient’. Simulated patients would like more feedback from tutors on their performance. A full summary of results will follow at the presentation.

**Discussion and Conclusions:** Patients feel their efforts helping in medical education are appreciated yet aspects could be improved. A structured system of patient feedback will allow accurate measurement of performance and improvements to be made; this system would be accessible to other institutions. However, it cannot be assumed that the majority of patients will want to offer feedback.

**Take-home messages:** Inviting patients to feedback on their experiences within medical education will enable them to be involved at a greater level and empower them while giving maximum quality information to medical schools.

**Patients’ attitudes towards bedside case presentations during attending ward rounds**

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**Background:** Attending ward rounds have moved away from the patients, with patient cases being often presented outside the room. Calls are made to reinstate rounds at the bedside. However, concerns are expressed about presenting the case at the bedside because it might confuse the patients, be stressful for them or breach confidentiality.

**Summary of Work:** We designed a study to compare rounds fully conducted at the bedside (mode IN) with rounds during which the case is presented outside the room and then the patient briefly seen (mode OUT). The study took place in a department of general internal medicine. Patients to be seen during rounds were screened for inclusion. Afterwards, each attending round was randomized to either mode. A questionnaire was administered after the round.

**Summary of Results:** 171 patients were included: 85 exposed to mode IN rounds and 86 to mode OUT. Patients in mode IN were less satisfied with the explanation of medical terms (78% vs 90% in mode OUT; p = 0.009). However, there was no significant difference in the perceptions that the round helped patients understand their disease (74% in mode IN and 68% in mode OUT). No significant between-group differences were noted with respect to patients perceiving that the round was stressful (10% in mode IN and 13% in mode OUT) or that doctors should pay more attention to confidentiality (25% in mode IN and 23% in mode OUT).

**Discussion and Conclusions:** Bedside case presentations during rounds did not appear to confuse patients or stress them. They did not affect patients’ perceptions of confidentiality either.
#4G5 (27253)
Living the experience of changing behaviors
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Background: Chronic diseases associated with unhealthy behaviors are the leading cause of mortality worldwide. However, behavioral risk factor modifications are difficult. The experience of attempting to achieve even small behavioral changes by students may enhance their understanding of and sensitivity to patients’ barriers.

Summary of Work: We worked with 26 students in the second year from the Institute of Medicine of the University of Hospital Italiano who attended the course on Primary Care. The students were asked to choose one habit that they wanted to modify throughout a period of 30 days. They were informed with similar experiences in other countries, and received a motivational talk by a specialist in neurophysiology. The students kept a diary to record barriers found as well as facilitators. At the end of the 30-day period we shared results and drew conclusions and recommendations. Each student wrote an essay about the lessons learned.

Summary of Results: The students were able to analyze the experience and elaborate recommendations such as not to attempt changes alone; to ask for help from family or friends; to divide the task into small steps; to avoid cues associated with the habit they wanted to change. They found themselves in a better position to understand patients with these problems.

Discussion and Conclusions: Living the patient’s experience in trying to modify habits helped the students recognize barriers to implement changes by patients. They also were able to identify support tools and motivation strategies.

Take-home messages: A living experience with small behavioral changes enhance the students’ understanding of the difficulties that patients may have.

#4G6 (25612)
The changing role of the clinician as patient educator: Is professional education and training keeping pace?
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Background: Increased patient demand for health information and the vast array of accessible online health information impact clinicians’ role as patient educator, with implications for professional education and training. However, requirements for patient education in contemporary practice are poorly understood. This study investigated clinicians’ awareness of, and engagement with health information for patient education.

Summary of Work: The study site was a GP teaching clinic in rural Australia, which utilised a model of care that involved clinicians developing individual care plans with patients. Data were collected through semi-structured interviews with practice clinicians (n=9); formal observations provided further insights.

Summary of Results: Clinicians considered patient education was their responsibility, yet they held multifaceted views on how to enact this. All clinicians disseminated health information (pamphlets, websites) with many relying on familiar, trusted resources. Most clinicians evaluated the suitability of materials and took into account patient preferences when tailoring information. Clinicians’ training in this domain was reportedly variable.

Discussion and Conclusions: The shared goal of the clinic to take time for patient education was reflected in clinicians’ awareness of, and level of engagement with health information. Yet, the diverse views of what patient education encompasses may be due to variable training and experience. This points to the need for a standardised approach to patient education training, which extends traditional views of patient educator to a more active role that is responsive to rapidly changing technologies and patient demands. Findings provide insights into patient education requirements in contemporary practice; clinicians recognised their responsibility and were highly engaged with health information.

Take-home messages: Patient education training needs to keep pace with changing clinical practice.
#4H1 (27374)
When interviewers meet to discuss their MMI scores: an ethnography of decision making

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Background: Within an assessment centre to determine entry into specialty postgraduate training, interviewers met to discuss candidates' performances following each circuit of a multiple mini interview (MMI). We explored interviewers' talk about their judgments.

Summary of Work: We used ethnography from the perspective of rater cognition theories to explore the social phenomena of an interviewer meeting in which they discussed how they had; made their own judgments on candidates, explored the judgements of other interviewers, and evaluated their own judgment-based decisions.

Summary of Results: Interviewers readily socialize into the expected behaviours set by the organizing institution. They tend to make decisions on gut feelings most of the time but are more analytical in complex cases. They readily acknowledge that judgments can be flawed, and find training around principles of bias helpful. They express a need to judge capability for growth in candidates. In making their decisions, they are most informed by their own experience as a professional, the outcomes of their previous decisions, and their shared understanding of the expected behaviours of the candidates.

Discussion and Conclusions: An ethnography of MMI interviewers gives rich insights into judgment-based decision-making. Interviewers are highly expert and often constrained in making good judgments by the limitations of the tools that they have at their disposal.

Take-home messages: Understanding how interviewers make decisions in the MMI could improve the design of marking rubrics and interviewer training, and lead to more precise decisions in the MMI.

#4H2 (25909)
The Modified Personal Interview (MPI) for MD Admissions: Blending Reliability and Recruitment

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Background: In 2013/14, the University of Toronto MD program implemented the Modified Personal Interview (MPI) to improve inter-interview reliability yet maintain applicant recruitment and high applicant acceptance yields. We report MPI implementation outcomes.

Summary of Work: MPI integrates multiple independent sampling (MIS) with recruitment approaches. For instance, the MPI circuit comprises 4 independent 12-minute interviews; only 4 interviews but of longer duration to promote rater/applicant personal contact and recruitment. We analyzed MPI scores for inter-interview reliability and a D study. Admissions yields (total final applicant accepts/offers) were calculated across the pre: MPI cycle and the MPI cycle to monitor recruitment.

Summary of Results: 600 applicants were interviewed across 7 days by 160 interviewers. MPI inter-interview reliability is 0.56 with no differences between faculty, resident and student raters or between interview constructs in terms of measurement properties. D study indicates to achieve reliability of 0.7 requires 8 interviews. The MPI cycle admissions yield was 79% compared to 78% for pre: MPI cycle. Rater feedback supports MPI acceptability.

Discussion and Conclusions: MPI implementation was successful with rater acceptability, reliability of 0.56 and maintenance of admission yield. D study indicates to achieve reliability of 0.7 requires 8 interviews. The MPI represents an implementation “compromise” that advances integrated MIS-based interviewing and applicant recruitment strategies. High reliability (0.7-0.9) is a desirable goal yet is not the sole marker of assessment success. For our institution, recruitment is also a successful marker of assessment.

Take home messages: Incorporating assessment “compromise” approaches enhances rigour while meeting multiple institutional goals.
Using Multiple Mini Interview in an internationally diverse medical student population

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Background: International medical students account for a growing proportion of medical students worldwide. The aims of this study were to run a MMI in an internationally diverse student population to establish its a) Fairness with respect to age, gender, socioeconomic group, candidate background and b) Predictive validity c) Stakeholder acceptability

Summary of Work: A mixed methods, explanatory sequential design was used. Participants were newly enrolled First Year students. Quantitative data comprised: demographics, other selection tool scores, MMI scores and First Year results. Qualitative data were generated from focus group with two MMI Assessor groups and two student groups.

Summary of Results: N= 109; 41% (n=45) Non-EU; 36% (n=39) did not have English as first language. MMI Cronbach’s Alpha 0.78. MMI Scores were not impacted by age, gender or socioeconomic group. Non-EU students and those without English as first language achieved lower MMI scores (p<0.001). MMI predicted EU, but not Non-EU student OSCE performance (r=0.27; p=0.03; n=64). Two themes emerged: Authenticity and Cultural Awareness. MMI offered deep “insight into how you cope and handle things” (Non-EU student). Cultural specificity and English language proficiency were perceived to disadvantage international students.

Discussion and Conclusions: Fairness and acceptability of MMI can be influenced by evidence/perceptions of equal opportunity, equity of outcome, test relevance to future practice and test characteristics including nuances of language and culture. Recommendations for improvement to MMI for international students include assessor cultural awareness training, developing culturally neutral stations and lengthening station duration to accommodate non-native English speakers.

Take-home messages: Responding to these recommendations may help ensure the fairness and acceptability of MMI.

An Admissions Experience in Pakistan: The Multiple Mini-Interview

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Background: One of the greatest challenges continuing to face medical educators is the development of an admissions protocol that provides valid information pertaining to the non-cognitive qualities candidates possess. The Multiple Mini-Interview is increasingly recognized as better compared to conventional admission interviews. This study reports the experience of using MMI to select undergraduate students in a medical college in Pakistan.

Summary of Work: MMI consisting of 10 short objective structured clinical examination (OSCE)-style stations was conducted in the Shalamar Medical College, Lahore, Pakistan. Participants were presented with scenarios that required them to discuss health and ethics related issues with an interviewer, interact with a standardized confederate while an examiner observed the interpersonal skills displayed, or answer traditional interview questions. Generalizability Theory was used to determine the reliability of the MMI. Participants completed post-MMI questionnaires.

Summary of Results: A total of 340 out of 450 (75.55%) candidates participated in the study. The overall test reliability was found to be 0.78. Stakeholders acceptance was good, both interviewers and candidates were positive about their experiences, with 75 percent of candidates and 95 percent of assessors preferring MMI over traditional interviews.

Discussion and Conclusions: MMI allows multiple samples of insights into a candidate’s ability and minimizes the effects of chance and examiners’ bias. It is a useful protocol for assessing non-cognitive variables such as interpersonal skills and professionalism. Individual institutions can tailor the stations towards selection of the characteristics that are most valued within their local context.

Take-home messages: MMI is a reliable, feasible and acceptable protocol for students’ selection in medical colleges.
Is adding actors’ score providing any gain in the multiple mini-interviews (MMI) process for medical admission?

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Background: MMI are a valid interview process tested in many situations by medical schools in the last decade. MMI evaluate the non-cognitive attributes which is a major challenge as selecting suitable medical students is paramount. In Québec, the three francophone medical school work together evaluating around 1,500 applicants on the same two weekend’s days.

Summary of Work: The Québec MMI is composed of twelve 7-minutes stations, 6 of them role playing-based and 6 discussion-based. In the former type, we ask actors to rate independently the candidates without any prior training. Raters are faculties, resident trainees or community members. Those raters and actors use the same 6 anchors categories rating scale. Correlation analysis and G study were used.

Summary of Results: Concordance between ratings are moderate for stations (ICC ranging from 0.43 to 0.56) and good for global score (ICC=0.68). There are clearly common and unique aspects in raters and actors appreciations. Using mean ratings on the 6 stations, results in decision change for 17% of candidates. Half would be higher than the passing score and vice-versa.

Discussion and Conclusions: It could be interpreted that actor perceive some other aspects of applicants as they are in direct interaction with them. On validity ground, actors’ score could be valuable to better select the medical applicants but this add another load on the organisation and challenge the cost-benefit of this new input.

Take-home messages: Actors could give new genuine information on applicants’ non-cognitive attributes; actors’ rating could be valuable in MMI; adding new input in the MMI assure a better applicants’ evaluation.

Correlation of the Multiple Mini Interview and Empathy

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Background: Empathy has been emphasized by the LCME and AAMC as a desired trait by US medical schools in the student selection process. Empathy has multiple definitions, but has been described as the ability to feel compassion and concern for others. The Multiple Mini Interview (MMI) has been investigated for correlations with other measures such as personality, emotional intelligence, and career development. The MMI was created using scenarios to measure desirable traits. However, given the lack of research in the area of the correlation between the MMI and empathy this study was conducted.

Summary of Work: The Jefferson Empathy Student Scale (JSPE-S) was given to entering students (69% response rate) during orientation at one US Midwestern medical school in the fall of 2011. The students completed the MMI as part of the admissions selection process. During the interviewer training for the MMI, interviewers/raters were told to include empathy in their assessment. IRB approval was obtained (IRB #11-07-19-02).

Summary of Results: A significant positive correlation (p<.01) existed between the MMI and the following subscales: Importance, Feelings, Perspective Taking, and the overall Total Empathy score. No significant correlation was noted for the subscale Ease.

Discussion and Conclusions: A correlation exists between the MMI and empathy. Further research should exam if specific MMI scenarios are more predictive of empathy.

Take-home messages: While this study used the JSPE-S to measure empathy, the significant correlation between MMI and empathy suggests that the MMI may be used to assess empathy during the medical school admissions selection process.


#4H7 (27986)
Selecting medical students, predictive validity of multiple mini-interviews and the UKCAT

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Background: Non-knowledge based testing is becoming increasingly prominent in the UK medical school selection process. Accumulating evidence for the predictive validity of multiple mini-interviews (MMIs) is encouraging, while evidence for the UK Clinical Aptitude Test (UKCAT) would appear to be less consistent.

Summary of Work: Scores from the 2012 and 2013 MMI cohorts at Queens University Belfast (199 and 235 applicants respectively) were compared to performance in written exams (global performance and MCQs considered separately) in the first and second years as applicable. UKCAT scores were similarly matched.

Summary of Results: Factor analysis of individual written exams and OSCEs showed that there are two separate components contributing to variance, accounted for respectively by written exam and OSCE results. Pearson's product moment correlations were significant when MMI score was compared to OSCE performance less so or not significant for written exams. UKCAT scores were correlated significantly with written exams, most strongly with MCQs whereas there was no correlation with OSCE results.

Discussion and Conclusions: Factor analysis could be reflecting different attributes being measured by MMIs versus OSCEs. The results confirm previously reported data which support the predictive validity of MMIs, particularly in OSCE performance. On the other hand there was no correlation between UKCAT score and OSCE score, which rather was significantly correlated with MCQ components of written exams.

Take-home messages: This study adds to the body of evidence supporting the predictive validity of MMIs in the early stages of medical education. In addition it suggests a complementary role for the UKCAT. Planned follow-up of this cohort extending into clinical training and beyond is important to examine how the relationship between admission scores and medical school performance evolves.
#4I1 (27889)
Saudi MED Competence-based framework

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Background: In Saudi Arabia, with the expansion of medical education in KSA nationwide, a high priority has been given to develop a competence-based framework for medical graduates. In 2011, a taskforce was developed to develop competence-based framework for the medical graduates. Saudi MED define generally the essential seven-competences for medical education in Saudi Arabia (Zaini, et al, 2011).

Summary of Work: This study is Phase II of Saudi MED project and aims to detail the frameworks for learning outcomes for the undergraduate medical degree in Saudi Arabia. Also the roadmap to ensure application of Saudi MED was highlighted. Two-round modify Delphi Technique was applied to generate consensuses of the essential learning outcomes of undergraduate medical programs amongst all 33 medical schools in Saudi Arabia. The generated list was then discussed in two workshops attended by all stakeholders in relevance to medical education and practice. Finally, international medical educators reviewed the final draft.

Summary of Results: A three-level Saudi MED framework was generated, that consists of six domains, 17 sub-domains and 80 competences. Level III includes eighty learning outcomes considered essential for all undergraduate medical programs in Saudi Arabia. However, this level could vary from undergraduate to postgraduate programs. In addition, the Saudi MED’s taskforce defined the responsibilities of all stakeholders for effective utilisation of Saudi MED. This includes training, mentoring, coaching, mind-setting, publicity, scholarship.

Discussion and Conclusions: Developing a national competence-based framework is a very important step to develop the quality of medical education. Yet the real challenge is the efficient implementation and utilization of Saudi MED.
Finally getting there: A Delphi process among the German Scientific Medical Associations to reach consensus on a National Competency-based Catalogue of Learning Goals for Medicine

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Background: Undergraduate medical education in Germany is highly regulated through national legislation. However, no outcome- or competency-based national catalogue of learning goals exists yet. A joint effort for creating such a catalogue including all relevant institutional stakeholders was initiated in 2009. After a complex development process, a complete draft of the catalogue was finished in 2014 with a total of 2414 entries: 231 competencies (level 1); 303 subcompetencies (level 2), and 1880 learning goals (level 3).

Summary of Work: We conducted a Delphi process among all 173 German Scientific Medical Associations to saturate content quality of the NKLM. All associations were asked to nominate one entrusted representative each to participate in an online consensus process. 126 representatives signed up and 96 (76%) actually participated. Consensus was defined as above 75% and consent as between 50 and 75% of votes in correspondence with clinical guideline development.

Summary of Results: A consensus for 90.2% and consent for 9.8% of level entries was reached; 86 and 14% for level 2, and 86.5 and 13.5% for level 3, respectively. More than 1500 comments were added as suggestions for further content improvement. A second Delphi round will be conducted in March/April 2015.

Discussion and Conclusions: An online Delphi process across all 173 German Scientific Medical Associations was successfully implemented for the first time. A high level of consensus was reached for the entries of the NKLM. A further revision of the catalogue and a second Delphi round are under way. NKLM publication is planned for summer 2015.

Take-home messages: A Delphi process among scientific medical associations is feasible to reach consensus on educational outcomes.

"Soft Skills" or Fundamental Foundations

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Background: As the complexity of science and the vast amount of information available to medical students has increased, there has been a tendency to supplant the so-called "softer" skills such as positive interpersonal communication, cultural competency, ethical and legal understanding and other foundational attributes of excellent healthcare. While there has been a move to re-focus in these and other areas the real challenge of time limitations has often interfered.

Summary of Work: Two universities, in their professional healthcare programs, have developed what are called transferable skills that are built into and measured throughout their programs. These include mapping eight areas: critical thinking, self-assessment, interprofessional/team focus, personal and professional wellbeing, ethical and legal understanding, cultural competence, leadership theory and application, and positive interpersonal skills.

Summary of Results: These’ skills are integrated and assessed across the curriculum and are becoming a focus for accreditation activities. The anecdotal results are that as medical students move into clerkship and residency experiences that they are seen as better overall clinicians than many of theorizers from other institutions not stressing these skills.

Discussion and Conclusions: The short presentation describes these transferable skills and looks briefly how changing and expanding curriculum must keep them in focus to ensure quality outcomes.

Take-home messages: While transferable skills are not uncommon at the undergraduate level, failure to reinforce and expand them in professional healthcare education may ultimately impede development of excellent clinicians. If built into curricula as a foundation, they may also prove to enhance technical learning and application.
Alignment and assessment of Program Learning Outcomes (PLOs) with pre-clinical training in a veterinary program

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Background: The University of Guelph Doctor of Veterinary Medicine Program has aligned experiential learning in the final year of the Program with the Program Learning Outcomes (PLOs). Now, these PLOs are being mapped into the pre-clinical years.

Summary of Work: Three sequential courses were adapted to refocus learning on the PLOs, including refinement of course learning outcomes to show evolution of key clinical skills across the three courses. A “flipped classroom” approach enhanced practice of the PLOs in each course module. A fixed template guided the learning experience of each case-based session, to more explicitly focus instructors and students on the PLOs. Comprehensive OSCEs that mapped to the PLOs were adopted for student assessment.

Summary of Results: A model of clinical training was developed that emphasizes learning and assessment of key competencies required of the graduating veterinarian. A “flipped classroom” template enabled knowledge, skills and attitudes of each module to be practiced in the laboratory sessions. Results from the first year of the modified curriculum will be presented.

Discussion and Conclusions: Realignment of course objectives and strategic repackaging of material into a consistent format allows students and facilitators to intentionally focus on the PLOs as they practice clinical problem-solving. Through building uniformity into the learning methods and assessment, student performance over time can be tracked to measure overall program effectiveness and to inform future curriculum modification.

Take-home messages: Aligning PLOs and course assessment in pre-clinical years can allow a program to map and track student progression over their veterinary program.

How do online professionalism policies of Canadian medical schools compare to the CanMEDS 2015 Competency Framework?

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Background: The CanMEDS 2015 Competency Framework describes the knowledge, skills and abilities needed for better patient outcomes. CanMEDS describes the four Key Professionalism competencies as Commitment to Patient, Society, Profession and Physician Health. These competencies are rooted in the “social contract;” the reciprocal rights between the profession of Medicine and society granting physician self-regulation in return for primacy of the doctor-patient relationship and obligation to serve society. This study explores alignment of Canadian Undergraduate Medical Education professionalism policies with CanMEDS Professionalism competencies.

Summary of Work: Online search of medical school websites for “professionalism,” “codes of conduct,” yielded documents from ten English-language Canadian medical schools. Thematic analysis was performed to compare documents to the four CanMEDS Key Competencies.

Summary of Results: The policy review showed varied representation of the CanMEDS Competencies in the documents: Commitment to Patient (10/10), Society/Social Contract (4/10), Profession (10/10), and Physician Health (7/10). Ethics in research was included in 9 policies and partially addressed by the CanMEDS Scholar role. Commitment to Professionalism in the Learning Environment emerged in all 10 (eg: professional teacher-learner relationships, appropriate behavior/dress).

Discussion and Conclusions: Canadian Medical school professionalism policies focus on commitment to patient and profession, but underrepresent commitment to society. As policies guide curriculum, student understanding of the social contract may be compromised, leading to potential loss of societal trust in Medicine. The Royal College could consider inclusion of Professionalism in the Learning Environment as a competency.

Take-home messages: Undergraduate professionalism policies should be revisited to address Commitment to Society given the possibility that this could affect future physician’s ability to recognize and act on their responsibilities and obligations.
Perception and interpretation of the CanMEDS roles among pathologists in Denmark

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Background: In 2012 the report “Postgraduate medical training in Denmark – status and future perspectives” was published by the National Board of Health. Concerning the CanMEDS roles each specialty was advised to develop a more nuanced view on the roles and to adapt the roles to specific work tasks of each specialty. This initiated a study on pathologists’ view on the CanMEDS roles.

Summary of Work: By means of four focus group interviews and a national questionnaire, residents and specialists in pathology in Denmark were asked about their perception and interpretation of the CanMEDS roles and their experience of the roles in relation the work tasks of the specialty.

Summary of Results: Residents and specialists feel confident with the roles of medical expert, collaborator and communicator. However, the roles of scholar, manager and health advocate are rated low according to importance. Although the role of professional is rated as important, confidence with this role is low. Several of the seven roles are experienced as poorly integrated into daily work and applicability in daily work is perceived as poor, in this way leaving a gap between theory and practice of the roles.

Discussion and Conclusions: It is suggested to give residents a better understanding of the CanMEDS roles through Knud Illeris’ three dimensions of learning; this socio-culturally oriented learning theory may motivate residents to “learn about learning. Secondly, implementation of entrustable professional activities (EPAs), translating the CanMEDS roles into daily practice by defining specialty specific core activities, is recommended.

Take-home messages: A two-step strategy for a better integration of the CanMEDS roles in postgraduate pathology education is presented.
Impact of FAIR clinical teaching principles in action

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Background: FAIRness (feedback, activity, individuality, relevance) approach was used to develop a model of progressive, weekly, small group tutorials based on students’ own work. This model has been previously shown to aid students’ adaptation to their first clinical placement. The aim of this study was to examine the impact of FAIRness on students’ learning of clinical medicine.

Summary of Work: Participants were third year and final year medical students attached to one UK vascular firm over a four-year period. Students were asked to write a reflective essay on how FAIRness approach differs from previous clinical placement, and its advantages and disadvantages. Essays were thematically analysed and globally rated (positive, negative or neutral) by 2-3 independent researchers.

Summary of Results: 108 students submitted reflective essays over the study period. Over 90% of essays reported positive experiences of FAIRness model. According to students, the model provided multifaceted feedback; active participation; longitudinal improvement; relevance to stage of learning and future goals; structured teaching; professional development; safe learning environment; consultant involvement in teaching.

Disadvantages including preparation for tutorials being time intensive; a lack of teaching on medical sciences and direct observation of performance; not enough sessions (once weekly); insufficient relevance to upcoming exams and large group sizes.

Discussion and Conclusions: This study represents a major concern over the current state of undergraduate clinical medical education. In contrast, progressive teaching programmes based on the FAIRness approach were viewed positively

Take-home messages: The current standard of clinical teaching on placement is not well-regarded. Progressive teaching programmes based on FAIRness principles could generically improve this important facet of medical education.
#4J3 (27598)
The Use of Specialised Video Technology to Improve Handover skills in a Simulation Setting.

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Background: Imperial College School of Medicine undergraduates report underconfidence in handover skills required in foundation year, particularly in the context of the acutely ill patient. We explored how to improve handover skills, focusing on communication, assessment of the acutely ill patient using the Situation Background Assessment Recommendation (SBAR) approach, multidisciplinary working and professionalism. Using innovative technology, we demonstrate how to provide individualised student feedback on handover skills using simulation.

Summary of Work: 36 final year medical students undertook simulation scenarios involving an acutely unwell patient. As part of their brief, students were required to handover their assessment using the SBAR approach to a senior colleague by telephone. This handover was recorded using an iPad application called “Coach’s Eye”. This specialised video technology enabled the facilitator and students to review the handover and incorporate debriefing, reflections and learning points into the footage, thus providing a record of personalised feedback to the student.

Summary of Results: In an initial survey, students identified handover skills as a learning need. Feedback on the use of the technology identified simulation as a learning opportunity for handover skills and demonstrated improved insight into the student’s ability and confidence in handover.

Discussion and Conclusions: Handover communication is a key skill for foundation year doctors and one that is frequently difficult to gain experience in. Video technology using an iPad application is an excellent, portable resource to enable real-time assessment and facilitate reflection on a student’s performance during simulated handover.

Take-home messages: Video technology within simulation provides a valued opportunity for debriefing, reflection and individualised feedback on handover skills

#4J4 (27831)
Beyond volunteerism – service learning in a premedical curriculum

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Background: Service Learning (SL) is more extensive than “mere” volunteering, adding essential components of planning and post-service reflection. The Future of Medical Education in Canada report emphasized social accountability of which SL is an integral component. Providing students early opportunities to become competent in SL is increasingly relevant to faculties of medicine, for the inherent merits of SL itself, and accreditation standards. The Queen’s Accelerated Route to Medical School provides a developmental 2-year premedical program for 10 students.

Summary of Work: Based on the identified need for SL, a three-part SL learning arc was designed to span the curriculum: year 1 individual volunteer project; summer individual community project; and year 2 group community project. Students’ service was scaffolded with facilitated discussions on relationships between service and CanMEDS roles, oral and written assignments, and ongoing mentoring.

Summary of Results: Early exposure to SL within the structure of the longitudinal program enabled students to design meaningful experiences. Students developed an understanding of the different aspects of their future roles as physicians while exploring social determinants of health, and roles of communicator, collaborator, professional, manager, and scholar. Students were assessed on these roles as well as planning and reflection.

Discussion and Conclusions: Applying an emerging understanding of CanMEDS roles to discussions about SL contributed to developing concepts of physicianship. Curricular evaluation supported benefit to students’ learning and community engagement, and facilitated ongoing relationships.

Take-home messages: Integration of experiences in SL in a premedical curriculum, beyond traditional volunteerism, benefits students and communities and has the potential to improve social accountability within the medical profession.
#4J5 (26727)
Electronic Health Records: Implementation of skills training in the curriculum of a MD program

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Background: The increasing use of electronic health records (EHRs) to manage patient care is changing clinical practice. To address the explicit teaching of EHR skills in our masters level MD program, we implemented a student-centred EHR system and associated online learning resources. Development, implementation and evaluation of these innovations are described below.

Summary of Work: The EHR system was developed through an iterative design process. A mobile application was also developed. Use of the system was formally integrated into the first clinical year curriculum and evaluated via interviews and electronic monitoring. The learning resources were designed to help students develop communication and EHR skills for effective, professional use with patients. These resources were implemented as self-study modules for final year students and their effectiveness evaluated via questionnaire.

Summary of Results: The EHR system supported EHR skills learning, helping students to manage data and record detailed patient information electronically. Yet, several barriers associated with the adoption of the mobile version were identified. The learning resources taught students strategies to enhance patient interactions while using EHRs, and were helpful for transitioning to practice.

Discussion and Conclusions: Use of the EHR system presented students with new learning opportunities as well as raising potential challenges related to working within a framework of patient-centred care. The complementary learning resources addressed student concerns that EHRs could negatively impact patient interactions, by teaching them appropriate communication strategies. In conclusion, implementation of a student-centred EHR system and associated learning resources supported medical students’ learning of EHR skills in the clinical environment.

Take-home messages: EHR activities play an important role in contemporary medical curricula.

#4J6 (25683)
Development of TALK®, a tool for structured clinical debriefing

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Background: Recent meta-analyses support the use of feedback and debriefing to improve performance. Structured debriefing is common after planned learning events. After literature review we have found no tool similar to TALK®.

Summary of Work: Our framework guides structured multi-professional debriefing after unplanned learning events. It can be used in any clinical environment. It promotes reflection within clinical teams to improve patient safety and contribute to a supportive culture of dialogue and learning. Key elements to achieve this include early identification of system errors and potential untoward events, recognition and encouragement of successful strategies and improved communication.

Summary of Results: TALK® proposes an easy way to guide a focussed learning dialogue whenever new insights might be learnt, facilitating reflection in a constructive and non-judgmental way. It may be prompted and facilitated by any team member. T: tell the team what happened, target what is important to discuss. A: analysis. Explore key elements described above. L: learning points are identified. K: key actions to improve and maintain patient safety.

Discussion and Conclusions: The main expected implementation challenge is engagement. Representatives of all teams will be involved in adapting the tool prior to its use in specific areas. Implementation will be supported by project champions, use of flashcards, posters, and web / app based guidance. Trained multi-professional leads will deliver workshops on environment specific guided reflection. We will measure qualitative as well as patient safety outcomes.

Take-home messages: Clinical environments provide ample opportunities for reflective co-learning. Our interest in teaching, debriefing, patient safety and multi-professional collaboration have inspired us to develop this tool.
Virtual Learning And Distributed Simulation (V-LADS) for preparing healthcare workers at peripheral health units to protect themselves against Ebola Virus Disease (EVD) in West Africa

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Background: The Ebola epidemic has seen unprecedented levels of morbidity and mortality among healthcare workers and training in use of personal protective equipment (PPE) is urgently needed. Distributed simulation [1] can potentially assure quality training, in remote and poorly-resourced regions, with high fidelity.

Summary of Work: Sequential steps for PPE use were identified from international guidelines and merged into an interactive learning sequence. Gamification was utilised as participants played the role of on-screen 3D avatar, alongside a virtual buddy who provided learning points & instruction. Voiceovers were embedded in Krio: the predominant language in Sierra Leone. Training was delivered in remote rural healthcare facilities. Questionnaires were administered to evaluate participants’ reactions to training and compare pre / post confidence levels.

Summary of Results: > 97% participants (n=124) stated the training was useful, relevant & would recommend the training to colleagues. 82% participants had received conventional training prior to the pilot but 83% would change the way they use PPE as a result of the module. Analysis demonstrated statistically significant (P<0.001) increases in confidence levels for putting on PPE, taking off PPE & being prepared for treating patients with EVD.

Discussion and Conclusions: V-LADS was effective in raising healthcare workers’ confidence in PPE use and preparedness for treating patients with EVD. Further studies are required to explore differences compared to conventional training.

Take-home messages: Immersive technology can provide ‘just in time training’ to rapidly upskill local workers during major healthcare crises.

A national CPD system for all healthcare practitioners: The Qatar plan

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Background: In 2014, the QCHP and Royal College Canada International began a project to develop a national CPD system applicable for all healthcare practitioners.

Summary of Work: A key goal of this project was to enable the QCHP Accreditation Department (QCHP-AD) to support the continuous learning and improvement of its healthcare practitioners and also enhance the quality of care provided to patients. Outcomes included the development of a CPD framework, credit system, and CPD accreditation system.

Summary of Results: Participation in relevant and practice-specific CPD activities is a professional expectation for healthcare practitioners within medicine, dentistry, pharmacy, nursing, and allied health. Effective 2016, CPD participation will be a mandatory requirement across all of these health professions.

The CPD system is founded on principles of: • Continuous improvement; • Professional development; • Relevance; • Reflection; • Self-assessment

Learning activities included within the CPD framework have been organized into 3 categories: • Category 1: Accredited Group Learning Activities; • Category 2: Self-Directed Learning Activities; • Category 3: Accredited Assessment Activities

The CPD accreditation system is based on a set of values and standards (ethical and educational) to establish quality, to promote mutual accountability, and which value transparency and continuous improvement.

Discussion and Conclusions: The Royal College and the QCHP-AD have developed essential components of a national CPD system for Qatar, including a CPD accreditation system, CPD framework and credit system. This system balances self-directed and practice-based learning activities and will require all health professionals to demonstrate compliance with annual, mandatory CPD requirements starting in 2016.

Take-home messages: The development of national CPD systems can be achieved through international consultation and collaboration.
#4K3 (27418)
Designing a continuing professional development (CPD) model for an innovative mobile health service in Qatar

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Background: A service delivering 24 hour home visits by a family physician (FP) and ambulance paramedic (AP) commenced in Qatar in 2014. The FPs were recruited from the UK, Ireland, Australia and New Zealand; the APs have all been in the ambulance service for many years. The rotating shift FPs, serving the needs of an extremely diverse population, also needed to maintain their licensure requirements for their home countries.

Summary of Work: A review of the clinical tasks and risks; the doctors’ journey; a CME survey; and mapping of existing CPD activities. This included considering job planning, appraisals, privileging, licensure, revalidation, and continuing medical education.

Summary of Results: The process identified the need for flexible delivery, equity, access, and the clinicians’ self-determined preferences for CME. This required a restructuring of the roster and working closely with operational management. The plan consists of self-directed learning time; formal monthly team CME meeting; accessing external CME activities; online learning system; advertising CME events; supporting research activities; performance appraisal and planned professional development.

Discussion and Conclusions: CPD needs to be embedded into the development phase as service demands can lead to lack of prioritizing of this essential workforce need. This may be particularly challenging in a multilingual, multi-professional setting.

Take-home messages: Have a comprehensive view of CPD and embed it in the core design of a clinical service.

#4K4 (25418)
Evaluation of a novel approach to stimulate review of planned practice changes

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Background: Research suggests that transfer of new knowledge can be facilitated by review of planned practice changes. This study presents results from a pilot project of a novel approach to encourage this review.

Summary of Work: Using intended practice changes previously identified, a special educational module was created using patient cases with a companion evidence summary. Family physicians participating in Canada’s Practice-Based Small Group Learning Program met in groups to discuss this module and reflect on their current practices. Outcomes of the learning session were documented on a practice reflection tool (PRT). This tool recorded practices that participants intended to change, as well as practices that were confirmed. Evaluation included analysis of PRT statements and feedback given by selected facilitators during telephone interviews.

Summary of Results: PRTs were received from 94 groups (752 physicians). The learning session using this module was rated highly (4.3±0.7 on a 5-point Likert scale). PRT statements indicated that discussion prompted most groups (56%) to reflect on previous planned practice changes. Fourteen group facilitators were interviewed. The majority (64%) reported that planned practice changes were discussed and that they intended to review outcomes of planned changes more often.

Discussion and Conclusions: This novel approach prompting review of identified planned practice changes was perceived as helpful. It improved awareness of the importance of reviews and encouraged more regular practice reflection.

Take-home messages: A case-based educational module, involving conditions/illnesses previously discussed, can provide another approach for reviewing and reinforcing planned practice changes.
Mental health mentoring of family physicians: Optimizing collaboration and specificity

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Background: At least 20% of primary care visits are mental health based. However, many primary care physicians (PCPs) do not have specific training in this area, nor do current care models permit extended assessments. Additionally, most PCP questions are highly complex and difficult to resolve with typical knowledge acquisition strategies, like literature searches.

Summary of Work: The Collaborative Mental Health Network of the Ontario College of Family Physicians links 45 mental health specialist mentors with 450 PCP mentees. Regular face-to-face or teleconference small group meetings occur, and a mentee can also request input on a mental health issue via email, phone call, or fax. Responses are made within 24 hours.

Summary of Results: Participant PCP’s report increases in: access to the specialist’s opinion, satisfaction with consultations, knowledge base, and patient care. Concomitant reductions in time to optimal treatment and improved amelioration of symptoms are also reported by the PCP’s on their patient’s behalf.

Discussion and Conclusions: A program that pairs PCP’s with experienced and available expert colleagues increases collaboration and access to specialists. Participant surveys show that the program is utilized by many PCP’s and appreciated by them, but data on the ultimate impact on the patient is lacking.

Conclusion: Practicing PCP’s are helped more specifically and effectively by discussion of a case with an expert than they are by pursuing scholarly resources such as literature reviews.

Take-home messages: Mentoring appears to be a superior technique for tailoring medical education in the context of active primary care.

On line program in Gastroenterology for general practitioners in Chile: Alliance between the Pharmaceutical Industry and School of Medicine of Pontificia Universidad Católica de Chile.

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Background: Facilitating free open access education is a technology available that can be used to facilitate effective learning. A main challenge is to define how technology can help current and future healthcare practitioners to improve their practice.

Summary of Work: Development and implementation of an online modular program with four modules in 2013 and 2014 about diagnosis and treatment of frequent gastroenterological disorders and associated conditions. It is a free resource offered to general physicians through invitation by pharmaceutical visitors and sign of a learning contract. Each module combines diagnostic assessment of knowledge, educational on line resources, and algorithms based on best evidence. Participants have three choices to take the summative final assessment followed by instant feedback each time.

Summary of Results: Overall, 120, 77, and 11 participants did and approved the first three modules with a mean of 91%, 88%, and 89% respectively.

Summary of demographics and track control data. Preliminary evaluation of participants’ perceptions with the program and virtual learning was done by an online survey to explore gain of knowledge, utility, and quality of educational resources, access to platform, and timely responses of administrators.

Discussion and Conclusions: Developers and administrators should work together and support CPD activities taking into account diversity of learners’ background, capabilities and time to be allocated for these activities.

Take-home messages: CPD in any specialty is an integral part of the Health Care Professional system and full support is necessary for the staff to help them to deliver safe, up-to-date, high quality care.
### #4L1 (25152) Developing a single framework of quality standards for medical education and training

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**Background:** The General Medical Council (GMC) sets standards for all stages of medical education and training, from basic medical education to completion of postgraduate training. Medical schools and postgraduate training programmes are evaluated and approved by the GMC against these standards.

**Summary of Work:** The GMC has reviewed undergraduate standards in *Tomorrow’s Doctors* (2009) and postgraduate standards in *The Trainee Doctor* (2011) with three main objectives: making standards more consistent and coherent across the continuum of education and training to improve quality; making standards reflect the characteristics of a good learning environment and culture; and supporting the GMC’s evaluation of medical schools, postgraduate deaneries or local education and training boards, and local education providers in a geographical region (or country).

New standards were developed according to guiding principles, followed by early engagement with students, doctors in training, trainers, employers and patients. After consultation in early 2015, new standards will be implemented from 2016.

**Summary of Results:** Standards are structured around five themes: learning environment and culture; educational governance and leadership; supporting learners; supporting educators; and developing and implementing curricula and assessments. Standards are expressed broadly and the way in which organisations show they meet standards may vary between settings.

**Discussion and Conclusions:** The GMC has put patient safety, the quality of the learning environment and culture and fairness at the heart of standards for educating medical students and doctors.

**Take-home messages:** A single framework of standards has been developed to drive quality improvement across all stages of medical education and training.

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### #4L2 (24743) Variability in scope and governance of agencies accrediting medical education around the world

**Marta van Zanten**, FAIMER, Philadelphia, USA

**Background:** While the purpose of accreditation systems is to ensure the quality of medical education and training, agencies vary greatly in governance structures and scope of authority. Accrediting bodies can be governmental entities or independent organizations, and their responsibilities may extend to all higher education institutions or be specific to only medical education.

**Summary of Work:** The FAIMER Directory of Organizations that Recognize / Accredit medical schools (DORA) contains information on accreditation authorities around the world. Agencies were categorized based on governance and scope of authority. The six World Health Organization (WHO) regions of the world are used to present the pooled accreditation information.

**Summary of Results:** Of the 110 countries with accreditation agencies currently listed in DORA, 53 (48%) agencies are government affiliated and 57 (52%) are independent entities. Systems that specifically accredit medical schools are used in 45 (41%) countries, while 65 (59%) review medical education as part of all higher education. Regionally, incidence of national systems of accreditation ranged from 8/8 (100%) for the South-East Asia region to 10/37 (27%) for the African region. A scope of authority specific to medical education ranged from 10/12 (83%) in the Western Pacific region to 6/40 (15%) in the European region.

**Discussion and Conclusions:** A variety of accreditation systems are used around the world, and the incidence, governance, and scope of authority of agencies varies widely by WHO Region. Differences in outcomes or effectiveness of accreditation based on various models of governance and scope requires further investigation, and can inform recommendations for best practices.
#4L3 (28164)
Reform through Accreditation? Indigenous health and medical education

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Background: Those charged with medical school accreditation have an opportunity to acknowledge inequalities in health outcomes and provide leadership in addressing those inequalities towards a reformed medical education. This paper details a bi-national review of medical schools’ reporting against a specific set of standards relating to Indigenous health since their implementation in 2006.

Summary of Work: Using electronic search tools, the research team identified the occurrence and context of the terms Indigenous and/or Aboriginal and/or Torres Strait Islander and/or Māori in medical school accreditation reports to the Australian Medical Council, 2006-2014.

Summary of Results: This review reveals that reporting on Indigenous related activity (mission, staff and student recruitment, curriculum, clinical experience) has expanded since 2006.

Discussion and Conclusions: The review raises questions about the concordance between accreditation standards and processes and the opportunities they present for institutions to effect Indigenous development within their schools. More attention is needed to ensure both that mismatches are identified between the standard and each institution’s response, and initiatives are designed to embrace the gaps and make improvements. Including Indigenous related Accreditation Standards has positively influenced medical school reporting on activities related to Indigenous development. The process will continue to consolidate the emerging discipline of Indigenous health as a core component of medical education.

Take-home messages: Sustained effort is required to understand and extend the influence of accreditation as a driver of change for medical schools in the field of Indigenous health.

#4L4 (25312)
Developing an education research community of practice

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Background: Bristol University produces a wide range of small educational research projects, many of which are produced by Clinical Teaching Fellows (59% at the ASME 2014 conference). As part of a university teaching fellowship I have been exploring how we can best support these CTFs in producing good quality educational research, given that the majority have a one year contract, they are spread across a wide geographical area and are generally new to educational research.

Summary of Work: In order to support CTFs we ran a training session and then piloted a critical conversation framework, which was informed by a quality framework developed to analyse previous abstracts. CTFs were able to consult an educationalist before applying for ethics review. This process is being evaluated through interviews, a survey of CTFs, records of the process and analysis of resultant abstracts.

Summary of Results: The critical conversation option has been used by 19 CTFs and evaluation work will be reported in the presentation, drawing on analysis of this year’s abstracts and CTF perceptions of the usefulness of the process.

Discussion and Conclusions: Doctors are expected to teach as part of their job and those taking on Clinical Teaching Fellow posts are often expected to also research educational practice with little experience of education research methods. This project has utilised a simple framework of questions that can help inexperienced researchers develop worthwhile educational projects.

Take-home messages: Asking the right questions and then using the right methods makes for sensible educational research. It is important to help new educational researchers get off on the right foot.
A cost-benefit analysis of an extended multi-method simulation program

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Background: Little research has addressed the economic benefit of health professional education interventions. Simulation-based learning can be expensive and cost-benefit analysis is important to justify its use. Published data from a randomised controlled trial have established that the Griffith University Clinical Learning through Extended Immersion in Multimethod Simulation (CLEIMS) program leads (among other impacts) to an immediate and sustained reduction of prescribing errors amongst senior medical students.

Summary of Work: Modelling was undertaken to estimate the cost-effectiveness of CLEIMS, based only on its impact on prescribing errors. Data from the trial and literature-based estimates of the costs of prescribing errors were utilised to estimate the economic benefits. The costs were calculated by collating prices of consumables, academic time, facilitators and simulated patients.

Summary of Results: Participants in the full program demonstrated a consistent and sustained reduction in prescribing errors of >7% compared with control participants who received only the workshop and seminar content without the contextualising simulation (P<0.01). The cost of the full CLEIMS program for a cohort of 150 students was $A186,424. Modelling demonstrated an overall annual cost reduction of $A152,997 based on the estimated average cost of a prescribing error in Australia ($A5,204), the average number of prescribing errors made by a doctor each year (2.8) and a 7% error reduction across a cohort of 150 students.

Discussion and Conclusions: The costs of this extended multi-method simulation program approximate the estimated savings it generates in the direct expected costs of prescribing errors. Thus, it appears to be cost-effective in terms of overall expenditure of public funds, even without consideration of reduced patient morbidity or any other likely beneficial effects on junior doctor performance.

Take-home messages: Extended multi-method simulation methodologies are resource intensive but appear likely to prove cost-effective to the overall public purse.

Quality Improvement Fellows-Building a cadre of QI professionals for sustainable improvement

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Background: In 2012, the Director of Education and Quality and PG Dean had a vision to commission an innovative programme to support medical trainees and senior clinical leaders to develop skills to effect service transformation by delivering a range of focused quality improvement projects using improvement methodologies. The programme enabled 20 multi-professional participants to commence as Quality Improvement Fellows (QIFs). Participants drawn from acute, mental health and ambulance trust settings were sponsored by their Medical Director or Director of Nursing (or equivalent). The programme was influenced by the Dartmouth Hitchcock Institute, U.S and has enabled a one year ‘Out of Programme Opportunity, exposure to organisational strategy, executive sponsorship and widened access to all multi-professional groups.

Summary of Work: A total of 40 QIFs have completed the programme with another 20 on the current programme. Working with excellent leadership development organisations such as the King's Fund, the NHS Leadership Academy and the Middlesex University we have constantly improved the programme to address local and national QI priorities.

Summary of Results: Impact assessment of the QI projects and the personal development of leadership behaviours have all been measured and demonstrate real improvements in care, changes in organisational behaviours and a number of the projects and QIFs winning local, national and international recognition for their work.

Discussion and Conclusions: We are already planning cohort 4 driven by a desire from our local provider organisations which demonstrates an effective vehicle for sustained QI. We continue to work with our key stakeholders to adopt best practice and adapt the programme to ensure maximum impact on the care we are able to provide.

Take-home messages: The positive impact of a multi-professional approach to learning and development is being realised through better learning environments and improved quality of care.
Applying value-added methodology to medical education

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Background: For many years mainstream education has measured progress of learners both in absolute terms and considering added value. Medical education is expensive. With a greater focus on transparency and accountability, we sought to adapt and apply value-added methodology (VAM) to medical education.

Summary of Work: Robust cost analyses using evidence-based approaches are needed to inform funders and users about the utility of medical education interventions. We analysed anonymised selection (entry) and licensure (exit) examination results for trainees sitting the UK MRCGP examination. Entry data were scores from the GP selection process comprising a clinical knowledge test; situational judgement test and selection centre. Exit data was an applied knowledge test in the licensing exam. Exit data were matched to selection results and regression analyses were performed and aggregated at regional level.

Summary of Results: We demonstrate differential changes in trainee attainment at regional level, independent of entry ability. Three training providers conferred significant value-added (p<0.05), based on prior trainee attainment. By contrast, results for another training provider were significantly lower than predicted based on trainee attainment at entry.

Discussion and Conclusions: In mainstream education the introduction of VAM was highly controversial and in some areas the application has not honoured the design principles and restrictions. Establishing the principles and testing proof of concept of VAM with anonymised data will allow mature and constructive debate of the concept and possible uses.

Take-home messages: Value-added analyses demonstrate variable levels of progression of attainment between regions using methodologies from mainstream education.
Integrating educational theory into health professional curricula through an educational conceptual framework

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Background: An educational conceptual framework (ECF) explicitly identifies and articulates the educational philosophies and theories used within a program to provide direction for curriculum design and evaluation, and to explicate learning and teaching approaches. Despite widespread acceptance of their value and increasing requirements by accreditation bodies for their use, scholarship in this field in relation to health professional education is in its infancy.

Summary of Work: This paper provides a definition of an ECF, describes the process undertaken by one Canadian occupational therapy professional education program to develop an ECF and to reform the curriculum. Analysis was conducted prior to innovation which describes steps taken to disseminate the ECF within a community of educators and students.

Summary of Results: The non-linear process of ECF development identified tensions in the selection and incorporation of diverse theories in a competency-driven health professional education. Six primary approaches were included in the ECF: transformative learning theory, experiential learning, social constructivism, critical pedagogy, cognitive neuroscience, and taxonomies of learning. The ECF is now used in educational scholarship and research projects, departmental orientation, curriculum evaluation, and is available in various formats to meet stakeholder needs.

Discussion and Conclusions: Reflecting on why and how we engage in health professional education, through the development of an ECF, has the potential to guide curriculum renewal and classroom teaching, and assist in creating and progressing educational processes and programs. Scholarship and research about the impact of educational philosophy and the use of educational conceptual frameworks have the potential to improve health profession programs.

Take-home messages: Development of an ECF is a non-linear iterative process. Incorporation of diverse theories in a competency-driven health profession education is a challenging process.
Reforming educational institutions to meet health care needs of tomorrow – a Nordic initiative

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**Background:** Tomorrow’s healthcare faces major challenges, planning must include a systems perspective focusing health workers. Hence, the importance of the Lancet commission “Educating Health Professionals for the new century”.

**Summary of Work:** To meet the needs of tomorrow’s health systems and provide a basis for an action plan to guide the future educational development work in Nordic universities. This initiative started at Nobel Forum “Educating Health Professionals for the new century” at Karolinska Institutet, (KI) 2012. The follow-up workshop (2014) was hosted by Lund University both with support from The Royal Swedish Academy of Sciences, and Inter Academy Medical Panel.

**Summary of Results:** The inter-professional dialogue included executive faculty leaders, influential teachers, students, university administrators, health care leaders, clinically acknowledged physicians. Emerging themes were: The core competencies of health care professionals with a particular emphasis on patient safety and team work; Human resources for health with a systems perspective; Health in all policy especially aspects on knowledge mobility, learning environments and person centred care; The patients of the future including the ageing population. Linköping University is conducting a pilot study and the results of ongoing survey will be presented.

**Discussion and Conclusions:**
- Consensus to contribute to reforming the educational programmes in the respective context;
- Agreement to discuss next steps with representatives from major constituencies at the respective institution, in particular the leadership of the institution and student organisations.

**Take-home messages:** Health care systems develop faster than health professional education. To rectify this a Nordic process for change involving main educational institutions have been started and first results will be presented.

Evaluating curricular reform in Eastern Europe through the ‘cultural web’

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**Background:** A TEMPUS funded project to modernise medical education through curricular reform (MUMEENA) was undertaken in medical schools in Georgia, Azerbaijan & Ukraine. Despite adopting the Bologna process, little change was evident in their undergraduate curricula at the start of MUMEENA. Given the organisational challenges in this post-soviet context, it was clear that sustainable curricular reform would require a cultural shift.

**Summary of Work:** The project evaluation demonstrated achievement of aims, but to explore the extent of cultural change, a survey of staff was conducted and semi-structured interviews held with project leads. Data was analysed thematically in the light of the ‘cultural web’ (Johnson and Scholes 1997). Implicit in this are power relations which dictate how the organisation works; indicators of cultural change lie in symbolic actions (eg ceremonial events), which signal expected behaviour and substantive actions which complement talk and symbols in setting culture.

**Summary of Results:** Data analysis demonstrated that cultural change has been achieved as indicated by organisational changes in symbolic and substantive actions towards a more democratic culture; staff now feel empowered in continuing to modernise.

**Discussion and Conclusions:** In contrast to a history of imposed changes and hierarchical relationships in previous experience of soviet culture, the project has positively impacted on the cultural web, empowering staff and enabling further progress.

**Take-home messages:** Curricular reform is challenging and to be successful, must take account of organisational culture and the symbolic and substantive actions which denote this. Many projects meet short-term aims, but ongoing sustainable curricular reform also requires transforming culture and understanding of the ‘cultural web’ supports this.
Vision for improving the national model of medical education

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Background: Our analysis shows that the effectiveness of training human resources for health in the various models of medical education depend on not only the duration of the entire training period and its individual stages, but primarily on the quality of educational programs, their orientation to the formation of the necessary competencies for health professionals.

Summary of Work: In recent years, Kazakhstan has introduced the world's conventional approaches to training physicians (Bachelor in Medicine, Internship, Residency). Analysis of experience in the implementation of new curricula in medical schools of Kazakhstan indicates the presence of a number of problematic issues.

Summary of Results: The most acute problem for further medical education development is congestion of Medical schools and deficiency available space, equipment, personnel potential, clinical bases. Another important issue for the physicians training is the lack of practical training.

Discussion and Conclusions: We analyzed medical education systems in the US, UK and in our opinion in the first place it is necessary to change the quality of educational programs. Educational programs should be based on strategy to gradually improve knowledge and skills based on the formation of the spiral curriculum, providing a modular approach to the study of health issues and an integrated approach to the education.

Take-home messages: Improving the national model of medical education should be based on competence-oriented approach to educational programs and improving the supply of resources and the capacity of medical schools.
#4M7 (27985)
A Tale of Two Cities: Lessons Learned from Two Medical Schools in Two Countries

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Background: The experience in different medical schools in two countries is worth to compare even both implement similar principles. The traditional discipline-based curriculum of Ankara University Faculty of Medicine in Turkey (established in 1945) was changed to an integrated, problem-based, spiral curriculum. Alfaisal University College of Medicine in Saudi Arabia is established in 2008 and has adopted the same principles. Both schools’ curricula are arranged in blocks and both have 3 phases, phase 1 as normal structure and function, phase 2 disorders of structure and function and phase 3 as clinical clerkships. Both are 6-year programmes, with the last year as a rotating internship.

Summary of Work: Comparisons are made regarding the structure and implementation of the curriculum of two schools.

Summary of Results: Organ-system-based blocks are a good choice for the first 2 years but the third year can be more efficient if organized as symptom-based blocks to avoid unnecessary repetitions. Faculty development is a must for the success of PBL Clinical skills training can be preferred to run as a separate course, with skills related to the simultaneous blocks. Parallel courses should be avoided as much as possible in order to prevent fragmentation of the curriculum. Required content not fitting to organ-system-based blocks (e.g. Evidence-based Medicine, Biostatistics, Medical Ethics, Clinical skills) can be organized as a single separate parallel course, such as Practice of Medicine.

Discussion and Conclusions: Every medical school should consider the specifics of the faculty body, infrastructure, student size when planning curriculum. Spiral curriculum should be implemented as revisiting themes from different perspectives.

Take-home messages: Comparison of curricula of medical schools gives a good idea of possible problems in different settings.
#4N  Short Communication: Faculty Development 1  
Location: Carron 2, SECC

#4N1 (26786)  
Medical educators' experience of teaching observation and feedback: getting the climate right

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Background: The Clinical Educator Programme (CEP) is a staff development programme which supports and develops clinicians in their roles as medical educators. Individual ‘Teaching Observation and Feedback’ (TOF) sessions are a core component of the CEP. The evidence base for TOF as an effective staff development tool is sparse. It is considered most helpful when conducted in a climate of support, promoting reflection. Previous research has suggested that CEP participants highly value TOF sessions. This study further explores participants’ perceptions of these sessions in order to ensure that the experience meets their needs.

Summary of Work: An anonymous online questionnaire was created to elicit CEP participants’ experiences of their TOF session. All participants were encouraged to complete the questionnaire.

Summary of Results: The information yielded by the questionnaires will be analysed and presented. These results will give an impression of participants’ experience of the TOF process.

Discussion and Conclusions: The results of this study will afford an insight into whether the TOF provides a supportive ‘space’ within which medical educators can reflect upon their practice. This will lead to consideration of why participants experience TOF sessions as they do and how the process can be improved. Conclusions will be drawn which will direct the development of future TOF sessions.

Take-home messages: Reflection upon teaching is recognised as important for the personal and professional development of medical educators. Peer, or near peer, observation and guided reflection may improve standards in medical education.

#4N2 (27993)  
A Comprehensive Approach to Faculty Development to Support Implementation of a New Innovative Longitudinal Integrated Clerkship in a Large Urban Academic Centre: Key Components and Strategies

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Background: University of Toronto Faculty of Medicine has launched a new longitudinal integrated clerkship (LIC) pilot program in a large urban academic centre in parallel with the current block clerkship. Faculty Development (FD) was identified as a key enabler for implementation success. The available FD literature lacks clarity regarding the key components and strategies required for a successful LIC FD plan.

Summary of Work: Five steps were used to design the FD program: (1) Literature Review; (2) Situational Analysis (Analysis of the new curriculum, Health Care Environment, and preceptor roles and responsibilities); (3) Identification of what will be changing for faculty and other stakeholders; (4) Development, implementation and piloting of a preliminary FD program; and (5) Revision of FD program with intention to transfer to 4 new LIC sites.

Summary of Results: A comprehensive FD Program was developed with key components and multiple strategies including: webinar, workshop, mini-pod casts, just-in-time EduCafes, newsletters, and departmental presentations. Three core areas needed to be addressed: (1) faculty engagement by fostering awareness and desire to participate; (2) providing relevant information for specific roles and responsibilities; (3) supporting faculty to develop new or enhance existing abilities.

Discussion and Conclusions: A systematic approach was used to identify key components and strategies for a comprehensive LIC FD program. Challenges and opportunities experienced when designing a FD strategy in parallel to curriculum development and implementation will be discussed.

Take-home messages: FD is a key strategy for successful new curriculum implementation and needs to be considered early on in the design process.
#4N3 (27710)
Innovative medical school-wide Faculty Development program for enhancing bedside teaching and feedback skills - The Bar Ilan University Faculty of Medicine in the Galilee experience

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Background: Most clinical teachers in our new medical school, lack previous clinical teaching experience, and need to effectively acquire relevant skills and attitudes. In collaboration with our National Medical Simulation Center (M.S.R), we developed a two-step approach to address this issue.

Summary of Work: Twenty five train the trainer (TTT) selected facilitators from our 4 teaching hospitals were trained during June-July 2014 in a 3 days simulation-based workshop. Subsequently, a two half days workshop facilitated by the TTT course graduates, featuring a bedside teaching model and a feedback model using role play and video clips produced in the TTT training was launched for all clinical teachers.

Summary of Results: Through February 2015, 109 clinical teachers were trained in both programs. A self-evaluation (before-after) of skills and attitudes shows positive change and a survey documents high satisfaction rates. By September 2015 most of the remaining 200 clinical teachers are scheduled to take the training too, and the cumulative self-evaluation and satisfaction results as well as students evaluations of these teachers before and after the training will be available.

Discussion and Conclusions: The training is planned to address the needs and constraints of busy clinical teachers. It is reaching its objectives with some difficulty in recruitment and retention of the busy participants for the full training.

Take-home messages: Interactively training 300 clinical teachers of a new faculty of medicine, based on our two-step approach is feasible and acceptable.

#4N4 (27660)
The motivational factors for the participation in the course “Art of medical education”: a qualitative study

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Background: «The art of medical education» is basic course for young and un-experienced 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 analysis 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, intrinsic desire for a new knowledge and skills; 3) combination of obligation and intrinsic motivation; 4) Coming together and accompanying with the colleagues.

Discussion and Conclusions: Different motivational factors should be appreciated in the development and delivering any staff-development activities. A naturalistic and narrative codes coming from the analysis will be present and discussed.

Take-home messages: How to transform obligation into the intrinsic interest?
#4N5 (28304)
Leveling the Playing Field, Online Faculty Development for a New Course in a Geographically Dispersed Medical School

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Background: Indiana University School of Medicine (IUSM) is honored to be one of 11 schools selected to receive a $1 Million grant from the American Medical Association, Accelerating Change in Medical Education (AMA-ACE) grant program. Working with the Regenstrief Institute (a medical informatics research organization) and with enthusiastic support from our health systems partners (Eskenazi Health and Indiana University Health), we have created a teaching electronic medical record (tEMR) populated by 10,000 misidentified patient records to use as a learning lab. It is critical to provide high quality faculty development as this material will be taught at 9 distinct campuses and traditional medical school faculty are ill prepared to teach about systems based practice.

Summary of Work: The Jump Start curriculum is delivered through two daylong retreats, a series of 12 online educational modules and a project in which the faculty (Quality Systems Coaches) are embedded within their local healthcare systems. Faculty will learn about small group facilitation, student development, ethics, healthcare finance, health disparities, population health, quality improvement, patient safety and other elements of systems based practice in addition to being trained in the use of the tEMR. Health systems leaders across the state have agreed to mentor the QSCs.

Summary of Results: 33 QSCs are engaged in the Jump Start program.

Discussion and Conclusions: Faculty enthusiasm for the curriculum is evident by requests to starting using the tools provided in their current teaching roles

Take-home messages: A hybrid approach can overcome distance barriers in faculty development

#4N6 (28262)
The Evaluation of Mentoring as a Faculty Development Strategy: A Preliminary Study

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Background: There have been increasing literature on mentoring as a formal faculty development strategy, mostly in western countries. Very few were discussed within Asian contexts. National Cheng-Kung University, College of Medicine initiated a mentoring program for junior faculty in 2011. This study is to evaluate its efficacy and understand the experiences of the mentor and the mentee.

Summary of Work: We adopted a mixed-method design. Questionnaires with five-point Likert scale were sent to the faculty/mentee to anonymously examine their level of satisfaction and perceived helpfulness with the program. 93 surveys were sent out and fifty were returned, with a response rate of 50%. Descriptive statistics and Chi-square were used to examine the distribution and relationship of personal characteristics and responses to the questionnaire. Six faculties participated in in-depth interviews via convenient sampling. It was to understand the mentor and the mentees' experiences with mentoring. The interview were transcribed in verbatim and analyzed with content analysis, with the assistance of Atlas.ti (Mac OS V1.0.11).

Summary of Results: The results of the questionnaire survey showed an overall high level of satisfaction and perceived helpfulness. The data revealed not only the benefits perceived by the mentee, the characteristics of a mentor appreciated by the mentee, but also the challenges junior faculty faced. A surprise finding was that lack of prior familiarity with the academic life and the university negatively affected the experiences of new faculty and their adjustment.

Discussion and Conclusions: The allocation of mentoring resources needs to consider the level of experiences the faculty has with the academic system and the university.

Take-home messages: Mentoring program needs to be individualized.
Clinical teaching of undergraduate medical students: how do clinicians do it?

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Background: Much clinical teaching is conducted by clinicians primarily employed for patient care. Many of these clinicians have not been formally prepared for their teaching role. A situational analysis of clinical teaching could serve as a starting point for designing faculty development activities to support clinicians in strengthening their role as teachers in the clinical context. We sought to understand current pedagogical strategies used by clinical teachers in the clinical teaching environment.

Summary of Work: Ethics approval was obtained for audio recording of bedside clinical teaching encounters of undergraduate medical students at an academic teaching hospital. Clinicians gave consent to be recorded over a period of time, but were not informed of exactly when the recording might occur. The recordings were transcribed and the data then plotted against Nilsson's framework of pedagogical strategies.

Summary of Results: Of the seven strategies, those employed predominantly were “question and reply”, “prompting” and “lecturing”. Occasionally “demonstration” was used as a teaching strategy. The data revealed rich information about the nature of clinical teaching. This included teaching opportunities unrecognized by the teachers; limited involvement and recognition of the student role; infrequent deconstruction of clinical reasoning.

Discussion and Conclusions: The practice of teaching in the clinical area is not yet well understood. There seems to be a wide variation in teaching skills and approaches. The information provided by this research has enriched our understanding of the current status of clinical teaching.

Take-home messages: We will be able to use this new understanding to inform the design of more specific faculty development activities directed towards strengthening clinical teaching skills.
#4O Short Communications: The Student and Self-Regulated Learning
Location: Dochart 1, SECC

#4O1 (27689)
Assessing self-regulated learning and clinical reasoning in a virtual patient case

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Background: A shift towards competency-based medical education puts greater demands on trainees’ ability to self-regulate learning. Emerging literature indicates that deficits in self-regulated learning (SRL) – particularly inadequate self-monitoring and poor planning – hamper learning and performance. This study tracked medical students’ self-monitoring as they completed several subtasks in a virtual patient case.

Summary of Work: 168 first-year medical students completed a virtual case. Students were asked to self-monitor their performance after completing the patient history and physical exam. A calibration score reflecting self-monitoring bias (over or under estimates) was operationalized as the discrepancy between perceived and actual performance on each subtask. To examine how calibration changed across subtasks, a two-level regression analysis with measurement occasion (patient history and physical exam) nested within participants was performed.

Summary of Results: On average, students overestimated their performance on the patient history portion of the case but provided much more accurate self-monitoring scores for the physical exam.

Discussion and Conclusions: These results corroborate findings from other domains; that accurate self-monitoring requires some knowledge of the domain and type of learning task. In this study, it seems trainees knew less about history taking (hence less accurate self-monitoring scores) than they did about physical exams. These findings also suggest that as students proceed through the case, they may become more aware of what they know and of what they don’t know.

Take-home messages: Since accurate self-monitoring is a prerequisite for effective SRL, medical students may need additional instructional supports – when dealing with a new type of learning task – to provide them with cues to engage in more accurate self-monitoring.

#4O2 (28163)
Travel by Exchanges: A Pattern for Student Self-regulated Learning

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Background: Since we put a price on things that values, medical students tended to consider practicing medicine as business but not service, with less and less focus on the relationship between people. Building relationship with strangers during travel offer the undergraduates an opportunity to remodel their personality.

Summary of Work: A group of medical students from Taiwan voluntarily organized a five-day trip whose aim was to travel by exchanging goods or services without using money. Bartered for food, transport and accommodation with meeting the demand of residents, students also preparing daily group counselling curriculum for supporting mental development. A qualitative research methodology was applied in this study, which was evaluated by a questionnaire survey and an in-depth interview.

Summary of Results: Travel involved psychological group counselling had a positive impact on medical undergraduates’ personality and competence in various aspects. Feedback from students found that they had significantly improvement on seeing the needs of others and valuing the relationship between people.

Discussion and Conclusions: As travel being a popular leisure for students, learning while travelling developed personality of medical students and increased students’ enthusiasm and spontaneity. Supported by group counselling, travelling by exchanging priceless services can be guided to an effective pattern for student self-regulated learning which will enable medical students to acquire the competence of being a good doctor.

Take-home messages: Travel by exchanging helps students to become a benevolent tomorrow’s doctor.
Self-regulatory processes and performance of 1st year medical students in the laboratory: an exploratory study

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Background: Self-regulated learning (SRL) requires a dynamic and proactive use of several processes to optimize performance. Our goal was to evaluate a potential association between SRL processes and performance of first year medical students in a previously unexplored context: the wet science laboratory.

Summary of Work: SRL processes making a solution dilution with micropipettes were identified using SRL-microanalysis. The SRL-microanalysis protocol assessed strategic planning, goal setting, metacognitive monitoring, self-evaluative standards, satisfaction and attributions during the task. A purposive sample (n=19) was chosen to represent high and low performers in a prior laboratory skills exam.

Summary of Results: Successful performers of the dilution task had strategic thinking and were concerned with their technique in performing the dilution. In contrast, the unsuccessful students’ main concern was on reaching the correct outcome, they paid little attention to the use of their technique.

Discussion and Conclusions: There were differences in the use of SRL processes between successful and unsuccessful performers of the dilution task. SRL-microanalysis was a useful tool to assess SRL processes in the laboratory context. There are implications for providing feedback and further research is recommended across a range of laboratory tasks.

Take-home messages: Learning laboratory skills requires the development of SRL skills.

Can learning and self-regulating competencies in the critical entry phase of medical studies be fostered by a guided training in “Learning to Learn”? – a mixed-method analysis

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Background: Learning is an essential, life-long developable competence. Entering academic studies is a critical situation that requires transformation of learning.

Summary of Work: Students and staff developed a guided training in “Learning to Learn”. It addresses physiological, psychological and spiritual fields that are known to relevantly contribute to learning improvement as well as learning techniques.

Summary of Results: N=138 students of different faculties (N=88 medical) participated from 2011 to 2014. A mixed-method evaluation of medical students N=39 (return rate 44%; 79% studying in semester 1-4) demonstrated rating of the training with 1,5 (1 – very good, 6 – unsatisfactory). Qualitative content analysis of responses (N=23; 69% female) of the question “Why are you (not) satisfied?” showed codes in the categories metacognition (e.g. awareness), cognition (e.g. learning methods), motivation, emotion (e.g. joy), and volition (e.g. handling).

Discussion and Conclusions: Despite the limitations (e.g. only self-evaluation perspective, no follow-up) considerable effects were stated at the end of the 6-weeks training. They refer to the concept and categories of self-regulated learning (e.g. Boekaerts 1999). Medical students, most of them at the beginning of their studies, experienced the guided training as being beneficial to develop learning competencies. The guided training “Learning to Learn” might deliver a useful and transferable concept to support students in their transformation of learning while entering their studies. Further qualitative in depth analyses in the long run as well as quantitative analyses on performance in assessment should be conducted. Validated instruments for researching self-regulation should be applied.

Take-home messages: Guided training of students’ learning competencies during the phase of entering university showed beneficial for self-regulated learning in students’ self-evaluation.
#4O5 (27896)
Competencies for developing self-directed learning skills in medical education – an analytical review

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Background: Self-directed learning is one of the most popular areas discussed in educational literature. It is a continuous developmental process, and key learning style in medical education to maintain lifelong competency.

Summary of Work: Self-directed learning involves progressive, learner-centred activities, which instil confidence, understanding, critical thinking, and better outcomes. This review was undertaken to identify the essential competencies of self-directed learning in medical education and to promote educational practice. The key review question was, “What are the domains and competencies that influence self-directed learning?” All sources were thoroughly searched from 1900 to 2014 to identify key skills of self-directed learning, and a substantial number of heterogeneous papers (104 articles) were scrutinised for relevance.

Summary of Results: We present a review that comprehensively unravels the requisite competencies required for a medical professional to be a self-directed learner in the present milieu.

Discussion and Conclusions: Encouraging self-directed learning in medical education prepares the medical professional to be a life-long learner, to provide quality health care, and to reinforce the trust of the society in the medical profession. This evidence-based review will help to explore the implications for practice and pave way for further research avenues in self-directed learning in medical profession.

Take-home messages: Competencies for self-directed learning prepare medical students to adapt to become the future adept medical professional.

#4O6 (26309)
Student perceptions of high-frequency learning goals in a clinical clerkship

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Background: Learning goals, strategic planning, and self-monitoring are critical components of self-regulated learning (SRL). Using a high-frequency timeframe to generate and implement learning goals can promote self-monitoring.

Summary of Work: All students in our neurology clerkship were asked to write two to three specific learning goals per week that they shared with their attending and residents for feedback and incorporation into the week’s activities. Students were asked to generate specific plans for implementation and tracking as part of each goal. At the end of each neurology clerkship from October 2013 to June 2014, students were given a survey regarding the effects of the learning goals.

Summary of Results: Seventy-five students (91% of clerkship students) completed the survey. Eighty-five percent reported that the goals increased their awareness of their thoughts and actions. Seventy-seven percent reported that the learning goals helped to improve their clinical performance, and 56% reported that the learning goals increased their focus on patient care. Students often commented that feedback and collaboration from their team regarding their goals was a key element for successful learning from their goals.

Discussion and Conclusions: The majority of medical students in our neurology clerkship felt that weekly learning goals increased their self-monitoring and helped to improve their clinical performance. Collaborative engagement with supervisors seems to be an important element for goals to be effective.

Take-home messages: High-frequency learning goals can be an effective tool in teaching SRL in a clinical setting. Implementation of this type of a program should focus on generating collaborative interactions.
Identifying “Conceptions of Learning” to Determine the Management of Teaching

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Background: This study aims to get an overview of students characteristic to determine the management of teaching.

Summary of Work: The survey was conducted in the medical school of Muhammadiyah Jakarta University. 118 medical students were selected randomly. They were given code as their identities and were asked to fulfill an Vermunt’s ILS (Inventory Learning Style) questionnaire which were scored using Likert scale and calculated to be the final score. It described the level of conception of learning i.e. construction of knowledge, intake of knowledge, use of knowledge, stimulating education, and cooperative learning.

Summary of Results: The results of construction of knowledge, 16.1% had final score 4 and 5 which is characterized that learning is one own responsibility to construct knowledge. 77.2% were scored 4 and 5 in the "intake of knowledge" which means that mostly of subjects put learning is both students’ and teachers, responsibility. 42% of subjects were classified into final score 4 and 5 in the use of knowledge which learning is seen as tasks of both students and teachers. In “Stimulating education”, 65.3% were scored 4 and 5 which explains that students dependent on the stimulating role of teachers and textbook authors. 76.3% were scored 4 and 5 in “Cooperative learning” that put a value of cooperation and sharing with fellow students.

Discussion and Conclusions: Most of students think that learning is teachers' and students' responsibility. The management for this condition should be focused on increasing awareness of students and guiding students to be able to stimulate learning by them self gradually.
#4P  Short Communications: Professional Identity Formation

Location: Dochart 2, SECC

#4P1 (27118)

Students' early experience of medical school: adjustments and identity

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Background: While it is known that starting medical school can be stressful, the subjective complexity of this transition is relatively under-studied. This paper presents the start of a planned longitudinal study looking at how students experience change, and develop into medical students, then doctors, through their time at medical school.

Summary of Work: A random sample of 14 first year medical students was selected from respondents to an earlier questionnaire. Narrative interviews were conducted in November 2014, in which participants were asked to describe their experiences of the first two months of medical school, including their identity as a medical student, what had attracted them to medicine, and their anticipation of the next 5 years.

Summary of Results: Thematic analysis is ongoing, but preliminary findings suggest that while there are some consistent themes, the experience of new medical students varies. Common experiences related both to academic and personal adjustment, to new ways of working and to new social groups. However, individual descriptions of the stress involved varied, some experiencing it acutely, others seeing it as a relatively minor concern to be worked through but. Participants also varied in the development of their identity as a medical student.

Discussion and Conclusions: The process of becoming a medical student has common stresses associated with adaptation to a new academic and social environment. However, subjective perception and experience of these changes varies, and student experience should not be seen as homogeneous.

Take-home messages: While all students experience change when they start medical school, the intensity, pace and impact of that change varies between individuals.

#4P2 (27825)

The development of professional identity, becoming a surgeon

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Background: Becoming a surgeon takes many years of post-graduate training and involves a professional transition. During the last 14 years I have become a 'surgeon' rather than as I started as a 'surgical doctor' yet, when was this change and what are the markers of it. Log books of operative experience, lists of competencies and postgraduate exams may provide evidence of workplace based learning but none of these parameters render this professional transition transparent. This study explored the attitudes and behaviours associated with 'becoming a surgeon' and attempts to articulate features of this professional transition.

Summary of Work: This qualitative interview study sought to explore attitudes and behaviours learned during the course of surgical training. Interviews were conducted with junior and senior surgeons iteratively and were analyzed using a grounded theory method.

Summary of Results: Surgeons discussed personal values and attitudes that were regarded a part of 'becoming a surgeon'. They described learning to deal with pressure and stress, learning to cope with time constraints and learning attention to detail, a perfectionist attitude to their work. Surgeons clearly articulated that these attributes were learned rather than intrinsic to individuals drawn to surgery as a career.

Discussion and Conclusions: The results of this study are discussed with reference to apprenticeship theory, competency based curricula are problematized and professional identity construction discussed with reference to transformative emancipation.

Take-home messages: Despite the vogue for competency based curricula professional transitions are an area in which implicit learning is at the heart of acquisition of a new identity.
#4P3 (27051)
Trustingly bewildered. First-year medical students’ reflections on the ideals of medicine and the realities of medical school

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**Background**: The present study documents first-year preclinical medical students’ experiences of and reflections on teaching and professional identity development within a 6-year medical curriculum.

**Summary of Work**: We conducted four focus group interviews, asking students to reflect on the characteristics of good physicians, and on their experience of teaching methods and guidance by faculty.

**Summary of Results**: The students conveyed a strong belief that the curriculum of the first year would be of use to them. At the same time they were bewildered and said their non-medical teachers hardly ever explained how the basic sciences would be of use in their future profession. According to the students the good doctor should see his patient as a person. On the other hand they experienced being “lost in the crowd” and “not seen” by teachers.

**Discussion and Conclusions**: Professional identity develops through engaging with role models and studying the official as well as the unofficial and hidden curriculum. While diligent and compliant, first-year medical students in Bergen seem to be confused by the lack of contact with physician role models and from not understanding how the basic sciences apply in their profession. Despite a considerable degree of intellectual bewilderment they conveyed uncritical trust in the quality of their medical education.

**Take-home messages**: Our study indicates that deep trust in the authority of medicine and university teaching makes it difficult for first-year medical students to identify and act upon defects in teaching and professional supervision.

#4P4 (27730)
Influences of the clinical learning environment on medical students’ professional identity formation

Matilda Liljedahl*, Karolinska Institutet, Department of Learning, Informatics, Management and Ethics, Stockholm, Sweden
Erik Björck, Karolinska Institutet, Department of Molecular Medicine and Surgery, Stockholm, Sweden
Sari Ponzer, Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset, Stockholm, Sweden
Klara Bolander Laksov, Karolinska Institutet, Department of Learning, Informatics, Management and Ethics, Stockholm, Sweden

**Background**: During clinical placements, students are expected to learn the knowledge, skills and attitudes needed for their future profession. In the medical education literature however, increasingly attention is given to the identity formation process students undertake during clinical placements as something more than only acquiring competencies.

**Summary of Work**: In this qualitative research study, we explored how medical students’ professional identity formation was influenced by the clinical learning environment. Extensive field work with observations and interviews with students, supervisors and clinical managers was carried out as well as a thematic analysis of the data.

**Summary of Results**: We found that students were influenced in a number of ways during clinical placements; to become adaptive to situations by being marginalized, to develop independence as they distanced themselves and to evolve flexibility as they learn how to deal with complexity. Students were influenced through the interactions with supervisors, peers and other health care professionals.

**Discussion and Conclusions**: This study provides an in-depth exploration of how students develop their professional identity and was strengthened by the rich empirical data and thorough analysis. We conclude that learning in an authentic setting should be considered a crucial part of becoming a doctor, not only due to the acquisition of knowledge and skills but rather because of the important identity formation and socialization taken place in the health care setting.

**Take-home messages**: Clinical placements are crucial for students’ development into the identity of being a doctor.
#4P5 (26535)
Grappling with Complexity: Medical students’ reflections about challenging patient encounters as a window into professional identity formation

Hedy S. Wald*, Warren Alpert Medical School of Brown University, Family Medicine, Providence, USA
Jordan White, Warren Alpert Medical School of Brown University, Family Medicine, Providence, USA
Shmuel P. Reis, Bar-Ilan University Faculty of Medicine, Faculty Development Unit, Safed, Israel
Angela Esquibel, Warren Alpert Medical School of Brown University, Family Medicine, Providence, USA
David Anthony, Warren Alpert Medical School of Brown University, Family Medicine, Providence, USA

Background: Guided reflection is a key driver of the active constructive, developmental PIF process. Interactive (guided) reflective writing (RW)-enhanced reflection supports PIF in health care professions education. Students write about a “challenging” patient encounter within RW curriculum in our Family Medicine Clerkship (FMC).

Summary of Work: We used qualitative grounded theory to analyze RW themes of early and late third-year FMC students. Two narrative groups were collapsed into one given noted lack of significant thematic differences (N = 50). Categorized themes were applied to an emergent theoretical model of PIF process.

Summary of Results: Thematic categories included Role of Emotions/Cognitions, Relationships/Primary care characteristics, Behavioral responses to situational context, Grappling with medicine’s “unfinished business,” More nuanced perception of patient care interactions, Tolerating/managing spectrum of emotions/cognitions, and Building emotional resiliency. RWs revealed preceptor communication subtleties impacting students’ PIF.

Discussion and Conclusions: The PIF model (thematic analyses-based) consisted of “Input” to PIF process, ie. Internal (students’ characteristics)/External Factors, “Process,” ie. reflection on physician-patient interaction complexities, emotional process of “becoming,” creative tension within PIF and “Emergence,” i.e. noticing and self-discovery/self-knowledge within PIF. Medical students’ RWs reveal grappling with complexity as a “positive hidden curriculum” and are a “window” into transformative PIF process for a humanistic/reflective/resilient practitioner. Findings can help develop preceptors’ modeling positive, adaptively flexible responses to challenging patient encounters.

Take-home messages: Third-year students undergo dramatic changes with transition from students to practitioners. RW-enhanced reflection scaffolds PIF. Preceptor communication subtleties impact students’ PIF. Grappling with complexity is a positive formative hidden curriculum for PIF.

#4P6 (24754)
Nurse Professional Identity in Undergraduate Nursing Education

Maria Antonina Roman*, Fundacion Universitaria Juan N. Corpas, Cundinamarca, Bogota, Colombia

Background: There is inadequate recognition of the nursing profession that has led it, in the opinion of the author, to low self-esteem and therefore, to a weak professional identity. The literature refers to the importance of education in strengthening professional identity, but not about how to strengthen it from the undergraduate-nursing programs.

Summary of Work: This doctoral research aims to propose an educational strategy that helps strengthen professional identity in nursing students and, in this way, seeks to contribute to self-recognition, group identity and self-esteem, as some of the factors involved in shaping identity.

In the quantitative stage of this research, through an online survey, we explored aspects of undergraduate education in nursing and applied a Professional Identity Scale to nurses in different regions of Colombia. These results were deepened through semi-structured interviews conducted to nurses with experience and teaching training.

Summary of Results: Until now, there have emerged aspects as poor social recognition, low participation in professional associations, teamwork weaknesses and gaps in disciplinary training, among others.

Discussion and Conclusions: Currently, we are in the last stage of the research, in which we are designing the educational proposal for an undergraduate program, based on various theories of education and considering aspects as liberal education; interprofessional education; identity as a human need (Max Neef et al); social identity theory (Tajfel and Turner) and Bonding into Nursing theory (Gregg).

Take-home messages: It is important to look for strategies for strengthening nurse professional identity from undergraduate nursing programs in order to empowering future professionals.
#4R Conference Workshop: Converting Your Teaching and Assessment Materials into Educational Scholarship through MedEdPORTAL (28196)

Location: Castle II, Crowne Plaza

Robby Reynolds*, Association of American Medical Colleges, Medical Education, Washington, DC, USA  
Christopher Candler*, University of Oklahoma College of Medicine, Academic Affairs, Oklahoma City, Oklahoma, USA  
John Nash*, Association of American Medical Colleges, Medical Education, Washington, DC, USA  
Maryellen Gusic*, Association of American Medical Colleges, Medical Education, Washington, DC, USA

Background: In this interactive workshop, attendees will engage with the editor of MedEdPORTAL and Association of American Medical Colleges (AAMC) staff and join in a hands-on exercises designed to help participants turn their educational materials into peer-reviewed publications that can be used for educational scholarship and promotion. MedEdPORTAL (www.mededportal.org) is a free, global online service that consists of Publications, iCollaborative and the CE Directory.

Intended Outcomes: Participants will be able to:
1) Describe the differences between the MedEdPORTAL services: Publications, iCollaborative, and CE Directory;
2) Delineate the steps to submit an educational resource for publication in MedEdPORTAL;
3) Interpret and address MedEdPORTAL’s Publications peer review criteria;
4) Cite and demonstrate the impact of MedEdPORTAL Publications as an example of educational scholarship.

Structure: The authors will present an overview of MedEdPORTAL, allowing attendees to participate in a hands-on exercise to determine the “best fit” for various types of resources. After reviewing criteria related to copyright and the protection of patient privacy, participants will apply these criteria in a problem solving exercise. A brief review of the definition of educational scholarship, min small groups, the audience will discuss how to describe a scholarly approach in submitting materials to MedEdPORTAL for peer review and how to document publication on one’s curriculum vitae. Having walked through the entire process from submission to publication, participants will leave with the tools to publish, cite and demonstrate the impact of their educational work.

Who Should Attend: Faculty, Administrators, and Health professions learners
Level: Introductory

#4S Conference Workshop: Longitudinal placements in rural primary care in Europe (27805)

Location: Castle III, Crowne Plaza

Robert McKinley*, Keele University School of Medicine, Keele, UK  
Richard Hays*, University of Tasmania, Hobart, Australia

Background: Compared to ‘traditional’ short rotations though multiple specialities, longitudinal integrated placements or clerkships (LICs) increase students’ exposure to common conditions, their patient centeredness and team skills, both their and their tutors satisfaction with learning and teaching. Furthermore students on longitudinal clerkships perform at least as well in examinations. Rural placements may offer further advantages of increasing engagement and participation with under-served populations. While the number of LICs has increased in North America and Australia, there are as few as three such clerkships in Europe: one is at Keele but is substantially adapted for a European context. Establishing a LIC is challenging, particularly in rural communities. This workshop will allow for sharing of experiences and networking with others interested in developing LICs.

Intended Outcomes:
1) Understanding of the drivers for and barriers to establishment of longitudinal clerkships in general practice in a UK/EU context; and
2) Identification of strategies to promote longitudinal clerkships as a viable option for curriculum delivery.

Structure: Brief introductory presentations on the attributes of a longitudinal integrated clerkship (RH) and the Keele longitudinal clerkship in general practice (RKM). Facilitated table discussion of drivers for and intra- and extra-institutional barriers to their establishment and how they may be overcome. Table discussions will be shared with the whole group and applied to a case identified from the participants.

Who Should Attend: Medical school directors of primary care or of curriculum or undergraduate programmes, directors and managers of workforce planning
Level: Intermediate
#4T Conference Workshop: Blended learning: a method to enhance learning and overcome challenges (27565)

Location: Gala 1, Clyde Auditorium

Ahmad Alamro*, Qassim University, Qassim Medical School, Medical Education, Oyoun Aljewa, Saudi Arabia
John Sanders*, The University of Sheffield, Medical School, Academic Unit of Medical Education, UK

Background: Blended learning, through the use of an online facilitated collaborative learning environment, can be used to enhance knowledge construction and helps evolving students’ different skills through a facilitated collaborative learning environment. The literature, also, shows the need for blended learning to overcome some challenges in some schools.

Intended Outcomes:
1. Appreciate the importance of social constructivism theory, community of inquiry framework, and blended learning for effective online knowledge sharing and learning in an online discussion forum
2. Understand the key design and activity principles of how to develop effective online knowledge sharing and learning in an online discussion forum
3. Understand the key collaboration skills to develop effective online knowledge sharing and learning in an online discussion forum
4. Apply a practical tool to evaluate the extent of knowledge sharing and construction in an online discussion forum

Structure: This interactive and hands-on workshop will consist of a short introductory presentation and a series of small group activities to give participants the practical opportunity to develop both their online discussion forum facilitation skills and also their skills to evaluate the extent of online knowledge sharing and construction. A plenary session will allow participants to consider how they can use this blended learning approach in their own context, including the advantages and limitations of a blended learning approach.

In this workshop, we will share with participants an innovative research project that has shown that there is increased knowledge sharing and learning by integrating a facilitated online discussion forum between face to face PBL sessions.

Who Should Attend: Medical teachers interested in the integration of online approaches in face to face teaching.

Level: Intermediate

#4U Conference Workshop: Cracking the conundrum of assessment in interprofessional education: Structure, function and outcome (26474)

Location: Gala 2, Clyde Auditorium

Susan J. Wagner*, University of Toronto, Speech-Language Pathology, Toronto, Canada
Brian S. Simmons*, University of Toronto and Sunnybrook Health Sciences Centre, Standardized Patient Program and Pediatrics and Women and Babies Program, Toronto, Canada
Scott Reeves*, Kingston University, London and St. George’s, University of London, Centre for Health and Social Care Research, Kingston Upon Thames, Greater London, UK

Background: The interprofessional education (IPE) literature has expanded significantly in the past few years to provide a rich variety of evaluation studies, however, efforts to produce rigorous assessment of IPE learning continues to be a challenge. At present, most IPE assessment is focused on learner self-assessment that only provides a perception of what the learner thinks s/he may have learned. These struggles with assessing IPE are rooted in a number of factors, however, the principles of assessment should be adhered to in any IPE activity.

Intended Outcomes: Identify key issues related to assessing performance in IPE
Describe a new Structure-Function-Outcome Model of IPE assessment
Reflect on the application of milestones and EPAs to this model

Structure: This workshop provides an exploration of key issues related to the assessment of IPE. It considers the processes of designing and implementing an IPE assessment focusing on structure (individual), function (team) and outcome (task). This clinical competency continuum model is illustrated employing the concept of milestones and entrusted professional activities (EPAs) in a performance framework.

Application to Participants’ Own Contexts

Who Should Attend: Health profession educators interested in assessment, competencies and interprofessional education

Level: Introductory
#4V  Conference Workshop:  
Interprofessional clinical skills (27999)

**Location:** Staffa, Crowne Plaza

**Stijntje Dijk**, International Federation of Medical Students’ Associations (IFMSA), Rotterdam, Netherlands  
**Bárbara Villela**, International Pharmaceutical Students’ Federation (IPSF), Amsterdam, Netherlands  
**Sarah Krones**, International Veterinary Students’ Association (IVSA)  
**Kornelija Macevičiūtė**, International Federation of Medical Students’ Associations (IFMSA)

**Background:** Interprofessional education has become a buzzword, however sometimes the discussions stop at the moment when we agree that it is important to create interprofessional collaborations without concrete outcomes. Within this workshop, run by multiple healthcare students’ associations, we aim to use the example of clinical cases as a source of discussion for finding new and innovative ways of enhancing interprofessional education at an undergraduate level.

**Intended Outcomes:** Encouragement of interprofessional education and teams resulting in better patient care.

**Structure:** This workshop is an initiative of the World Health care Students’ Alliance, a collaboration between IPSF, IADS, IVSA and IFMSA  
5min: Explanations on how the workshop will work.  
15min: Introduction to the topic of interprofessional collaboration, looking into the background knowledge and roles within faculty of the attendees as well.  
5min: Division of participant in groups according to field of practice and level of experience. Assignment of clinical cases.  
Clinical cases will be developed in order to contemplate interprofessional work among doctors, pharmacists and veterinarians, such as not limited to:  
Tuberculosis;  
Rabies;  
Histoplasmosis.  
Antibiotic resistance  
40 min: Discussion among teams and “patient” (actor).  
20 min: Presentation of cases from each group.  
30 min: Discussion on the benefits and difficulties of learning in interprofessional teams and setting up educational programs  
**Who Should Attend:** Students and young professionals; faculty members; educational researchers, and all those wanting to learn more about clinical skills in interprofessional groups.  
**Level:** Introductory

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#4W  Conference Workshop:  
Everything You Always Wanted to Know About “Cronbach’s Alpha” But Were Afraid to Ask (26335)

**Location:** Shuna, Crowne Plaza

**Zineb M Nouns**, University of Bern, Institute of Medical Education, Department of Assessment and Evaluation, Bern, Switzerland  
**Stefan K Schauber**, University of Oslo, Centre for Educational Measurement (CEMO), Oslo, Norway

**Background:** As Cronbach’s Alpha is the most widely known indicator of reliability in medical education assessment, the central aim of this workshop is to provide an accessible introduction to Cronbach’s Alpha through hands-on examples. According to general standards, an Alpha of at least 0.8 is deemed necessary for high stakes examinations. Such recommendations are often challenged in practice where high values of Alpha may be difficult to achieve. This workshop will provide attendants with an understanding of Cronbach’s Alpha that helps to answer questions such as: What does Alpha actually mean? Does a high Alpha imply a good exam? What are reasons for a low Alpha and why is it sometimes difficult to achieve a high Alpha? What is the role of dimensionality in Alpha? Why does Alpha vary across exams?

**Intended Outcomes:** 1) Provide answers to how Alpha is calculated and what it actually “means”.  
2) A basic understanding of this very important index and the ability to decide when and how to use it.  
3) Never being afraid of a formula again.

**Structure:** The workshop will be highly interactive. After a short input from the facilitators, the participants will calculate, discuss, and elaborate on easy worked-examples.

**Who Should Attend:** Medical educators involved in assessment. Academic staff dealing with quality insurance of exams. Novices interested in psychometrics and everyone with a basic knowledge of 7th grade math. **Please bring a calculator (smartphone is fine).**  
**Level:** Introductory
#4X  Conference Workshop:  
Diagnosing and managing the trainee in difficulty (24636)  
Location:  Jura, Crowne Plaza  

Ian Curran*, General Medical Council, Directorate of Education & Standards, London, UK  

Background:  This workshop will explore general principles and practical issues associated with the presentation, impact and remediation of learners, trainees or doctors in difficulty. A diagnostic framework will be introduced. Management options and successful remediation approaches will be considered. An exploration of faculty behaviour will allow a deeper discussion regarding optimal behaviours.  

Intended Outcomes:  1) A vibrant facilitated discussion of key issues.  
2) An exploration of the main principles 
3) An awareness of a simple diagnostic framework  
4) A pragmatic management framework  
5) An introduction to optimal behaviours amongst faculty  

Structure:  A facilitated group workshop allowing attendees to share experiences and challenges. The forum will encourage dialogue and discourse. Cabaret style seating will enable small group work and plenary discussions. There will be brief presentations to introduce and summarise key issues and principles.  

Who Should Attend:  Senior faculty members, Educational leaders, Training Programme Directors, Clinical & Educational Supervisors.  
Level:  Advanced

#4Y  Conference Workshop:  
Advanced Clinical Reasoning Case Construction and Teaching (26557)  
Location:  Barra, Crowne Plaza  

Wayne Craig Hazell*, University of Queensland, The Prince Charles Hospital Clinical School, Medical Education, Brisbane, Australia  
Alka Kothari*, University of Queensland, The Redcliffe Hospital Clinical School, Department of O&G, Brisbane Australia  
Shu Woan Lee*, Changi General Hospital Singapore, Accident and Emergency Department, Singapore  
David Elliot*, The Prince Charles Hospital, Emergency Department, Brisbane, Australia  
Mark Harkin*, The Prince Charles Hospital, Emergency Department, Brisbane, Australia  
Maeve Ahern*, The Prince Charles Hospital, Medical Education Department, Brisbane, Australia  

Background:  The lead presenter has been part of recent clinical reasoning (CR) workshops at AMEE. Whilst introducing CR principles and the talk aloud teaching method these sessions were pitched at introductory and intermediate levels. There was not enough time to practice these principles in depth with more complex clinical case construction and discussion.  

Intended Outcomes:  At the end of the 2 hour workshop the participant will be able to:  
1. rapidly revise principles of CR and cognitive bias that can be incorporated into clinical case teaching  
2. construct challenging clinical cases that facilitate CR teaching  
3. facilitate case based CR teaching  
4. consider implications for CR teaching while providing patient care  

Structure:  Four approximately 30 minute sections:  
1. A brief introduction, revision and discussion about some CR principles.  
2. Discussion about why a case sample construction could be good for CR teaching. This will lead to a constructing challenging cases checklist.  
3. In pairs or small groups participants will be asked to practice case based CR teaching. Pointers for what the teacher should try to incorporate in this teaching will be given. Participants are encouraged to bring their own cases.  
4. More time for further cases. A discussion of how this might be applied while providing patient care will ensue.  

Who Should Attend:  1. Postgraduate Medical teachers (prevocational and vocational)  
2. Final year Medical undergraduates teachers  
3. Attendees of previous workshops that seek more case discussion  
Level:  Advanced
#4Z Conference Workshop: Sociology teaching in medical education: towards an international perspective (25158)
Location: Orkney, Crowne Plaza

Tracey Collett*, Plymouth University Peninsula Medical School, Medicine, Plymouth, UK
Jeni Harden, The University of Edinburgh, Faculty of Medicine, Edinburgh, UK
Kathleen Kendall*, Medical Education Academic Unit, Faculty of Medicine, University of Southampton, Southampton, UK
Moira Kelly*, QMUL, School of Social Sciences, Cardiff, UK
Sara Macbride Stewart, Cardiff University, Primary Care and Population Health, London, UK
Fiona Stevenson, University College London, Faculty of Medicine, Dentistry and Biomedical Sciences, Plymouth, UK
Simon Forrest*, Durham University, UK

Background: Sociological research has led to radical changes in the practice of medicine through: provision of insight into the experiences of individuals; improving understanding of the influences of structure and culture and through development of theory. However, there are huge variations in understanding of the role, purpose, organisation and delivery of sociology teaching in medical schools. Additionally, there is a paucity of literature to support practitioners.

In 2010, the UK Behavioural and Social Sciences Teaching network (BeSST) convened a group to design a core sociology curriculum for clinical educators. Supported by the British Sociological Association and the General Medical Council, the group organised regional workshops attended by social science teachers from 24 medical schools. The outcome is a new consensus document for sociology teaching in medical education and a vibrant community of practice.

Intended Outcomes: The aim of this workshop is to share BeSST’s experiences with other clinical educators. Workshop participants will be 1) provided with an overview of the history of sociology teaching in medical education, 2) given a conceptual map describing the interrelated issues facing teachers and learners of sociology, 3) offered information about the methods and findings of the project and 4) invited to consider the value and utility of an international approach to these issues.

Structure: Ice breaker
- Literature overview
- Facilitated group work (sharing ideas)
- Introduction to an example core curriculum
- Mapping activity
- Discussion ‘taking things forward’

Who Should Attend: Anyone with a passion for building an international community of practice in this area.

Level: Intermediate
**#4AA ePosters: eLearning: Courses**

**Location:** Morar, SECC

**#4AA01 (25855)**

**Development of a multi-platform medical revision course for final year medical students**

**Jennifer Lewis**, Northwick Park Hospital, London, UK

**Charlie Cartwright**, Northwick Park Hospital, London, UK

**Michael Foster**, Northwick Park Hospital, London, UK

**Background:** Revising for medical school examinations is a stressful time, especially as academic performance is used to allocate Foundation posts. For final year students close to completing their studies, these exams are increasingly important. We felt there was a lack of multi-platform resources for such students, so developed AcePACES, an inclusive medical education tool incorporating practical revision courses, lectures, podcasts and online downloads, created by three current junior doctors from the North West Thames Deanery.

**Summary of Work:** The course was run over two days, separated into medicine and surgery. Unlike other revision courses on the market, it incorporated both didactic learning, via lectures, and practical examination stations, including real volunteer patients. To supplement this, attendees had access to multiple resources on the course website, available after the course weekend.

**Summary of Results:** Using pre- and post-course questionnaires, we have seen an improvement in attendees' confidence with performing the main system examinations in a simulated examination setting. Respondents also rated teaching from junior doctors as equally or more useful than that given by more senior doctors.

**Discussion and Conclusions:** The AcePACES revision course, along with the website (www.acepaces.com), have been successful at providing intensive revision via a variety of methods. For students at this stage in their revision, traditional lectures are no longer deemed sufficient and one-to-one assessment with patients and junior doctors (as well as online resources) is preferred.

**Take-home messages:** A blended, multi-platform educational resource delivered by junior doctors is an effective and underused method of teaching final year medical students.

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**#4AA02 (26430)**

**SCRIPT eLearning: a multi-method evaluation**

**Hannah L Brooks**, University of Birmingham, School of Clinical and Experimental Medicine, Birmingham, UK

**Sarah K Thomas**, University of Birmingham, Birmingham, UK

**James Hodson**, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

**Nicholas Blackwell**, OCB Media Ltd, Leicester, UK

**Elizabeth Hughes**, Health Education West Midlands, Birmingham, UK

**Jamie J Coleman**, University of Birmingham, Birmingham, UK

**Background:** The GMC EQUIP study recommended that enhanced training in prescribing and therapeutics should be available to Foundation trainees in the UK. In response to this, Health Education West Midlands commissioned the development of SCRIPT eLearning.

**Summary of Work:** We are conducting a multi-method evaluation of SCRIPT to ensure it is achieving its intended objectives. We are investigating trainees' attitudes towards SCRIPT and the impact of SCRIPT on trainees' knowledge, clinical prescribing behaviours and organisational outcomes. We are considering individual, temporal, and environmental factors in our analyses.

**Summary of Results:** Using secondary data extracted from the content management system, we have found that suboptimal learning behaviours (e.g. skipping over module content) are exhibited by some trainees and that these are influenced by a number of factors (e.g. time of year). We are currently undertaking focus groups to explore trainees' attitudes towards SCRIPT and their perceived impact of SCRIPT on their prescribing behaviours, the findings from which will be presented at the conference.

**Discussion and Conclusions:** The SCRIPT eLearning programme is not always used as intended. The results from our focus groups will help us to gain further insight into potential reasons for trainees' suboptimal learning behaviours, and whether or not trainees believe SCRIPT helps their prescribing in clinical practice regardless. Our evaluation will help to provide recommendations for future developments of the programme and its integration into the Foundation training curriculum.

**Take-home messages:** It is important to evaluate eLearning programmes to help ensure they are effective in achieving their intended objectives.
#4AA03 (25769)
Development of an elearning module on headache for mastery learning and the flipped classroom

Paul Larsen*, University of Nebraska College of Medicine, Dept of Pediatrics, Omaha, Nebraska, USA

Background: Headache is one of the 3 most common worldwide diseases. Medical students have limited time to gain mastery of the basic concepts of headache in order to apply those concepts for patient care. An elearning module was developed aimed at mastery learning and use in a flipped classroom setting.

Summary of Work: Using FLASH programming and the agile process, a 15 minute module using engaging animation to illustrate principal concepts was developed. 3 mastery quizzes divided the module in parts with 100% required to advance to the next section. Students used the module prior to a flipped classroom on headache. Students were asked to evaluate their experience.

Summary of Results: Weighted averages using a Likert scale of 0-4, were 3.60, 3.42, 3.41, 3.41 for questions on understanding important concepts, value of mastery quizzes, worth time spent, and enhancing classroom experience, respectively. Qualitative analysis of student comment themes was performed.

Discussion and Conclusions: Using the elearning module was overall positive for students. They felt like it could be used as a model for developing elearning modules for other flipped classrooms. The brevity, animation and mastery quizzes were recurrent positive themes. Suggestions for improvement included more user navigation control, feedback on quiz questions and improve the ease of finding concepts for review.

Take-home messages: elearning modules designed for mastery and the flipped classroom enhance student learning. The module can be viewed at http://digitalcommons.unmc.edu/elearning/13/

#4AA04 (26679)
Development of an E-learning course for hospital staff to detect and make plans for patients at nutritional risk

Anne Mette Kristiansen*, Aarhus University Hospital, Department of Cardiology, Aarhus N, Denmark
Jette L. T. Fabricius, Aarhus University Hospital, Department of Renal Medicine, Aarhus N, Denmark
Bente Schiødt, Aarhus University Hospital, Central Kitchen, Risskov, Denmark
Susanne Vestergaard Jensen, Aarhus University Hospital, Center for E-learning, Central Denmark Region, Aarhus N, Denmark
Allis Bek, Aarhus University Hospital, Central Kitchen, Risskov, Denmark
Ingrid Søndergård, Aarhus University Hospital, Department of Urology, Aarhus N, Denmark

Background: Up to 50% of patients in hospitals are undernourished and several are at nutritional risk when admitted to hospital. Thus, new strategies to support staff learning about nutritional screening and nutrition plans are needed. Carrying out nutritional screening and connecting this to following a nutrition plan can potentially reduced length of hospitalization, rate of complications and improve quality of life.

Aim: To develop an e-learning course on how to make nutritional screening and nutrition plans for healthcare staff at both somatic and psychiatric wards.

Summary of Work: The e-learning course was developed by an interdisciplinary team from 2013-2015. The course covers nutritional knowledge, clinical cases, and a multiple choice test. The course is based on adult learning theory and supports interactive learner activity.

Summary of Results: The e-learning course was launched in January 2015 to hospital staff at clinical wards within 7 hospitals in the Central Denmark Region.

Discussion and Conclusions: Providing a flexible learning opportunity with an e-learning course may be one way to support staff learning and help reduce the number of undernourished patients in hospitals. Perspective: Next step will be to investigate why and how the e-learning course worked to help clarify the processes that underline observed effects.

Take-home messages: Providing a flexible learning opportunity can support staff learning about nutritional screening and nutrition plans, and may potentially improve better nutritional practice.
#4AA05 (26644)
AOTrauma STaRT: Orthopaedic Trauma Online Learning in Khon Kaen Hospital, Thailand
Wanjak Pongsamakthai*, Khon Kaen Hospital, Orthopaedics, Medical Education Center, Khon Kaen, Thailand

Background: AOTrauma STaRT is an online learning hub designed to support orthopaedic trauma residents with self-directed learning. It consists of clinical case discussions, self-assessment tools, and access to AO learning resources. The Department of Orthopaedics at Khon Kaen Hospital is a training institute in Thailand. This cross-sectional study evaluated residents' knowledge via AOTrauma STaRT and provided a qualitative analysis of this learning hub.

Summary of Work: Fourteen orthopaedic residents engaged in six STaRT modules on various anatomical regions. Those in their first two years of training (n=7) did Basic level, third-year residents (n=3) completed Intermediate level, and fourth year (n=4) proceeded with the Complex level. Upon completion, their learning outcomes were evaluated by their instructors and residents provided feedback through a quality assessment questionnaire.

Summary of Results: Results were split in two parts: average score per level and quality-assessment from the questionnaire. The average scores of basic, intermediate and complex level are 70.35, 79.37 and 79.88% respectively. The most valued aspects of STaRT were "Clinical content" (93 %), "24-hour access" (79 %), and "Relevance to daily practice" (64%). All participants found it provided support for clinical decision making and 71% found case discussions the most useful activity.

Discussion and Conclusions: The average scores of the 14 residents show satisfactory results. The clinically-based website is a useful module for orthopaedic trauma residents that could support their clinical decision making. Well-integrated orthopaedic trauma learning is an important strategy for a successful outcome.

Take-home messages: The use of online case-based learning modules can provide effective self-learning and assessment for orthopaedic residents.

#4AA06 (28030)
Using student feedback to assess the effectiveness of a one week hands on summer school to support a blended online distance learning programme
Krishnakant Bhatia*, The University of Edinburgh, Edinburgh Dental Institute, Edinburgh, UK
Oonagh Lawrie, The University of Edinburgh, Edinburgh Dental Institute, Edinburgh, UK

Background: The MSc in primary dental care is a blended online distance learning degree programme. The blended component supporting a collaborative online asynchronous approach involves a one week face-to-face summer school timetable half way through the academic year. The objective of the summer school is to enhance practical skills that are covered theoretically in the modules. A summer school is preferred to multiple face-to-face contacts due to the number of enrolled international dentists.

Summary of Work: A questionnaire was designed and completed by student participants attending the summer school. The results were used to redesign the summer school the following year. The analysis looks at whether the changes result in a positive outcome for student satisfaction while highlighting any potential problems.

Summary of Results: Data from a second summer school cycle is yet to be collated but overall, the first cycle feedback indicates a high degree of student satisfaction.

Discussion and Conclusions: The timing of the summer school in relation to the academic year raised questions on teaching practical skills that had yet to be covered theoretically as some students found some topics difficult to understand. This is especially the case when a linear modular approach is used for programme delivery. The implications of summer school course design is therefore important and student feedback can be seen as an essential tool to effect positive change.

Take-home messages: Students benefitted practically from attending the summer school. The timing, design and implementation of learning activities for a planned summer school is crucial for subjects that are yet to be covered theoretically.
**#4AA07 (26714) Blended learning: Of value in a Rehabilitation Medicine training programme?**

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**Background:** The new registrar-training programme in Rehabilitation Medicine (RM) in the Netherlands is constructed around rehabilitation themes and the CANMEDS competencies. Is blended learning of extended value for the national training programme during a one-day course in orthopaedic footwear?

**Summary of Work:** 80 specialist registrars in RM had access to the electronic learning environment in Blackboard®. Registrars were at random allocated to the groups. Group A: standard training material and e-learning modules about anatomy of foot and ankle and orthopaedic shoe prescription.

Group B: standard training material: test questions and study book about orthopaedic footwear. Pre and post-test tests were taken with MC questions in both groups.

**Summary of Results:** One week before the course the average test score on MC questions about foot anatomy was 5.6 sd (.14) range 3-9. (10-point scale) At the start of the course there were MC questions about shoe prescription and anatomy: average 3.8 sd (.20) range 0-8. One week after the course: 5.4 sd (.14) range 3-8.

There was no difference between the groups in results between the blended learning group and the control group.

**Discussion and Conclusions:** In this survey there were no differences found in test results between the small blended learning group and the control group. Technical issues in the e-learning module may have caused motivational problems to the RM registrars and may have influenced the results.

**Take-home messages:** Blended learning needs educational and technical expertise for adequate evaluation in larger testing groups.

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**#4AA08 (25169) Applying a competency-based blended learning model to design an adult nursing course in a BSN program: A pilot test**

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**Background:** Nursing curricula and various teaching strategies are designed to reduce the gap between education and clinical work. The purposes of the study were to apply a competency-based blended learning model in the design of an adult nursing course, and to examine the acceptance and satisfaction of the blended learning model in a BSN program.

**Summary of Work:** A total of 98 female nursing students, with a mean age of 20.41 (± .57), in northern Taiwan were enrolled from September 2014 to January 2015. All participants received blended learning that included asynchronous web-based (e-campus platform) and synchronous face-to-face (team-based learning and simulation teaching) learning activities.

Satisfaction was measured using satisfaction questionnaires for the e-learning platform, team-based learning, and simulation teaching, measured on a 7-point Likert-type scale. Additional outcome measures included a 0-100 points visual analogue scale (VAS) and two open questions measuring students’ attitudes, acceptance and recommendations toward blended learning.

**Summary of Results:** The results showed that the mean score of the three satisfaction questionnaires for the e-learning platform, team-based learning, and simulation teaching were 5.39 (± .64), 5.67 (± .60), and 5.96 (± .86), respectively. The mean VAS score was 87.89 (± 6.02), indicating quite positive attitudes toward blended learning. Lastly, almost 90% of students absolutely supported the blended learning model and hoped use of the current model would continue. The recommendations focused on the future direction of simulation teaching.

**Discussion and Conclusions:** A competency-based blended learning model is worth implementing and may close the gap between education and the ever-changing work environment.

**Take-home messages:** Well-designed, well-described studies of applying blended-learning are needed.
#4AA09 (23771)
An evaluation of the effectiveness of assessment using eLearning in the medical curriculum

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**Background:** Over the years medical education has undergone significant evolution in this digital world. Blending all teaching and learning activities and assessment with eLearning would enhance the student learning experience and can be effectively utilised for teaching and assessing undergraduate as well as postgraduate medical students. In International Medical University (IMU) many forms of eLearning tools are used for online assessment which provides support and enhances the student learning experience.

**Summary of Work:** In the various modules in our curriculum across Phase I (Semesters 1 to 5) and Phase II (Semesters 6-10) many types of online assessment using e-learning are done. These include Formative assessments, Summative assessments, Assigned independent reading topics, Elective reports, General Practice posting reports, Clinical competencies and Case summaries. The various eLearning components of the modules were extracted by using quantitative questionnaire with the Likert scoring scale ranging from 1 to 4.

**Summary of Results:** The effectiveness of various components of the eLearning such as usefulness in gathering information provided, regarding eLearning promoting interactive/peer learning, feedback on assessment and appropriateness and fairness of assessment were evaluated. The mean scores varied from 2.49 to 3.43.

**Discussion and Conclusions:** eLearning for assessment is an important part of learning and teaching and the portal can be used as a platform in addition to being used for putting up material for teaching and learning. This also promotes learning from the feedback provided for the various online assessments. There is also the proposal by Ministry of Education in Malaysia on increasing the eLearning component to 10-30% which would only enhance the student learning experience.

**Take-home messages:** With an ever changing digital world with additional new tools for education, will only add to the student learning experience.

#4AA10 (24401)
A new web-based tutorial for learning antibiotics

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**Background:** The third year of Karolinska Institute’s medical school has a three week course on infectious diseases. One of the most important parts of it is the learning of antibiotics which is also considered as difficult and challenging by the students.

**Summary of Work:** To facilitate learning we developed an online tutorial on antibiotics, using the web-based presentation editor Prezi.

**Summary of Results:** The Prezi tutorial on antibiotics is presented. It is used in combination with traditional teaching. The web-based presentation can be accessed in a linear or non-linear fashion in contrast to PowerPoint. It is easily accessed via the school’s learning management system or through the internet. The students highly appreciate this new learning tool and in particular the variation in learning methods that it contributes to as well as the flexibility (place and time) to watch the presentation and the possibility to watch it in a non-linear fashion.

**Discussion and Conclusions:** The new Prezi-based e-learning tool for antibiotics is a valuable addition when teaching medical students.

**Take-home messages:** E-learning with the use of a Prezi-based presentation can be considered when planning teaching of medical students, in particular if the topic is complicated.
Participation and Activity in a Veterinary Online Lecture Series

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Background: The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine is a cooperation of all German-speaking veterinary universities with the goal to enhance the quality of veterinary education. One part of the project is the setup of an online lecture series for all veterinarians including students.

Summary of Work: The monthly online-lecture in Adobe Connect about late-breaking veterinary topics with lecturers from all participating universities was promoted via mail, internet and journals. The experts lectured via audio, webcam and presentation. The participants were able to interact with the expert and each other via text-chat. The lectures were recorded and the recordings were analyzed for the activity of the participants.

Summary of Results: By now 12 online lectures took part with an average of 97.7 (+ 79.1) participants and 90.7 (+ 14.3) minutes duration. 11 recordings were analyzed and showed that 38.1% (+ 28.3) of the participants were active during the lectures. 90.3% of 1576 postings in the chat were done by participants. 35.2% of the chats were about social topics, 12.7% about technical and 5.8% about organizational questions, 46.2% of the postings were about the topic.

Discussion and Conclusions: This study indicates a great interest in online lectures about extraordinary veterinary topics in students and veterinarians. The analyses could prove that participants in online lectures are active and discuss about the topics as they use the opportunity to interact in their social network.

Take-home messages: Online lecture series enable the participants to take part in expert events and raise the activity in a social and professional environment.
Design and development of the e-learning course for the nurses who perform medical auxiliary acts

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Background: In Japan, the laws and regulations for the nurses who perform medical auxiliary acts are revised. The training course of those nurses must be consisted of (1) the lecture or e-learning for knowledge acquisition, (2) practice including simulation for skills training, and (3) on-the-job training.

Summary of Work: There are two objectives in this study: (1) to design and develop the knowledge acquisition part with e-learning (2) to start the trial course and evaluate for formative assessment of the e-learning contents.

Summary of Results: There are 10 elective subjects in the trial course. The e-learning course was developed with moodle. In each subject, there are lecture movies, quizzes for checking knowledge and report assignments. Most of the subjects have about 7 topics, and each has movies and quizzes. Learners have to take quizzes and they cannot open the next topic unless they pass it. At the end of the topic there are written assignments based on clinical case.

Discussion and Conclusions: The trial courses started in January. In trial course, most of quizzes and assignments are useful for study by oneself because it rated automatically at once. However, to make more effective and active learning course, peer review and discussion on the online forum (asynchronous discussion) is might be also useful.

Take-home messages: To train the nurses who perform medical auxiliary acts, e-learning course might be effective for knowledge acquisition. In the next step, we have to develop skills training session including simulation and make blended learning course.

Learning analytics of an online eLearning programme: A descriptive account

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Background: The EQUIP study (1) recommended ‘education in practical prescribing should be part of foundation education’ and that ‘foundation trainees should be given explicit feedback regarding their prescribing practice during foundation education’.

Summary of Work: SCRIPT eLearning was commissioned by Health Education West Midlands to improve the prescribing competency of its trainees. The web-based programme (www.safeprescriber.org) comprises of 41 modules relating to prescribing and therapeutics. Each module takes approximately 30-40 minutes to complete and have a pre- and post-test function to assess both baseline and knowledge acquisition.

Summary of Results: In the West Midlands, trainees are required to complete 16 modules in F1, and a further 15 in F2. Trainees register with both the name of their NHS Trust and Clinical Tutor. A web-based management programme (www.safeprescriber/managers) enables tutors and postgraduate centre managers to monitor the progress of their trainees, with access to: date and time of module completion; test scores; and time spent on modules.

Discussion and Conclusions: The management technology is used to support the quality of feedback provided to trainees about their prescribing education, and also to identify any issues relating to performance. For example, trainees who complete a module in less than 10 minutes are highlighted to the tutor so they can initiate one-to-one engagement with the trainee, which may include a discussion about protected study time or difficulty with specific subjects.

Take-home messages: Our web-based learning analytics facilitates timely feedback to trainees and can be used to identify and raise issues relating to performance, as recommended by EQUIP. It can also help ensure that the programme is utilised as intended.
Inflammatory Bowel Disease: A Preliminary Evaluation of Health Information on the Internet

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Background: The aim of this study is to evaluate the quality and accuracy of websites written to the public on inflammatory bowel disease (IBD) (Crohn’s disease and ulcerative colitis) and their readability level.

Summary of Work: The search engines commonly used by the public as per Internet Statistics for 2014 (Google®, Yahoo®, and Bing®) were searched independently by all researchers from 01 to 15 December 2014 using the following search words: “Inflammatory bowel disease”, “Crohn’s disease”, “Ulcerative colitis”. Only English-language websites were selected on the basis of the study inclusion and exclusion criteria. Researchers independently evaluated the quality of each website by using the DISCERN and HONcode instruments. Readability was calculated by the Flesch-Kincaid Grade Level Index, and the Coleman-Liau Readability scores.

Summary of Results: The DISCERN and HONcode scores for websites created by medical and health societies/organizations were relatively higher compared to those for websites created by non-professional bodies. Only English-language websites were selected on the basis of the study inclusion and exclusion criteria. Researchers independently evaluated the quality of each website by using the DISCERN and HONcode instruments. Readability was calculated by the Flesch-Kincaid Grade Level Index, and the Coleman-Liau Readability scores.

Discussion and Conclusions: Apart from Wikipedia pages on IBD, English-language websites created by professional bodies usually appear on the first 1-2 pages of the three search engines. Most websites had a readability level suited for the public. However, the majority lacked one or two key quality components defined by the DISCERN and HONcode instruments.

Take-home messages: Despite variability in the quality of websites on inflammatory bowel disease, in general websites created by medical and health authorities are relatively better.

Accuracy and readability of websites on bladder and kidney cancers

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Background: The aims of this study are to assess the scientific accuracy and the readability level of websites on bladder and kidney cancers.

Summary of Work: The search engines Google®, Yahoo®, and Bing® were searched independently by three researchers from 15 November to 30 November 2014 using the following keywords: “bladder cancer”, “kidney cancer”, “patient bladder cancer”, “patient kidney cancer”, “bladder and kidney cancer”. Only English-language websites were selected on the basis of the study inclusion and exclusion criteria. All researchers independently reviewed the findings and evaluated the quality of each website by using the DISCERN and LIDA instruments. Readability was calculated by the Flesch-Kincaid Grade Level Index, and the Coleman-Liau Readability Index.

Summary of Results: The DISCERN and LIDA scores for websites created by medical and health societies/organizations were higher compared to those created by non-professional bodies. The readability scores of websites were 11.1±2.7 (mean±SD) for the Flesch-Kincaid Grade Level index, and 11.1±2.2 for the Coleman-Liau Readability Index.

Discussion and Conclusions: The emergency of web-based technology in patient education about bladder and kidney cancers seems to be increasingly feasible. The available English-language websites on bladder and kidney cancers and management options lack key components highlighted in the two instruments.

Take-home messages: The majority of the internet-derived health care resources were written at a readability level above the suitable level for the public, the overall quality and accuracy of such resources is variable. Medical students and healthcare providers should be aware of such limitation.
A comparison of learning outcome and student engagement in web-based learning and traditional lecture

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Background: In the past decade, the learning method was based on traditional lecture. This tool was passive and teacher-centered learning. In the last few years, the learning method has been changed into intentional engagement and active learning pedagogy. This study was conducted to compare learning outcome and student’s satisfaction in web-based learning and traditional lecture.

Summary of Work: Web-based learning and traditional lecture were used in teaching “Electrolyte disturbance” for 4th and 5th year medical students. Before attending class, all students had pretest examination and then received study guides. In web-based learning group, the students were divided into small groups and were assigned to self study from website and youtube. All small groups received case-based scenarios to get the discussion and made consensus of answers with their group before attending class. In the class session, each group presented group’s answers and discussed with other groups and teacher. After discussion, the teacher summarized the core topic and made the feedback. After cessation of class, all students had posttest examination and completed the questionnaires to evaluate the satisfaction.

Summary of Results: Eighty three students were enrolled: 44 students in web-based learning group and 39 students in lecture group. The learning outcomes were significantly improved in both groups (p<0.001 in both groups). The levels of satisfaction were higher in the web-based learning group included increase student engagement (p<0.001), promote teamwork (p<0.001), improve problem solving (p<0.001), enhance understanding (p=0.008), and encourage self learning (p=0.003).

Discussion and Conclusions: The web-based learning method is effective learning tool to improve knowledge gain and promote student engagement.
Stop, Look, Listen: Separating fact from fiction in physical child abuse

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Background: Child abuse is a major societal concern. However, clinicians often fail to report it. Barriers to reporting include: fear of negative outcomes for the family, uncertainty about the likelihood of abuse, and unfamiliarity with the investigative process. Stop, Look, Listen responds to a critical need for clinical training in this area.

Summary of Work: Stop, Look, Listen (SLL) is an interactive e-learning tool designed to increase confidence and comfort among pediatricians in recognizing and reporting physical child abuse. Healthcare providers work through clinical challenges in a simulated, safe environment that enhances their ability to address this critical public health issue. Six “virtual cases,” developed by an interdisciplinary team of child abuse experts, are organized into basic and advanced units. The cases illustrate a series of clinical encounters and concomitant investigative processes. At multiple points, clinicians are encouraged to explore alternate pathways. Pre- and post-tests allow learners to see how their choices match those of child abuse experts.

Summary of Results: 37 pediatric clinicians field tested the program. A 12-item survey included the following results: 97% described SLL as “easy to navigate,” 83% said it was “constructive to compare responses,” 92% would recommend SLL to a colleague, and 66% planned on making changes to their practice.

Discussion and Conclusions: Learners responded positively to the realistic vignettes and their relevance to actual practice. Preliminary data indicate increased confidence in recognizing and reporting physical child abuse.

Take-home messages: SLL is a valuable tool for training physicians to recognize and report physical child abuse and encouraging collaboration with child welfare workers to keep children safe.
#4BB ePosters: Teaching Tools

#4BB01 (23932)
Utilising Google Forms to enhance revision session planning: our experience

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Background: Students benefit most from revision sessions in topics in their curriculum they find most difficult. Robust online survey tools are available which can be used to identify these topics prior to teaching and enhance delivery of focused sessions.

Summary of Work: As a part of planning process, 4th year medical students were sent an online survey created using Google Forms to ascertain the perceived “difficult topics” in their curriculum. The form contained a mixture of dropdown menus and free text for comments. Data was automatically collected on a spreadsheet by the software for analysis. We allocated the six revision sessions available to the top six topics chosen by students. After delivery, we collected feedback from students regarding the sessions again using Google Forms.

Summary of Results: Student attendance at the revision sessions varied from 50-150 per session. Over 90% of students found the material was relevant to learning outcomes, and pitched at the right level. Over 90% of students thought the presentations were clear and slides useful. 83% of students felt more confident in the topic taught after the session compared to before.

Discussion and Conclusions: We found Google Forms to be an intuitive, easy-to-use online survey tool. Subjectively the authors found ease data analysis a particular advantage of this tool compared to hard copy forms, however, free-text remains difficult to analyse.

Take-home messages: Google Forms is a free, effective and easy method for teachers to use to enhance revision teaching by focusing on topics students find most difficult.

#4BB02 (27724)
Evaluating the Perceived Effectiveness of Medical Textbooks in Improving the Students’ Satisfaction & Exam Performance

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Background: Despite textbooks popularity, no studies were conducted before to evaluate textbooks’ effectiveness in regards to their benefits in increasing personal satisfaction through increasing medical knowledge, improving exam performance and helping students find needed information. Thus, we aim at investigating the perceived benefits of textbooks in regards to these three factors.

Summary of Work: This was a cross-sectional, survey-based study where subjects (N=251) would autonomously rate the effectiveness of textbooks using 5-point Likert scales. The Chi-squared tests, followed by post-hoc tests were utilized to detect any associations between the categorical variables. Moreover, Spearman’s correlation test was used to assess the significance, strength, and direction of correlations among ranked data. Finally, Kruskall-Wallis test was used to determine differences in students’ self-ratings of ranked variables based on grouped items.

Summary of Results: There were positive correlations between students’ GPA and their ratings on how books help them increase their personal satisfaction to increase their medical knowledge, (P=0.006) and perform better in exams (P=0.001). Furthermore, Students who use medical textbooks as a primary source for information or as a reference tend to have better rankings in books helping them find needed information in comparison to their peers who use them as an aiding resources (P=0.001, P=0.017). Interestingly, these findings were similar in all years and in both genders.

Discussion and Conclusions: We conclude that textbooks are effective in improving personal satisfaction to increase medical knowledge, exam performance and looking for information.

Take-home messages: Students’ GPA and the type of use to textbooks reflect positively on their satisfaction & performance and should be considered in counselling.
#4BB03 (26243)
Crossing Boundaries: Reducing care fragmentation across hospital sites to improve patient care

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Presenter: Jenny Hibbert*, Great Ormond Street Hospital, Postgraduate Medical Education Department, London, UK

Background: The concept of ‘care fragmentation’ is underpinned by the impact of human factors in healthcare. With increasing numbers of healthcare providers there are cumulative risks of errors occurring at each ‘boundary’ of the patient journey. Close collaboration between individuals, teams and often different organisations is required to deliver seamless care, especially in children where complex conditions often require the integration of multiple specialties, professionals and agencies.

Summary of Work: We created a learning event that ‘crossed the boundaries of care’ between key multi-disciplinary stakeholders from three neighbouring NHS trusts. Over two days, participants shared learning experiences designed to highlight common issues of care fragmentation. This included playing a serious computer game, ‘Mission to Mars’ to improve team communication and build negotiating skills. Three teams, each representing a hospital trust played the roles of ‘Flight Crew’, ‘Mission Control’ and ‘Engineers’. The teams were tasked to work together to launch and land a successful mission to Mars. The serious game replicates issues experienced everyday within and between hospitals, such as sharing clear and timely information. The game was followed by an in-depth debrief where players were able to reflect on their roles as key players in the patient pathway and feel empowered to influence the delivery of better care.

Summary of Results: Three cross-site quality improvement projects designed to reduce care fragmentation were generated from the training event.

Discussion and Conclusions: The ‘Crossing Boundaries’ course brings together key multi-disciplinary stakeholders using innovative learning technologies, helping to create a solid foundation on which to build networks.

#4BB04 (26511)
EMed-opoly: A New Item Recall Technique for Trainee Conferences

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Background: Item recall is a well-established learning tool. Jeopardy© is an established form of item recall but requires labor-intensive slide preparation. This study presents a novel game based on Monopoly© to review pediatric fever with residents and medical students.

Summary of Work: A game board laid out like an emergency department is projected on one screen while questions are individually projected on another screen like a digital deck of cards (or read aloud if there is not a second projector). Teams of 6-8 learners take turns rolling a die and answering a question after each roll. Teams earn “rooms” (squares on the board) by answering questions correctly for rooms they land on. (The space remains open if the question is answered incorrectly.) If a team lands on a room that another team already owns, a “code” ensues, and the two teams race to answer a single question sooner than the other team. Intermingled with questions are “black cloud/white cloud cards,” similar to a Chance card. The clouds provide additional learning points in the stem. The team with the most “rooms” wins.

Summary of Results: Eighteen residents (69%) in attendance responded. 78% (14/18) preferred the game to traditional lecture. 16 respondents (89%) said the question detail was appropriate. Free response comments were overall very supportive such as “Loved it! …will definitely remember more from that lecture than any other lecture that day.” Themes for game improvement included a simpler board and faster question pace with shorter questions.

Discussion and Conclusions: In addition to being well received by residents, the Emed-opoly format is much easier to create than the complex array of links required for the Jeopardy© format.

Take-home messages: Emed-opoly is a simple and well-received item recall modality for student and resident educational conferences.
#4BB05 (26581)
Recognition and Assessment of Medical Students' Satisfaction Receiving Medical Ethics Using Multimedia Case Teaching Video
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Background: Studies of medical ethics related education in regional hospitals are few in Taiwan. The objective of this research is to explore the medical students' recognition for medical ethics education and their satisfaction receiving medical ethics education by using “multimedia case teaching video” in a regional teaching hospital in Taiwan.

Summary of Work: Participants viewed a multimedia case teaching video developed by the center for faculty development, Taipei City Hospital. Each film is associated with anonymous, self-administered questionnaires and satisfaction survey. This study was conducted from Dec 2013 to Apr 2014.

Summary of Results: A total of 35 medical students participated in this study. 34 (97.1%) had a strong agreement that medical ethics education is important, and 24 (70.4%) agreed helpful for dealing ethical issues or ethical dilemmas. 31 (91.2%) have taken ethical course at school, and 24 (70.6%) took law courses at school. 30 (83.3%) indicated they were satisfied with the course. 80.6% responded that this course was very helpful and would recommend to their peers. However, most participants (83.9%) revealed that combining multimedia case teaching video with PBL or case study is the best method to teach medical ethics.

Discussion and Conclusions: Our previous study has demonstrated that use of a video with actual case examples is an effective method and can improve the learning outcome of post-graduate practitioners. In this study, we also showed that medical students were highly satisfied with this method. For teaching medical ethics, multimedia teaching videos combining with PBL or case study is warranted to use.

Take-home messages: Using a multimedia case teaching video is a valuable method for medical ethics education.

#4BB06 (24257)
Using Film to Explore Complex Areas of Geriatric Medicine
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Background: The use of cinema in medical education has the potential to engage learners and prompt reflection. However, little is known about its utility in geriatric medicine. When designing our Psychiatry of Old Age Module (Salford University, MSc Geriatric Medicine) we wanted to explore whether a film could engage learners and prompt reflection on dementia care.

Summary of Work: To close the module, participants watched Amour as a group. This drama depicts the interplay of physical illness, dementia and caregiver strain.

Learners were asked to record reflections during the film and after an immediately subsequent discussion. We collated learners’ responses and qualitatively analysed them.

Summary of Results: Responses were obtained from 18 learners. 78% rated the session as ‘very-good’. During the film, reflections centred on carer strain and the need to explore this emotionally charged area in real-life practice. After the discussion, learners commented that the film was engaging and effectively prompted reflections upon complex patient management issues. Additionally, solutions as to how we should proactively care for patients and carers were generated.

Discussion and Conclusions: A film, paired with an appropriately facilitated discussion, can highlight areas which may effectively remain hidden with more commonly utilized instructional methods and materials. The fact film may be perceived in different ways may usefully trigger discussion and debate. We demonstrated that a carefully chosen film can help learners consolidate and reflect upon knowledge acquired during an MSc module.

Take-home messages: Film can spur reflection and aid exploration of complex areas of medical practice such as a patient’s, or family’s, experience of illness.
How to make a video, easy guides with free software for developing new medical resources

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Background: Students and teachers can be in the need of making an audiovisual work, or a video, and when you don’t know where to start, edition suites can seem really difficult to understand. We want to give some tips for making it easier to deal.

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 that, and also thanks to presenting the results at AMEE 2014 and the positive feedback we received, we are encouraged to share this few knowledge that can be really useful in teaching.

Summary of Results: We are Ramon Bultó and Antonio Domínguez, two medical students, and the Professor Maria Rosa Fenoll-Brunet. We want to share some tips for easy-making videos and audiovisual resources in medical education with free software, as the basis of edition suites are common, and being free it’s open to anybody. With only need of creativity and imagination you can do whatever you dream off

Discussion and Conclusions: As medical students we are pleased of being able to share knowledge for improving teaching in medical education and developing innovative resources.

Take-home messages: Everybody can learn how to make a video, you only need imagination and enthusiasm and the outcomes can be unexpectedly positive!

Video teaching: The importance of students’ feedback.

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Background: Our division wanted to make classroom sessions more interactive for final year medical students and as a part of it videos on theoretical concepts of acute medicine topics are sent to the students before they attend the interactive classroom session where they work on case based scenarios.

Summary of Work: Videos were made on acute medicine topics based on our experience of viewing the videos from the internet made by others. Feedback was taken from the students after they watched the videos. Initial feedback was not good on the videos so they were re-made based on their input after which the feedback was extremely good.

Summary of Results: Initial feedback was taken from 35 students which showed that 40% thought that the video teaching is worse than the traditional teaching and another 40% thought that it is same as that of the traditional teaching. After the videos were re-made based on their input, feedback was taken from 95 students which showed that 78% thought that the video teaching is better or much better than the traditional teaching. 76% thought that the videos are helpful to understand the difficult concepts easily than the traditional teaching and 83% thought that the videos should be less than 10 minutes.

Discussion and Conclusions: Providing pre-classroom learning materials in the form of simple and captivating videos helps students to understand the theoretical concepts which in turn helps to make the classroom time more interactive.

Take-home messages: It is important to take feedback and involve the students for whom videos are being made.
Introducing new learning tools to undergraduate training in Obstetrics

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Background: Undergraduate medical students at the University of Aberdeen had reported suboptimal learning opportunities on normal labour and prescribing in Obstetrics. Therefore an e-learning video on normal labour and a pocket sized booklet on drug prescribing in Obstetrics were developed.

Summary of Work: A prospective cross sectional survey was carried out to evaluate the new learning tools in Obstetrics. Year 4 and 5 MBChB students were invited to participate in an anonymised online questionnaire. Tick box and Likert scales were used to assess student views. Free text responses were used to qualitatively explore advantages and disadvantages of each.

Summary of Results: Fifty eight students participated. Most students were Year 4 MBChB (55.2%), female (70.7%) and aged 18 to 24 years (82.8%). 72.7% (16/22) of students reported that they found the normal labour e-learning video useful and 68.2% (15/22) would recommend to colleagues. 87.5% (28/32) found the prescribing booklet useful and would recommend to colleagues. 71.9% (23/32) of students felt more confident about their prescribing in Obstetrics after using the prescribing booklet. Students reported positive comments about “focussed”, “relevant” and “concise” information in the booklet. 90.6% of students (48/53) reported they would like similar medication booklets for different specialities.

Discussion and Conclusions: Students appears to view both learning tools positively, however response rate could have been improved. Accessibility of the learning tools needs to be improved.

Take-home messages: Students positively received a locally derived, pocket size prescribing guide for Obstetrics. Undergraduate medical students want prescribing learning tools in other specialities.

Comparison of the effectiveness of video-clip plus role play versus video-clip alone for the teaching of movement disorder: A Randomized Control Trial

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Background: It is difficult for medical student to identify movement disorder correctly. Active learning by using “see one do one” approach might improve the outcome of learning. Therefore, teaching by using video-clip plus role play was designed. The study aims to compare the effectiveness of video-clip alone (“see one”) versus video-clip plus role play (“see one and do one”) for the teaching of movement disorder.

Summary of Work: A randomized control trial was performed with the medical students from Chao phaya abhaibhubehr hospital. At the beginning, all students were received lecture for 60 minutes. After that they were randomly assigned to experimental group (n=16), which was video-clip plus role play (“see one” and “do one”) or control group, (n=16), which was video-clip alone (“see one”). Students were measured by written assessment of movement disorder type after watch clips again. Questionnaire was used to measure student satisfaction.

Summary of Results: Compared to control group, mean score was significantly higher in experimental group (5.88 ± 2.39 vs. 13 ± 1.63; p <0.001). Student satisfaction was significantly greater in experimental group (64.45% vs. 88.67%; p =0.03)

Discussion and Conclusions: Video-clip plus role play (“see one and do one”) appear to promote better outcome for the teaching of abnormal movement among medical students.

Take-home messages: “See one and do one” approach by using video-clip plus role play might promote better outcome for the teaching of abnormal movement among medical students.
#4BB11 (24423)
Virtual Microscopy Fosters Higher Learning Capability For Medical Students Over Optical Microscopy in a Pathology Laboratory Course

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**Background:** Pathology is fundamental in medicine in terms of understanding the basic knowledge of disease. Therefore, pathological laboratory demonstrations have been added into the curriculum of medical student’s. This study aimed to compare the advantage of virtual microscopy over optical microscopy in a pathology laboratory course.

**Summary of Work:** In the pathology laboratory course, 255 second year medical students from Khon Kaen University were subjected to use both virtual and optical microscopy simultaneously to study the pathology of certain diseases. A questionnaire was designed for students to comment their opinion on their experience with virtual and optical microscopy.

**Summary of Results:** In their opinion, virtual microscopy fostered a faster rate of learning than optical microscopy (p-value <0.0001). They reported that virtual microscopy was able to support their independent study (p-value 0.001), promote their understanding of the laboratory lesson (p-value <0.0001), make them confident during examination (p-value <0.0001) and feel greater satisfaction over optical microscopy (p-value <0.0001).

**Discussion and Conclusions:** Virtual microscopy is designed to display a picture of an entire slide on a computer monitor. This allows students to learn as a group and allows teachers to clearly define important aspects on the slide. Therefore, students are able to better understand the lesson. Furthermore, personal computers allow virtual microscopy to be used at home, therefore it suitable for their independent study.

Virtual microscopy offers a higher benefit over optical microscopy to students enrolled in a pathology laboratory course.

**Take-home messages:** In the future, virtual microscopy may foster higher learning capability and play a major role in the laboratory curriculum of pathology courses.

#4BB12 (26278)
Virtual microscopy with iPads in small groups enhances collaborative learning

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**Background:** Virtual microscopy is replacing ordinary microscopy in histology teaching. Since 2013 our students have received iPads from the Faculty at University of Helsinki. We studied whether virtual microscopy could be further developed by using iPads and small group learning.

**Summary of Work:** Virtual iPad microscopy was implemented in groups of 30 students, which were further divided into six small groups of five students. Students examined the specimens with iPads and followed a guide in the WebMicroscopy web-pages. One of three microscopy sessions was performed with real microscopes and specimens. Two kinds of research data were collected on these learning activities: teachers’ systematical observation data and a questionnaire of students’ experiences (N=170, returned by 99% of students).

**Summary of Results:** Teachers observed that in iPad-microscopy students were immediately engaged in intensive group work studying the specimens together, sharing and discussing their observations vividly. In traditional microscopy, students worked individually and discussions were occasional and wary. The analysis of the questionnaire revealed that 76% of the students expressed that group work helped them to understand the learning goals better, 65 % indicated, that iPad-microscopy stimulated more reasoning than an ordinary microscopy. Students reported no difference in the technical use of the two devices, nor in the quality of perception of the histology.

**Discussion and Conclusions:** Virtual iPad-microscopy in small groups stimulated more vivid discussion and collaboration between the students than ordinary microscopy. As an extra bonus, iPad-microscopy is not bound to any special type of learning space, such as a laboratory or an ICT class.

**Take-home messages:** iPad turns virtual microscopy mobile.
Introducing Virtual Microscopy for Undergraduate Students in Slovenia

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**Background:** In histology curriculum we currently have traditional microscopy (TM) with glass slides (GS) available for teaching purposes. We decided to perform a pilot survey on potential implementation of virtual microscopy (VM) with virtual slides (VS). Peer tutors (PT) were asked to participate in evaluation of VM versus TM. Our research questions were: Is there statistically significant difference in times needed to locate a structure on GS versus VS? What is PT perception of VM?

**Summary of Work:** We digitalized ten GS with Aperio ScanScope CS slide scanner to use them as VS. 25 PT were asked to locate the same three structures on each of the GS and their respective VS. Time needed to locate these structures was measured and a short questionnaire (modified and translated version of the College of Veterinary Medicine, North Carolina State University virtual microscopy survey) was given at the end.

**Summary of Results:** One sample t-test shows a statistically significant difference (p<0.01) in mean time to locate a structure on GS (23.0s; SD=5.65) versus VS (12.5s; SD=2.04). In written commentaries (n=23) PT reported they would prefer a combination of TM with VM in practical sessions.

**Discussion and Conclusions:** PT considered VM as easy to use despite having no prior exposure to VM. Time they needed to locate a structure on VS was significantly shorter. This pilot study will lead to a larger scale study for all Histology students later this year.

**Take-home messages:** We foresee successful implementation of VM in combination with TM in the Histology curriculum.

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eLearning among medical undergraduates: How students use educational materials

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**Background:** With advances in technology and increasing access to a wide variety of learning resources online, how medical undergraduates study has changed considerably. How to make most effective use of these resources remains largely unanswered.

**Summary of Work:** A 25-item survey was developed and distributed by email eliciting information on students’ use of educational resources. Fisher’s exact and Mann-Whitney U test were used. P<0.05 was taken as significant.

**Summary of Results:** Students continue to find textbooks most beneficial (84%), followed by search engines (52%), podcasts (28%), Wikipedia (28%) and Pubmed or journals (19%). Use of electronic resources differed by stage of training, sex and previous degree. 42% of students usually evaluate the quality of evidence but 31% rarely do. Students who used pubmed/journals were more likely to evaluate the quality of evidence (p=0.008) and students who used Wikipedia were less likely to (p=0.003). 73% of students base their study on the current topic that week, 68% according to forthcoming exams, and 28% based on patients seen and this differed by stage of training (p<0.001).

**Discussion and Conclusions:** Use of electronic learning resources are popular amongst medical undergraduates although textbooks remain the most frequently used and popular resource. Use of resources changes by stage in training suggesting that students are acquiring study skills throughout their degrees.

**Take-home messages:** Medical students require guidance throughout their course as to effective use and critical appraisal of learning resources and this is something that should be included by course designers.
#4BB15
integration of teaching-community through the Moodle Platform: Vision of the 1st year medical students

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Background: "Seminars" were used as a learning tool for 1st year medical students in the Medicine School of Federal University of Goiás. The discussions took place via Moodle Platform (MP), culminating in a feedback that was held in the community. This study analyzed what medical students think about the integration student/community using blended learning approaches.

Summary of Work: Semi-structured questionnaires were used with objective questions using Likert 4 points scale. 8 domains on scale were considered: "Moodle Tool", "Written Work Elaboration", "Discussion by Moodle", "Oral Presentation", "Educational Resource", "Evaluation of Work Development", "Interpersonal Relations" and "Integration with The Community ".

Summary of Results: 84 (78.50%) students were enrolled on the study. The Cronbach's alpha was 0.886. The mean scores for the domains ranged from 2.6 to 3.6. The lowest and the highest scores were for "Moodle Tool" (2.6 to 2.7) and "Community Integration" (3.3 to 3.6). This show that this learning methodology can be used and it was well accepted by the students. There was a negative correlation between the domains "Moodle Tool" and "Discussion by Moodle" which suggests although students are favorable to the discussion in the virtual environment, it seems that MP is not well accepted by them.

Discussion and Conclusions: The low score on "Moodle Tool" suggests the students had difficulties on integrating with the community through MP. The high score on "Integration with the community" suggests the importance of participatory learning, by facilitating the recognition of problems and feedback for the community, through virtual discussions.

Take-home messages: The virtual environment is a good alternative for the student-community integration.

#4BB16
Comparison of Self Assessment in Medical Students between Teaching Methods

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Background: Prapokklao Medical Education Centre has many of the teaching methods in the curriculum. In this study we request that we compare teaching methods by self assessment of medical students.

Summary of Work: Physical Medicine and Rehabilitation Department has self assessment check list in ambulatory aids topic for 5th year medical students to assess their understanding and performance between lecture only and lecture combine with demonstration and practice.

Summary of Results: There are 26 medical students (13 male and 13 female) which have assessed in self assessment check list. The total scores in lecture combine with demonstration and practice has higher score than lecture only (24.12, 23.27 p value. = 0.03). The precaution of ambulatory aids has higher score in lecture combine with demonstration and practice than lecture only (4.73, 4.58 p value =0. 04). In other items lecture combine with demonstration and practice have higher scores than lecture only but not significant.

Discussion and Conclusions: There are high self assessment scores in lecture only and lecture combine with demonstration and practice have higher scores than lecture only. However the total scores and the score of the precaution of ambulatory aids have higher in lecture combine with demonstration and practice than lecture only.

Take-home messages: We should have to demonstrate and practice in topics that have skill performance, but we can adjust our teaching methods in the items that have low scores to improve the understanding and performance of self assessment check list score.
Testing the waters with augmented reality (AR) and revision webinars; what medical students think

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Background: Medical undergraduates in their final year of study are required to pass a National Prescribing Safety Assessment (PSA). In order to prepare them, the prescribing team at MMS have developed a number of Technology-enhanced learning (TEL) aids:
1. Small group work using IPADs and AR-enhanced role-play guidance (Junaio)
2. Interactive touch-screen presentations/homework sessions (Nearpod)
3. AR-enhanced prescribing posters (Junaio)
4. Live prescribing webinars (Fuze)

Summary of Work: Students were given the opportunity to submit their views and comments re: the use of TEL resources. All submissions were anonymous with positive and negative comments collected.

Summary of Results: Students provided positive comments on the use of Nearpod and live webinars. Responses for the use of Junaio seemed mixed and many felt they hadn’t had the opportunity to utilise the prescribing posters.

“The webinar is a good idea so is the Nearpod. I used the Junaio for a teaching session at [the hospital]. The concept is good but did not work well for us so that was frustrating, but the idea is brilliant.”

“I was 50:50 on Junaio. I think it would have been more useful if the staff were more confident using it as they weren’t 100% sure”

“Regarding the posters, I was aware of them but have not had chance to use them as I haven’t been at [the hospital] since finals. Maybe sending posters to the DGHs would be more useful”

Discussion and Conclusions: The use of TEL resources to enhance prescribing skills is evolving and improving. User and organisational capabilities may be contributing factors in delivering negative student experiences.

Take-home messages: Students enjoyed the prescribing webinars and appreciate the potential for AR-enhanced resources.

Video conferencing applications to establish a distributed educational network: enhancing early referral of those with acute diabetic foot

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Background: Patients with diabetes have a high incidence of foot ulceration related to neuropathy and ischaemia leading to an amputation rate of 40%. Early prevention strategies have found to be cost-effective. NHS Highland developed evidence based clinical guidelines, with need to increase ease of access, familiarity and application by healthcare professionals involved in care of the patients with diabetes. The Scottish Diabetes Improvement Plan 2014 pledges to ensure delivery of consistent, high quality diabetes education.

Our work delivers an educational intervention that is accessible and inclusive for staff whilst offering opportunities to network and feel connected with the Specialists

Summary of Work: Lead diabetes clinicians collaborated with RRHEAL studying how existing guidelines could be shared, supporting improved application and earlier referral. Video conferencing (vc) was an accessible medium by which engagement is shared.

Expert knowledge existed within the team to deliver case based approaches across an annual programme supporting critical review. Presentations were educational and instructive in terms of guideline application.

Inter professional teams engaged by VC to networked sessions. Case-based discussion was person focused and guideline specific

Summary of Results: Participants report increased levels of knowledge; rated significantly the network opportunity; rated VC delivery excellent or good and would share the opportunity with others

Discussion and Conclusions: Staff require support seeking evidence based guidance for care improvement and putting knowledge into action. Interventions using VC are appropriate, providing networked engagement at distance for shared debate, challenging opinion, supporting change management and culture shift.

Take-home messages: Technology augments educational “reach” for distributed teams. Guidelines must be accessible and familiar for clinical impact.
How to teach personality disorder session? VDO-clips discussion method enhances medical students for more obviously understanding

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Background: Personality session is the subject that requires imaginary and conceptual framework when students approach to the patients. Only normal lecture does not enough for them to gain essential knowledge and to express their empathy to others. V DO-clips are a good device for students to clearly understand the complicated learning.

Summary of Work: This study aims to compare two kind of teaching methods in personality session for 5th year students. There were 48 students in the year 2013 enrolled and divided into 4 groups. Normal lecture was used for group 1 and group 3 while V DO-clips discussion and lecture were applied for group 2 and group 4. Formative evaluation was used in order to assess their understanding after session.

Summary of Results: The total scores were 20. The mean score from group 1 and group 3 was 14.36 ± 1.64 while 16.46 ± 1.50 from group 2 and group 4. V DO-clips discussion gave statistically significant different when compare with normal lecture methods by independent t-test (p <0.05).

Discussion and Conclusions: The study reveals that V DO-clip discussion method supported medical students to gain more understanding in personality session when it was applied to normal lecture. This method allowed students to view samples character from the clips.

Take-home Messages: An alternative teaching method should be used to encourage medical students in order to help and support for more comprehension.
#4CC01 (25513)

Correlation between formative assessment in tutorial sessions with performances in the OSCE and in the Progress Test in a PBL medical hybrid curriculum

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Background: There still is a controversy about the relationship between formative assessment (FA) in tutoring session and students’ performance on written examination in the OSCE and in the Progress Test (PT) in a PBL curriculum.

Summary of Work: We did correlation between FA scores provided by subject-matter expert tutors on students’ performance at the end of tutoring sessions, OSCE and PT scores in students of the medical course (4th to 8th stages). In our hybrid PBL curriculum, the OSCE is introduced in the 4th stage, and there is no tutoring sessions in the clerkship (from the 9th to the 12th stage).

Summary of Results: Scores from 311 students were analyzed (Pearson correlation coefficient). There was a mild correlation between the FA with those of OSCE (n=53, r=0.26; p=0.06) and PT (r=0.26; p=0.06) in the 4th stage. Correlation between FA and OSCE (n=64; r=0.37; p=0.002) was mild in the 5th stage. In the 6th stage, a mild correlation between FA and OSCE (n=65; r=0.40; p=0.0008), and FA and PT (r=0.27; p=0.003) were observed. No correlation was found between FA, OSCE, and PT in the 7th stage (n=58). In the 8th stage, a mild correlation was observed between FA and OSCE (n=71; r=0.48; p<0.0001), and FA and PT (r=0.27; p=0.01).

Discussion and Conclusions: The correlation between FA assessment, OSCE, and PT scores, can be ascribed to clarity and uniformity on grading system during tutorial sessions, and to the training provided to tutors before participating in the tutorial sessions. PBL performance mildly correlates with summative assessment.

Take-home messages: FA is associated with academic achievement.

#4CC02 (25480)

Results of the Progress Test Medicine (PTM) Compared by Discipline Groups and Curriculum Format

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Background: The PTM is used to give feedback on the gain of knowledge to medical students each half year. The results are subdivided in the discipline groups pre-clinical, clinical and interdisciplinary. As the focus of the Witten/Herdecke “model curriculum” is on problem-based-learning and clinical competencies students we hypothesized better knowledge in the clinical questions. In this first explorative study descriptive statistics were performed with the aim to initially indicate trends according to our assumption.

Summary of Work: Mean results from 5 tests from 2010 to 2014 of the UW/H-students (group A) were compared regarding to their progression from term 1-9. We analyzed discipline groups (pre-clinical, clinical and interdisciplinary) and compared to all other participating universities (group B).

Summary of Results: While the results of group B show a constant increase from first term (5% pre-clinical, 3% clinical, 1% interdisciplinary) to ninth term (31%, 33%, 27%) in group B only the results in the clinical questions (5% to 29%) and interdisciplinary questions (2% to 22%) show a steady increase. In the preclinical questions students of group B show an increase until fifth term (5% to 25%) and a constant plateau afterwards.

Discussion and Conclusions: The PTM results reflect the focus of the “model curriculum” on clinical competencies. Still there should be a further increase in the preclinical knowledge which is why a stronger inclusion of preclinical topics in the clinical phase is planned for the future.

Take-home messages: Progress-Tests do not only give students feedback about their knowledge but are also part of the quality management and help to enhance the quality of the curriculum.
#4CC03 (27908)
Individual Progress Test (IPT). ABEM project gathers medical schools optimizing results

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Background: The Individual Progress Test (IPT) is evaluative methodology applied to students of medical courses in Brazil.

Summary of Work: We describe the application process and IPT analysis in groups of Brazilian medical schools. The medical schools were grouped according to the geographic divisions of Brazil. In the Midwest region (CO) ten schools of Medicine participate.

Summary of Results: More than 12,000 students submitted to the IPT. The results are used by medical schools to tailor their curriculum structures. Of the 10 participating schools, three had no experience with the application of the test and the seven applied between 3 and 10 years. Since 2012 the test is applied once a year simultaneously to about 3,000 students.

Discussion and Conclusions: The data is statistically analyzed individually and collectively between schools. Each participating student has individual and confidential access to their performance against their individual performance with his class with the same class of other schools and all students. Participation is encouraged through individual rebate policy, considering the performance and student participation in the competition. The results are compared to each participating school. The results / graphs show the performance of schools, classes and students. The analysis guides specific curricular changes.

Conclusion: The IPT is the evaluation process that can be applied to large populations of students, optimizing the analysis of data and providing the correction of individual directions and collectively.

Take-home messages: Individual Progress Test can be applied to large populations of medical students.

#4CC04 (26974)
Red, yellow and green; what does it mean? – Student perceptions of Progress Test feedback

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Background: Progress tests (PTs) are widely used in medical education. Most institutions identify poorly-performing students through a traffic-light results system of green (satisfactory), yellow (borderline) and red (unsatisfactory) categories. There has been little research assessing students’ perceptions and use of the feedback provided by these categories. This study therefore proposed to determine the effectiveness of formative PTs at informing and supporting student progress.

Summary of Work: Utilizing a pragmatic qualitative research methodology, eleven semi-structured interviews were conducted to explore students’ perceptions of PT feedback. Thematic analysis was performed on the interview transcripts, assisted by NVivo software.

Summary of Results: None of the students who scored poorly felt the PT informed their progress, contrasting with most students who scored well believing it did. Most students agreed that the current feedback is insufficient and does not guide their ongoing learning. The majority thought the PT’s purpose was for their School to compare itself to other schools internationally.

Discussion and Conclusions: The predictive value of the PT is not appreciated by poorly-performing students. In its current format, the PT is not fulfilling a truly formative role and supporting student progress sufficiently. Students’ perception of the PT as a benchmarking exercise, rather than as a learning instrument may reflect this School’s philosophy whereby the PT is used for benchmarking, in addition to identifying poorly-performing students.

Take-home messages: Students may benefit from seeing evidence of the PT’s predictive value. Institutions should consider reviewing the function of their PT and improving its educational impact and acceptability by placing greater emphasis on the content and delivery of feedback.
Monitoring progression of professional skills in health sciences education

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Background: In medical and health sciences education students progress through a series of course modules. Unless progress tests are used, students’ progression towards the final learning outcomes remains hidden despite being an important aspect of the quality of the program. Cases are commonly used for training of students’ problem solving, clinical reasoning and decision making skills. The aim of this study was to use case discussions to observe students’ progression.

Summary of Work: We developed a case to match challenges that would be reasonable for a recently graduated midwife and rubrics to use during observations. Students from the graduate midwifery program (three semesters) participated, four groups of five students from each of semester one and three. Four observers and one facilitator participated.

Summary of Results: We found signs of progression in the way the students used information in the case, identified the main problem, used relevant knowledge to analyze the problem and came to a decision about a course of action. A striking difference was that first semester students used knowledge from theoretical courses and experience as nurses whereas third semester students used experience-based knowledge from midwifery practice.

Discussion and Conclusions: The students in the midwifery program are in a transition from nurse (entry qualification) to midwife, and this was apparent in our study. The transition goes through theoretical knowledge and clinical practice was important in the development of professional decision making. Students’ discussions of professional cases could be used to evaluate progression in a health sciences education program.

Take-home messages: Professional cases can be used for multiple purposes including quality assurance.

The use of mentoring for continuing professional development at the point of care: A study over 14 years and 500 physicians

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Background: Studies of clinical mentoring of primary care physicians (PCPs) are rare and involve small numbers over relatively short time periods. Sustainability of programs is uncertain and the nature of the interactions unclear. We describe a program in Ontario, Canada that has been using a mentoring model to support over 500 PCPs in delivering mental health care for almost 14 years.

Summary of Work: The study describes the frequency and nature of interactions between the mentors (psychiatrists and specialized PCPs) and mentees (PCPs) within the Ontario College of Family Physicians Collaborative Mental Health Care Network. Mentoring in the program diverges from tradition by encouraging pragmatic clinical guidance when sought by the mentee. All of the data was drawn from contact logs completed by mentors from 2002 until 2015.

Summary of Results: We analyzed 1348 contact logs representing 42 mentors and 441 mentees. Over time, the average number of contacts per year decreased from 3.7 in the first year stabilizing at 1.6. Contacts occurred in person (39.0%) via email (30.6%) and telephone (30.2%). The most frequent category of content discussed was ‘general clinical’ (77.5%) and the lowest ‘professional issues’ (10.7%).

Discussion and Conclusions: Mentors are utilized infrequently by PCPs but frequency is balanced by consistency over many years. Mentees in this program primarily seek (and are given) clinical guidance. It is possible that clinical questions foster relationships that allow for discussions of professional issues.

Take-home messages: A sustainable mentoring program for community PCPs is achievable. Mentoring programs for PCPs exclusively focused on professional issues may not be utilized sufficiently to be sustainable.
#4CC07 (25767)  
Correlation between mock comprehensive examination scores and comprehensive examination scores in Phramongkutklao College of Medicine

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**Background:** According to Phramongkutklao College of Medicine (PCM) medical curriculum, all fifth-year medical students at PCM must participate in our Comprehensive Examination (CE) that composed of 300-item Multiple choice questions (MCQs). For helping student to prepare before the CE, Mock Comprehensive Examination (MCE) that composed of 150-item MCQs was set up in the academic years 2014. This study aim to assess the correlation between the MCE scores and the CE scores.

**Summary of Work:** A cross-sectional study, using secondary data analysis, data from the MCE scores and the CE scores were collected. For each medical student, data were obtained regarding gender and ranking on the MCE and CE. Medical students whose data was not complete were excluded from the study. The correlation was assessed by Pearson correlation.

**Summary of Results:** 91 medical students undertook both MCE and CE. Complete data was available for 91 medical students (100%). Among the participants, 53 (58.24 %) were male and 38 (41.76%) were female. There was high positive correlation (0.73) between the MCE and CE scores. Medical Students with lower MCE scores trended to have lower CE scores. The percent of medical students who had lower one-third of the MCE scores, and still had lower one-third of the CE scores was 80.76.

**Discussion and Conclusions:** The MCE scores were found to correlate to the CE scores. Therefore, it may be essential to identify medical students with low MCE scores, in order to provide additional educational support to improve their medical knowledge and thereby enhance their performance on the CE.

**Take-home messages:** mock comprehensive examination scores correlate with comprehensive examination scores.

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#4CC08 (27490)  
Improving feedback for medical students in the clinical environment; use of a structured written feedback proforma

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**Background:** Significant growth in clinical knowledge and skills is acquired through effective feedback. To achieve reliable judgements on performance in clinical learning environments, feedback ought to be delivered by a number of assessors across a range of cases. This study aims to determine whether a structured proforma improves the quantity and impact of feedback upon learning in medical students.

**Summary of Work:** Data is being collected from third year Bristol medical students over 6 weeks during their general medicine & surgery clinical attachments in Bristol & Gloucester using focus groups and a prospective logbook. After the initial 3 weeks, a structured feedback proforma will be introduced and its effects will be evaluated.

**Summary of Results:** A pilot study of the logbook alone by 2 students demonstrated that feedback was given to students in 46% of their clinical encounters. When given feedback, the clinical encounter was rated at 3/3 (very helpful). The clinical encounters where feedback was not provided were rated at 1/3 to 2/3. Results from the full six week study will be presented.

**Discussion and Conclusions:** Initial results show that less than half of clinical learning opportunities provide feedback to medical students. When feedback is given, the learning experience is perceived to be of better quality.

**Take-home messages:** In clinical environments it is important to actively facilitate aspects of teaching that are known to be effective in order to optimise medical students’ learning. A feedback proforma may give students an effective tool in receiving valuable feedback.
Cultural influence on medical students’ perception of feedback – Singapore context

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Background: Asian culture in medicine focuses more on hierarchy and the top-down style, which is different from that in Western culture. It is not clear whether feedback models based around the western cultures apply in Asian medical schools.

Summary of Work: Five focus group discussions (FGDs) were conducted with a total of 30 medical students between May 2014 and January 2015 at National University Singapore (NUS), with 6 students from each year of training in one group. The FGDs inquired students’ perceptions on feedback they received in medical school, their reactions and related examples. The focus group discussions were transcribed and analyzed guided by the ground theory.

Summary of Results: Key themes identified during the analysis were characteristics of constructive feedback, feedback providers, feedback receivers, context issues and barriers. Personalised feedback on specific gaps and improvements was most preferred. Features of helpful feedback providers included willingness, availability, being fair and reasonable, being trained, role modelling and having close mentor-mentee relationship. Peers and junior doctors were approached more than senior doctors for feedback. Receivers’ attitudes, ego/self-esteem, and experience was perceived to be potential influencing factors. Context issues included cultures/attitudes in the specialty, department. Reported barriers were hierarchical Asian culture, heavy workload and time pressure.

Discussion and Conclusions: The feedback models used in western cultures are applicable in medical schools in Singapore. Context issues need to be considered to tailor it to local setting.

Take-home messages: Feedback must be customised to the individual medical student according to specific needs and expectations.
Workplace-integrated e-portfolio

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Background: Portfolio is an important tool to assess the progression and achievement in medical education. The application of e-portfolio system has been applied as an important portion of the portfolio system these years. However, usually the trainees have to complete the e-portfolio by the repetitive input process. This is time-consuming and may interrupt the fulfillment of the portfolio.

Summary of Work: We made a combination between the informative technology and clinical training environment by integrating the workplace recording with the e-portfolio system. A comprehensive connection between trainees, mentors and administrative officials was made.

Summary of Results: There were near one thousand medical students or trainees in the China Medical University Hospital every year. Using this system, all the medical students and trainees could complete their portfolio. The mentors also follow their students well.

Discussion and Conclusions: This work-place integrated e-portfolio system provides an active process for self-reflection in medical students and follow-up of the training processes.

Take-home messages: An on-the-job e-portfolio could promote the active learning process in clinical education.

Logbook as a Formative Assessment Tool in Driving Medical Students Prepare to Compete in National License Examination

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Background: Assessment tool is one of the critical factors that would engage medical students to periodically assess their knowledge and capability to be able to pass the examination.

Summary of Work: To study the use of logbook as a formative assessment tool in medical students to prepare for Thai national license examination. From 2013 to 2015, 18-month follow up of medical students of the Institute of Medicine, Suranaree University of Technology. They were asked to complete questionnaires in 4 timelines (no logbook (T0), 6 (T6), 12 (T12) and 18 (T18) month of using logbook respectively). The logbook listed topics according to criteria set by The Thai Medical Council. They record their knowledge in each criteria, which could result from classroom education, self-study, group-study, and taking exam.

Summary of Results: Sixty samples were recruited. At T0, 98.3% knew about practice as a doctor, they were required to pass a license from a three-step examination, 73.8% did not realize that the examination would be applied by a newly revised criteria. With T0 and T18, the awareness and knowledge about the examination criteria were medium (58.3%, 5.0%), higher (25.0%, 11.7%) and the highest level (16.7%, 83.3%) and the overall summary of the samples’ readiness for the exam was medium (100.0%, 75.0%), higher (0%, 16.7%) and the highest level (0%, 8.3%).

Discussion and Conclusions: Log book as a formative assessment tool could be considered in systematic and constant monitoring their progression in learning.

Take-home messages: A formative assessment tool is very important to monitor the medical students.
Glasgow’s initial experience of the UMeP to support reflective writing

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Background: In 2015 Glasgow’s Personal and Professional Portfolio (PPD) of reflective writing was transferred to the Undergraduate Medical ePortfolio (UMeP) for Year 1 Medical Students. PPD is a strand of learning in small group based Vocational Studies*. The UMeP

• Makes the process much more transparent than its paper predecessor
• Permits tutors to give formative feedback on students’ reflections
• Seeks to engage students in the habits of keeping an eportfolio of their learning
• Aims, through its use of scaffolded reflective writing templates, to facilitate effective reflective writing

*Vocational Studies-clinical & communication skills, ethics, professionalism, science in medicine.

Summary of Work: There is a developmental need to know:

• As a new venture for both tutors and students does it achieve its initial aims?
• New technology and new initiatives are barriers to overcome.
• Reflection can be a challenge for tutors as well as students.
• Support is needed to overcome these issues.
• How well will we do in tackling these issues?

Summary of Results: A survey of students’ and tutors’ experiences of using the UMeP as means to support reflective learning using a five point Likert scale will take place in May 2015.

Discussion and Conclusions: The results of data analysis will be illustrated on the poster. A sample of participants’ suggestions for development will also feature.

Take-home messages: How successful have we been in introducing the UMeP to support reflective writing in Year 1 Medicine? What more do we need to learn?

Embedding an E-Portfolio: findings from a pilot study

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Background: This paper describes the results of a pilot study on the experiences of staff and students using an e-portfolio in a major, research-intensive New Zealand university.

Summary of Work: Staff and students in undergraduate Nursing and Pharmacy programmes were invited to complete an online survey about their experiences with an e-portfolio. 188 persons were invited to participate in the survey, which resulted in 56 usable submissions.

Summary of Results: Overall, more participants preferred online to paper (64%), found whichever system(s) they used reliable (49%), fast (48%), easy to record work (45%), and easy to set up (44%). Students found the system faster than staff ($\chi^2 (2, n=56)=6.396, p=.04$). Pharmacy participants viewed whichever platform they used as more reliable ($\chi^2 (2, n=54)=6.988, p=.03$), easier to set up ($\chi^2 (2, n=54)=7.512, p=.02$), and easier to use ($\chi^2 (2, n=55)=6.417, p=.04$) than Nursing affiliates. Pharmacy affiliates also more often agreed that using an e-portfolio made it easy to record work ($\chi^2 (2, n=55)=7.457, p=.02$).

Discussion and Conclusions: Curricular changes have subsequently refined the workflows to streamline them further embedded Chalk and Wire in their third year cohorts. In 2015 our Medicine, postgraduate Nutrition and Dietetics, and undergraduate Optometry programmes are scheduled to being rolling out Chalk and Wire in a similar, cohort-by-cohort fashion.

Take-home messages: The selection of a complex, flexible and user-friendly e-portfolio lends itself to the diverse teaching and learning needs of a multidisciplinary health science faculty.
#4CC15 (27292)
Evaluation of the feedback to reflective writing from clinical teachers in PGY1 trainees’ e-portfolio

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Background: Reflective learning is an important learning method for medical trainees. Reflective writing reports in PGYs’ e-portfolio bring their learning outcome to a deeper level. Clinical teacher’s feedback to reflective report is helpful to the trainee. The timing and content of the feedback are important factors of the reflective learning. We evaluate the timing and content of the feedbacks from the on-line system of e-portfolio. We hope to find ways to improve the feedback system in e-portfolio.

Summary of Work: The on-line e-portfolio was introduced to our hospital on Aug 2013. There are 3 reflective writing reports in the e-portfolio: medical ethics and legislation report, medical care quality report, and personal development report. The materials are the reports of PGY trainees and the feedbacks from clinical teachers. Study period is during Aug 2013 and Jul 2014. We record the time duration between the upload of the report from PGY trainee and the upload of feedback from the clinical teacher. The feedback contents are assessed and scored (0~12) by one of our physician educator according to a check list.

Summary of Results: We calculated the percentage of feedback upload 4 weeks after the report uploaded. The percentages are 28% to 44% during Aug 2013-Jan 2014. After we activate the reminding e-mail procedure, the percentages are 32% to 77% during Feb-Jul 2014. The average score is 7.5 (range 5~10). No obvious difference between the 2 time periods.

Discussion and Conclusions: Since some students found this system is more convenient than the paper form, so it is important to ask these students to share experiences in accommodating the system to students having difficulty using it.

Take-home messages: Flipping from paper portfolio to electronic form is not always plausible. The users are expected to have learning curve. Focus group and adequate opinion acquisition are methods helpful in analyzing the causes of challenge.

#4CC16 (27789)
Transition from paper to electronic-portfolio, is it always plausible?

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Background: It is a universal trend to change student portfolio from paper to electronic forms. However, e-portfolio is not always welcome by the users. We analyzed the disadvantage and challenge of e-portfolio in a teaching hospital newly adopting e-portfolio system.

Summary of Work: This hospital has newly adopted an e-portfolio system in the recent 6 months. We found that the in-time response rate was less than 50% of that of the paper portfolio. We then used focus group and on line questionnaire to analyze the possible reasons.

Summary of Results: The data showed that there were 2 logistic problems which resulted in low response rate. First is the accessibility of system to users, for example scanning and uploading of hand writing material makes process more complicated. The other issue is the learning curve for students in using tablet devices or smart phones, and barrier in inputting information in Chinese.

Discussion and Conclusions: Since some students found this system is more convenient than the paper form, so it is important to ask these students to share experiences in accommodating the system to students having difficulty using it.

Take-home messages: Flipping from paper portfolio to electronic form is not always plausible. The users are expected to have learning curve. Focus group and adequate opinion acquisition are methods helpful in analyzing the causes of challenge.
#4CC17 (27919)
Students’ perceptions towards portfolios in a pre-clinical mentorship programme

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**Background:** Portfolios are widely used in undergraduate medical education and used in postgraduate training in appraisals and revalidation. Portfolios are effective in supporting professional development, but there are few studies that evaluate student opinions of formative professional and personal development portfolios.

**Summary of Work:** The aim of this study was to identify and explore the perceptions of first and second year students towards keeping a portfolio at Barts and The London School of Medicine and Dentistry. A qualitative research approach was taken with focus groups conducted with pre-clinical undergraduate medical students at Barts and The London School of Medicine and Dentistry. All focus groups were recorded, transcribed verbatim and anonymised. All data collected was coded and analysed thematically in order to identify key themes expressed by students.

**Summary of Results:** Analysis of the data highlights that students at Barts and The London School of Medicine and Dentistry have differing perceptions of the value of keeping a portfolio and how portfolios may support ongoing professional development. Students hold differing views on whether portfolios should be paper or electronically based.

**Discussion and Conclusions:** This study highlights the importance of considering students opinions when devising and implementing a formative portfolio programme. Medical schools must continue to seek students’ feedback in order to ensure that formative assessment is effective.

**Take-home messages:** Research with medical students is of value for informing portfolio programmes and formative assessment programmes.

#4CC18 (26865)
A first trial of progress testing in East Asia: students’ perceptions of the new testing procedure

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Renee Stalmeijer, Maastricht University, Medical Education Center, Netherlands
Arno Muijtjens, Maastricht University, Medical Education Center, Netherlands
Hiroyuki Okazaki, Jichi Medical University, Japan

**Background:** Although progress testing (PT) is regarded as a quality-controlled assessment tool for enhancing deep learning in the Western world, there has been no report that certifies acceptance of PT in East Asia. We assumed that East Asian students felt motivated when being assessed on a regular basis and they disliked being tested on knowledge that had not been taught beforehand, according to the discipline of Confucianism.

**Summary of Work:** The aim of this study is to explore East Asian students’ perceptions of PT by descriptive qualitative analysis of focus group discussions by students at Jichi Medical University in Japan. Twenty-four students in Year 2, 3, and 5 participated in 60 minute-focus groups after one trial of PT and a brief guidance.

**Summary of Results:** The students verified the ability of PT as 1) an assessor, 2) a motivator, and 3) a supporter for better learning. They did not feel that it was productive for PT to be used in lower school years. On the other hand, they perceived PT as helping them deepen their understanding of what they have already been taught. However, they strongly believe in the worth of post-test lectures from teachers; not self-reviewing.

**Discussion and Conclusions:** Despite only one trial, we captured the students’ perceptions. They perceived the practical usefulness of PT. A lack of acceptance of self-reviewing and the testing of unlearned knowledge, along with a strong request of post-test lectures, might reflect their cultural characteristics.

**Take-home messages:** After the first trial of PT in East Asia, this study captured the learners’ perceptions with some cultural traits.
Introduction of mini-CEX with solely feedback-space (without grades) in clinical rotations and students’ satisfaction; a pilot study

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Background: During clinical rotations mini-clinical evaluation exercises (mini-CEX) using grades are commonly used to evaluate medical students. Grades serve as a diagnostic tool, indicating student’s learning needs. To educate students and improve their functioning additional and allocated feedback is essential. In daily practice students obtain little, especially written, feedback leading to poorly formulated learning goals. To improve written feedback (and learning goals), VUmc introduced mini-CEX with solely feedback-space (novel mini-CEX) and evaluated students’ satisfaction.

Summary of Work: In 2014 five groups of medical students (n=104) entering their second year of clinical rotation evaluated the use of the novel mini-CEX. Prior to its use, students and clinical supervisors were informed; via e-mail, faculty website or personally. After rotation students filled out a questionnaire that was qualitatively and quantitatively analysed (n= 7 questions, 6 addressing feedback).

Summary of Results: Overall response rate was 75%; 68% rated using novel mini-CEX positive, 22% neutral and 10% negative. Students remarked that when time was short, feedback was short or general written. If clear learning goals are formulated, students note a positive effect on their learning process. Re-reading feedback seems positive for both student and clinical supervisor although it might undermine objectivity and originality of clinical supervisors.

Discussion and Conclusions: Medical students felt positive about using novel mini-CEX and its effect on their learning process. They noticed a correlation between time spend by the clinician and quality and usefulness of feedback.

Take-home messages: Use of these novel mini-CEX enhances feedback and formulating learning goals thereby serving not merely as a ‘diagnostic’, but also an ‘educational’ tool.
#4DD Posters: Professionalism and Professional Identity
Location: Hall 4, SECC

#4DD01 (27712)
Appreciative inquiry and social media: an innovative method to learn professionalism in clinical practice

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Background: Students observe physician’s behavior in clinical practice. Role modeling is the major learning process for professionalism. In modern era, students accustomed to communicate with each other through social media (e.g. Facebook).

Summary of Work: We use Facebook to spread the observed professional behavior among medical students. Applying the principle of appreciative inquiry, the observed behavior should be real and encouraged to base on the 18 core attributes of professionalism described by R. Cruess. Students have to submit at least two observed events and reflections in each semester. The observed behavior will be feedback to the physician in the clinical setting.

Summary of Results: The program started from March 2014 until Oct 2014. A total of 50 medical students posted 261 observed events on Facebook. The first three attributes students observed as sequentially are teaching enthusiasm (22.9%), caring and compassion (11.9%), and competence (9.6%). The students and the observed clinicians gave very positive response in a qualitative survey.

Discussion and Conclusions: Clinicians with teaching enthusiasm tend to be regarded as role model by most medical students. Traditional Oriental medicine emphasizes “Treat patients as your family member”. For caring of the patient, “caring and compassion” and “Presence” are the leading attributes students observed. Making the positive behavior explicit by using social media is a very useful method for role modeling. In conclusion, medical students using Facebook to discuss about positive clinical behavior is an effective method to learn professionalism.

Take-home messages: Applying the concept of appreciative inquiry in social media is a useful way to learn professionalism in clinical setting.

#4DD02 (27690)
Interactive workshop helps forging consensus and enhancing confidence in teaching professionalism

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Yi-Lwun Ho, National Taiwan University Hospital, Internal Medicine, Taipei, Taiwan
Chong-Jen Yu, National Taiwan University Hospital, Internal Medicine, Taipei, Taiwan

Background: Professionalism is one of the core competencies of physicians. This study aimed to evaluate the effectiveness of a workshop organized to improve the teaching of professionalism in clinical setting.

Summary of Work: Visiting staff of the Department of Internal Medicine of the National Taiwan University Hospital was invited to join a half-day workshop aimed at improving the teaching of professionalism for residents and senior medical students. A short lecture followed by exercises and case discussions were implemented. A questionnaire asking about the knowledge and frequency of teaching professionalism was delivered before (pre-test) and after (post-test) the workshop. Participants were also asked to fill in a feedback questionnaire immediately after the workshop. Answers for pre-test and post-test were compared by paired t-test.

Summary of Results: 29 staff (mean teaching years: 11.1 ± 7.73, range: 0-31) voluntarily joined the workshop. All of them agreed that they know more about the definition, teaching skills and evaluation methods of professionalism as well as the definition, advantages and disadvantages of hidden curriculum after the workshop (for all questions, P < 0.05). All participants agreed that the workshop helped in forging consensus and enhancing confidence in teaching professionalism.

Discussion and Conclusions: Professionalism is difficult to define, teach and assess. Interactive workshop combining lectures, exercises and case discussions raises interest and provides a safe environment for expressing feeling and exploring values. Interactive workshop helps forging consensus and enhancing confidence in teaching professionalism.

Take-home messages: Multi-activity workshop with interaction helps to increase the capability of medical visiting staff in teaching professionalism.
#4DD03 (27503)
Medical school culture and its impact on the reporting of staffs’ unprofessional behaviour

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**Jordan Napier**, University of Dundee, Dundee, UK

**Background**: Professionalism is an expectation for the medical profession; both behaving professionally and also by addressing patient safety concerns by reporting unprofessional behaviour when witnessed (General Medical Council 2009, para.20–23; General Medical Council 2013, para.22–30). However, at Dundee Medical School, the Raising Concerns procedure is not widely accessed (Napier 2014; University of Dundee Medical School 2014). This qualitative study hopes to achieve an insight from students as to why this may be, which may influence future development of the procedure.

**Summary of Work**: Focus groups of students across the year groups have been used to ascertain perceptions of staffs’ unprofessional behaviour; the culture that may influence whistle-blowing behaviour; and their perceptions of the Raising Concerns procedure at the University of Dundee. A documentary analysis will also be completed.

**Summary of Results**: The results are pending. The data gathered from medical students in Year 1-5 will be presented for discussion.

**Discussion and Conclusions**: The study will identify the aspects of medical school culture that impact on if a student does or does not raise a concern about a member of staff.

**Take-home messages**: The results will create a platform for discussion regarding the current Raising Concerns procedure, the culture of the medical school as a whole, and will hopefully provide a basis for implementing change, should the results show it to be necessary.


#4DD04 (27300)
Medical Students’ Professionalism: A Thematic Content Analysis of Essays

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**Background**: Just like in western countries, physicians in South Korea are confronted by changes in the health-care delivery systems and values of medical professionalism. The traditional concept of ‘In-Sul (benevolent art)’ and the modern history of Korea have led to the cultural differences of conceptualising medical professionalism. Thus, we studied medical students’ reflection of professionalism as described in their essays.

**Summary of Work**: In 2014, 109 first-year medical students wrote an anonymous description of medical professionalism they had witnessed as well as reflection on their own professional context. Students wrote these essays during their required medical ethics course. 107 essays were analysed using thematic content analysis with computer assisted qualitative data analysis software (CAQDAS).

**Summary of Results**: Thematic analysis of the students’ essays revealed two ‘core’ aspects of professionalism in Korea, one focused on respect for patients and another focused on physicians’ accountability. The most common theme in the physician-patients relationship was denoted ‘trust’. By contrast, distributive justice was thought to be non-essential aspect of professionalism.

**Discussion and Conclusions**: In western countries, physicians tend to promote justice in the health-care system, including fair distribution of medical resources. However, physicians in Korean culture are more inclined to emphasize the doctor’s relationships with patients. Medical educators should develop curricular interventions for medical professionalism to meet the legitimate needs of patients in their own culture.

**Take-home messages**: Because professionalism is a dynamic construct of culture, medical educators should reaffirm the cultural context-specific definitions of professionalism for development of professionalism curricula.
#4DD05 (24548)
When did I become a professional?

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Alison M Cairns, University of Glasgow, Dental School, Glasgow, UK

**Background:** A dental student is expected to make the transition from school leaver to practicing professional during their five years of dental school. This process can be challenging for most students. The General Dental Council, (‘Preparing for Practice’ 2011), give clear outcomes for UK dental students to attain by graduation as “safe beginners”. In this document “Professionalism” has been given increasing importance. The purpose of this study is to establish which aspects of the BDS curriculum contribute to the development of professionalism from a student perspective.

**Summary of Work:** Ethical approval for this study was sought and BDS 5 students attending peer assisted learning (PAL) sessions were invited to participate, all 38 agreed. Using an anonymous questionnaire participants were asked to consider the BDS curriculum holistically and evaluate their experiences in:-

A) Developing confidence in clinical skills
B) Developing confidence in communication skills
C) Making you “feel that you are a dental professional”.

**Summary of Results:** Direct patient contact in outreach clinical teaching was perceived to be the most important aspect of the curriculum for A) B) and C), closely followed by hospital clinics. Experience of PAL sessions teaching junior students was ranked as the next most important means of developing B) and C).

**Discussion and Conclusions:** PAL was found to be of importance in developing professional attributes. Further research is now required into the “non-clinical” benefits of PAL for the student teacher.

**Take-home messages:** PAL can be perceived as a means of developing professionalism in undergraduate dental students.

#4DD06 (27373)
Does a medical humanities and social sciences curriculum emphasizing professionalism lead to improved outcomes?

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**Background:** There has been a growing demand on medical professionalism in Korean society since last decade. The Catholic University of Korea integrated medical professionalism into medical humanities and social science curriculum in medical school, known as OMNIBUS curriculum. The goal of the OMNIBUS is to educate medical students to be medical professionals with an understanding of humane and holistic medicine, and medical professionalism. This study will examine whether assessments based on the OMNIBUS predict better performance on outcome of communication and interpersonal skills.

**Summary of Work:** Students who completed four years of OMNIBUS curriculum were assessed at the end of each session by a variety of assessment methods. Their performances of medical professionalism including communication and interpersonal skills were also assessed through OSCEs, as part of their M4 competency exam. The evaluation on students during OMNIBUS curriculum was compared with the assessment of communication and interpersonal skills.

**Summary of Results:** The study showed significant interrelationship between assessment on students during OMNIBUS curriculum and communication and interpersonal skills assessment through OSCEs (r=0.32, p<0.001). The students who received high score in OMNIBUS curriculum showed high performance skill during communication assessment through OSCEs.

**Discussion and Conclusions:** This study is the first report of educational outcome of medical humanities and social sciences curriculum in Korea. This demonstrates that OMNIBUS curriculum aiming at the understanding of holistic medicine and medical professionalism led to the promotion of communication and interpersonal skills.

**Take-home messages:** Results from this study will provide implications to other medical institutions transitioning to implement a robust medical humanities curriculum, including discussion from an international perspective.
The whys and wherefores of academic integrity and dis-integrity: case study in medical humanities  

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Background: Honesty, trust, fairness, respect and responsibility are the five fundamental values to define academic integrity. However, only a few medical courses have formal instruction on academic integrity.

Summary of Work: Since 2013/14 first year medical students have attended a seminar on academic integrity included in medical humanities course in Faculty of Medicine, University Porto. In 2014/15 a total of 269 (95%) from 284 students attended this seminar. An audience response system was used to obtain anonymous real-time audience feedback on academic integrity. Several vignettes/cases of academic fraud were showed and classified as professional/non-professional behavior by the students. Wordles were used to evaluate the reasons to commit and not commit academic fraud.

Summary of Results: The prevalence of students that had committed academic fraud during examinations was 58%. 81% considered copying during examinations as non-professional behavior; however, only 21% considered examinations item-sharing as non-professional behavior. The wordle showed that the main reasons for committing academic fraud were: despair, insecurity and success while the main reasons for not committing fraud were: honesty and willingness to learn. The wordle also showed that the main reasons for let and not let commit academic fraud were: friendship and solidarity and fairness, respectively.

Discussion and Conclusions: Fairness, honesty and willingness to learn were important values to academic integrity, while friendship, solidarity and success were important values to academic dis-integrity.

Take-home messages: It is important to include formal instructions on academic integrity in medical courses and to redefine the values included in the definition of academic integrity.

Professionalism- from students to doctors  

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Background: Establishing a universal definition for professionalism remains a challenge, yet the concept of professionalism can be considered to include identifiable attributes and behaviours that underpin the medical profession. These evolve and develop during progression through medical school, and maintaining certain values is expected throughout an individual’s duration of practice. We explore medical students’ views towards professionalism in the pre-clinical phase.

Summary of Work: As part of a pilot study, we conducted focus group discussions with year 1 students from 2 separate cohorts exploring their views on professionalism in students, prior to starting clinical placements. IRB approval was obtained. Data were recorded, transcribed and interpreted using thematic analysis.

Summary of Results: Students had difficulty defining professionalism and felt ‘being professional’ related to a job, to their future roles as doctors rather than their current roles as students. Key themes to emerge included role modelling, adherence to standards and guidelines, peer-learning as well as the conflict between maintaining your own identity versus representing doctors as a profession. Students expected to achieve and develop these traits and values during progression through medical school, with an element of leniency towards their behaviours during their study. Extrinsic factors were felt to have greater impact on developing professionalism compared to intrinsic factors.

Discussion and Conclusions: Preclinical students may regard professionalism to be more relevant for their future role as doctors rather than their current role as students, as their understanding continues to be shaped.

Take-home messages: Integrating professionalism early in the curriculum may facilitate student learning and professional development.
Teaching about Professionalism across the Continuum and into the Community

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Background: Many articles are about teaching professionalism; rarely are attitudes of the public included. How the public views professionalism may help members of the medical profession calibrate their conceptualization of professionalism. Do members of the public differ in their judgment of professional behaviors from members of the medical profession?

Summary of Work: Building on earlier focus group data (22 groups, total n=315), we pilot tested professionalism workshops. A sample of case vignettes (6 of 18) from the earlier study was used. Participants were asked to vote using an audience response system as to whether the cases were (1) unprofessional, (2) marginally professional, or (3) professional. In addition, a model of professionalism developed by Jonathan Bolton (http://hsc.unm.edu/admin/professionalism/behavior/index.html) was used to discuss the “why” of unprofessional behavior.

Summary of Results: Five workshops were conducted (n=251): (1) first-year medical students; (2) residents; (3) physicians; (4) international medical education conference attendees; and (5) community members. Although there were significant differences between groups from our focus group data, in only one out of six workshop cases was there a significant difference between groups.

Discussion and Conclusions: Many studies have shown differences between attitudes on professionalism. Rarely are community members’ views considered or are views measured as part of a teaching session. These data are preliminary, but suggest that once we start with a common framework and language that we may judge behavior more similarly.

Take-home messages: We believe using a common approach describing why one may act unprofessionally may set the stage for a common understanding of behavior even in separate teaching sessions and across different audiences.

A Systematic Review of the Impact of Peer-Based Teaching of Ethics and Professionalism

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Background: Ethics and professionalism education has become a core component of medical education internationally. Methods of teaching ethics vary between educational establishments. Work such as Yu et al. (2011) has concluded that peer-to-peer teaching can be as successful as traditional teacher-student methods, and peer-peer teaching and facilitation has been successfully implemented in a number of healthcare curricula. We aimed to establish the evidence for the efficacy and value of peer-based teaching in the fields of ethics and professionalism teaching as an educational methodology.

Summary of Work: A systematic review of the literature concerning peer-based ethics teaching was conducted. MEDLINE, EMBASE, CINAHL, SCOPUS databases, and the Cochrane Library, were searched for studies of peer-based ethics or professionalism teaching. Selected studies related peer-based teaching to ethics education outcomes.

Summary of Results: 11 relevant publications were identified. Peers were used for a number of different interventions including conveying information, facilitating group discussion and formative assessment or feedback of one another. The most common applications were for small group discussion and reflective feedback.

Discussion and Conclusions: Data was limited, however identified studies suggest use of peers in ethics and professionalism education can prove an effective educational methodology. One study suggests peer-based teaching has advantages over traditional didactic methods. Peer-based teaching also received close to universal positive feedback from student participants.

Take-home messages: Peer-to-peer teaching can be an economic and effective form of teaching. Several studies demonstrate this is the case in the field of ethics and professionalism education. The medical community should invest in and capitalize upon the potential of peer-based teaching in healthcare education.
Using OpenLabyrinth online scenarios to determine medical educators’ own perspectives on ePortfolio to assess competency in professionalism

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**Background:** The RCPSC has included the implementation of ePortfolio as a summative assessment tool to support their Competency by design (CBD) initiative in the updated CanMEDS 2015 Framework. Professionalism as a competence can be especially difficult to archive and requires explicit faculty development. Providing a context for educators to learn about their own assumptions of ePortfolio to assess professionalism can enhance their ability to evaluate.

**Summary of Work:** Cases and checklists, which have already been developed for a modified structured oral exam, will be extended in an open-source education research platform, OpenLabyrinth, a scenario-based e-learning design program. Early adopters of CBD will explore their assumptions through situational judgment testing. Feedback is derived from OpenLabyrinth’s internal data analytics.

**Summary of Results:** OpenLabryinth affords additional context beyond that of questionnaires and surveys. The context is based on recent literature that will determine the desired learning outcomes, strengths, and pitfalls of ePortfolio. The OpenLabryinth platform provides powerful branching conditional pathways as well as flexible feedback mechanisms.

**Discussion and Conclusions:** As educators work through the cases, they are able to analyze their performance on the basis of standards of professional practice, determine how to improve it, and then share those practices with the learner. Development of these cases will be an invaluable resource for the early adopters of CBD as it provides innovative schemata for hands-on faculty development and assessment of ePortfolio.

**Take-home messages:** OpenLabryinth platform can provide the basis for learning analytics in future case development, including medical educators’ own perspectives on other assessment methods.

A Consecutive and Comprehensive Curriculum that Cultivates Professionalism in Medical Students in Japan

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**Background:** Professionalism is regarded as a core competency for medical students to possess, however, a standardized educational program to develop this essential proficiency has not yet been established due to its abstract definition and subjective nature. Globally, there is much research into establishing curricula that cultivate Professionalism and bring a more humanistic focus to students studying medicine.

**Summary of Work:** To further develop qualities of medical Professionalism and humanism in our students, we introduced a consecutive, comprehensive and compulsory curriculum called the “Medical Professionalism Program (MeP).” This program consists of; 1st year: principles of ethics, law and psychology, 2nd year: medical politics and insurance system, 3rd year: research ethics, 4th year: clinical research ethics, principles of medical ethics, medical communication and a student-authored oath project, 5th year: medical safety, global health, and public health awareness, 6th year: end-of-life–care, brain death determination, organ transplantation, and selection of reproductive techniques. Students are encouraged to discuss key issues in groups before presenting their ideas in a collaborative learning approach and are evaluated through peer-to-peer assessment and integrated portfolios.

**Summary of Results:** Through the MeP, our students shared their experiences and ideas, on what constitutes Professionalism and how they can develop these attributes for the benefit of society and compassionate and ethical care of their patients.

**Discussion and Conclusions/Take-home message:** Through the MeP curriculum, medical students are encouraged to develop skills of Professionalism and humanism by building on their dedication to the fundamental ethical principles of medicine; beneficence, respect for patient autonomy, and justice.
#4DD13 (26852)
Using movie to teach medical professionalism in oncology

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Background: Medical professionalism is the hot issue in medical education. The challenging of medical educator is about the multitude of constituencies to demonstrate professional behaviors, the methods for teaching and how to assess. Teaching medical professionalism is often a part of hidden curriculum. The interactive method such as using movies has been accepted worldwide to educate students. Teaching medical professionalism in oncologic field by using films has not been established. This study demonstrated the improvement of understanding about communication skills, ethical issues and family dynamics after watching the movie.

Summary of Work: The movie club is one of medical student interesting session for extracurricular activities which were scheduled every Wednesday noon for 4th-6th year medical students. The “50/50” was about a man who had malignant tumor of spine which changed his life. After watching the movie, we provoked reflection and discussed about the feelings of the patient, the factors which influenced the patient, the results of bad communication skills, how to deal with side effects of the treatment and the role of the doctor. Then the questionnaire was used to evaluate the learner feeling.

Summary of Results: 32 students attended the movie. The improvement of understanding the patient feelings, the factors which influenced the patient, the results of bad communication skills, how to deal with side effects of the treatment and the role of the doctor were 93.75%, 90%, 81.25%, 90%, 90% respectively.

Discussion and Conclusions: Using movies is the effective tool for teaching medical professionalism in oncologic field who have bio-psycho-social-spiritual aspects of health.

Take-home messages: Movie is an interactive tool to teach medical professionalism.

#4DD14 (26860)
Exploring the use of the conscientiousness index in an internal medicine residency programme in Singapore

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Background: Professionalism is a difficult concept to define and assess, and many tools in use are confined to clinical contexts. Conscientiousness with administrative duties is a component that is often not assessed when evaluating professionalism, although lack of compliance with administrative tasks has been shown to be correlated with poorer outcomes in examinations.

Summary of Work: Our programme was interested in the work by Maclaughlan et al on the conscientiousness index (CI) which provides a scalar measure of conscientiousness with administrative tasks. We also wanted to emphasize to the residents the importance of fulfilling their roles as learners. Faculty members voted on components to be included in our version of the CI, which includes
1. Attendance at teaching activities
2. Submission of administrative data
3. Submission of evaluations done with faculty
4. Uncategorised events such as absence without leave and failure to register for mandatory examinations

Summary of Results: We have used the CI as a component of the evaluation of professionalism since 2013 and given feedback to the residents who score poorly. Interestingly, the median CI of the residents per quarter has been on an upward trend since implementation. We have also picked up several residents who were struggling with external stressors as their CI dropped dramatically before other evaluations were affected. The CI is not correlated with medical knowledge scores.

Discussion and Conclusions: The CI is a useful tool to measure one aspect of professionalism and deserves further exploration.

Take-home messages: The CI is a useful tool to measure one aspect of professionalism.
Can punctuality of medical students predict summative examination success?

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Background: Punctuality is an essential requisite of a qualified doctor. However, no study has explicitly addressed any association of punctuality and achievement in medical school. We hypothesized that medical students are more likely to pass their examination if they attend ward rounds punctually.

Summary of Work: Punctuality and attendance of all fourth-year medical students at Phramongkutklao college of Medicine were monitored using fingerprint scanning technology during general medical ward rotation. Students who attended morning round more than 15 minutes late were marked as absent. Data were analyzed using the STATA statistical program, version 10.

Summary of Results: A total of 110 students were enrolled, and 62.70% were male. Thirty-one percent of students attended morning round more than 15 minutes late were marked as absent. Data were analyzed using the STATA statistical program, version 10.

Discussion and Conclusions: There was a correlation between number of absences and summative examination results. However, there was no correlation between number of absences of only a specific ward rotation and the past-year GPA. Further research is required in larger groups, and with more refined predictor.

Take-home messages: Although, there are many other factors predict the level of attainment of medical student. Punctuality is one of the important predictive factors in doing well at medical school.
#4DD17 (24221)
Narrative and Reflection, to Develop Professionalism in Medical Students

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Background: Medical professionalism is challenging in terms of pedagogical technique. Narrative has been promoted as a method to open space for meaningful self-reflection. Objective: To develop medical professionalism via story-telling and reflection activity.

Summary of Work: A group of six 4th year students were assigned to prepare a story about patient’s or doctor’s life. Three-hour sessions were conducted for all 4th, 5th, 6th year students and some teachers join the activity together. VDO were presented in 10-15 minute/group, 3 stories were presented in each session. After watching the stories, all participants divided into 30 persons/group to share their feelings and reflect their own ideas in the group.

Summary of Results: Most students agree that the activities promote them to be more humanized doctor. Their reflections via group discussions and writing in mind maps were flourishing; personal feelings and ideas were interchanged and fine-tuned.

Discussion and Conclusions: This is one of teaching technique to promote medical professionalism. Narrative competence embodies art of healing such as active listening, compassionate perspective and respectful mind. Reflection promotes self-awareness and shapes professional identity in constructive way.

Take-home messages: Story-telling and reflection cultivate professionalism and make doctor more humane.

#4DD18 (28126)
Doctor’s attire: different expectations between non-health professionals and clinical students

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Background: Patient’s first impression on doctors is partially associated with doctor’s attire. This research aims to study types of dress and dressing items which can make people distrustful of doctors. The discrepancy between non-health professionals’ (non-HPs) and clinical students’ perspective is also explored.

Summary of Work: In the first round, features of inappropriate dress and dressing items were identified from the researchers’ discussion with Chulalongkorn medical faculty. Data were saturated after twenty-five teachers were interviewed. Seventeen photos were prepared for data collection in the second round with 130 Year 4 students and 226 non-HPs.

Summary of Results: Non-HPs were most uncomfortable with a male doctor in shorts (96%), a female doctor with heavy make-up (84%) and a male doctor wearing sandals (80%). Age, gender, hometowns in/outside the capital city, and having HPs as relatives were somewhat associated with non-HPs’ acceptance of doctor’s dress and dressing items. The three features of dress which Year 4 students perceived most differently from non-HPs were: jeans (1.73 VS 2.46, p < .01, effect size = 0.75); dirty gowns (2.14 VS 2.61, p < .01, effect size = 0.58); and fashion shoes (1.14 VS 1.56, p < .01, effect size = 0.57).

Discussion and Conclusions: Non-HPs tended to be more conservative than students thought. Undergraduate medical students should be informed of these research findings so that they could understand non-HPs’ anticipation for physicians and prepare themselves to meet this expectation.

Take-home messages: Dress on the safe side!!!
Teaching professionalism in the classroom: a pioneer project at the University of Navarra

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Background: Humanistic competency acquisition is not approached within the medical contents curricula. It is implied as a competency learnt from the professionalism shown by faculty while rotating through different clinical settings

Summary of Work: To implement a new subject in the Medical degree curriculum that would review and promote skills that better shape professionalism. We reviewed the theory content and selected adequate teaching techniques. We then designed the course and the evaluation tools. We assessed student satisfaction through questionnaires

Summary of Results: We decided to focus student learning on physician-patient relationship, confidence and confidentiality, communication, professional competency, scientific knowledge, conflict of interest and practice and decision making skills. The course consists on one part on 10-hour lectures in which basic reflections about “being a doctor” and professionalism were delivered. And on the other part on 20 hours of practice in which students analyzed different scenarios in which professionalism issues were at stake. The class was delivered in small groups and the methodology was selected depending on the content, through clinical cases discussion, patients’ testimonies, text reading, video discussion, role play and self reflection. Evaluation took in account the result of a multiple choice test, class participation and the self-reflection assays on each scenario. The subject was delivered from September to October 2014. The student’s feedback through a questionnaire at the end of the course shows a high satisfaction level.

Discussion and Conclusions: Teaching professionalism in classrooms is possible. Student’s involvement in clinical scenarios and self-reflection play a key role in the success of professionalism standardize teaching in a classroom setting.

Take-home messages: Teaching professionalism in classrooms is possible.

Using Q-sort to enhance understanding of medical students’ perceptions of medical professionalism

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Background: Professionalism is closely connected to specific cultural contexts. Aim of this study was to enhance the understanding of data previously obtained from visual analysis of mind maps and to focus on identifying factors in international medical students’ understandings of medical professionalism.

Summary of Work: Participants (N=189) were asked to sort attributes of professionalism identified during the first phase of the project, following the Q-sort method strategy. Additionally, they were asked to reflect on their sort and the most and least valued attributes. Factor analysis was used for the obtained Q-sorts, while the multi-layered qualitative data analysis was performed using Atlas ti.

Summary of Results: Students regarded knowledge, skills and competencies as the most important attributes, and involvement in research, leadership skills and tidy and proper appearance as the least important features of professional doctors. Avoiding conflict of interest and empathy were identified as two attributes perceived most diametrically by the identified sub-groups of participants. The two most frequently recurring themes in the qualitative analysis were patients and doctors well-being.

Discussion and Conclusions: Students understanding of professionalism is culture-dependant and not well formed, hence requires educational interventions tailored for diversity issues.

Take-home messages: Q-sort proves to be not only a relevant tool for analysing students’ perceptions of professionalism but also a useful educational tool enhancing reflection skills.
How students come to think, act and feel like a physician: Factors affecting professional identity formation during medical school

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Background: Professional identity in medicine has been defined as: “A representation of self, achieved in stages over time during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician.” To understand what factors during medical school influence the development of a professional identity, we interviewed 26 students about their experiences during clerkships and how these influenced their ideas of the kind of doctor they want to become.

Summary of Work: Coding of transcripts of the semi-structured interviews and data analysis was performed by two researchers (SB and SQ), with input and discussions from other members of the research team.

Summary of Results: Before clerkships many students have preliminary ideas about how doctors think, act and feel. By experience and by observing role models during clerkships their views evolve in an iterative process. Professional identities appear to develop linked to specific specialties. Factors they mention to be important can be categorized in three themes: specialty content factors (e.g. type of work), specialty social factors (e.g. social climate) and lifestyle factors (e.g. work hours and comfort of living). Students mention these factors to have a primary impact on specialty choice.

Discussion and Conclusions: Students form their professional identities in an iterative process, comparing and contrasting self-image with role models, leading to the development and refinement of ideas on how doctors think, act and feel. This process seems linked to specialty choice.

Take-home messages: Professional identity formation and career choice is an interrelated process.
#4EE  Posters: Curriculum Evaluation  
Location: Hall 4, SECC

#4EE01 (26422)  
Surveying alumni to assess achievement of a medical school’s educational objectives

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Kevin Busche, University of Calgary, Undergraduate Medical Education, Calgary, Canada  
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Background: The 3-year clinical presentation curriculum at the University of Calgary identifies 15 educational objectives that students should achieve by the time of graduation. In 2006 (Class of 2009) the medical school re-structured the organization of the curriculum in several ways including combining traditional system courses to facilitate problem solving and emphasizing schemes as knowledge organization tools. Collecting the opinion of alumni about the curriculum and curricular revisions is important because alumni offer a unique perspective on their undergraduate training.

Summary of Work: A survey (electronic/regular post) was distributed to 973 (80%) alumni who graduated between 2003 - 2012, inclusive. Categorical responses to overall satisfaction and preparedness for the exit objectives were analyzed (Chi-square) according to pre (Classes 2003-2008) and post (Classes 2009-2012) curriculum re-structuring. Alpha was adjusted to account for multiple tests.

Summary of Results: 258 (27%) surveys were returned. Data were first examined for potential response bias. Overall, respondents were satisfied (98%) with the quality of education received and were prepared (92%) to begin postgraduate training which did not vary according to pre-post curriculum re-structuring. Over 80% of respondents were prepared for all but two (apply basic science concepts - 70%; research - 65%) of the exit objectives and these findings did not vary according to pre-post curriculum re-structuring.

Discussion and Conclusions: Alumni respondents were satisfied with their training and exited the program educationally prepared.

Take-home messages: The medical school was successful in preparing students to graduate irrespective of changes to the clinical presentation curriculum.

#4EE02 (24222)  
Perceptions of newly-graduated general practitioners towards the appropriateness of time provided for medical subjects during years 4-6 compared with their use in real practice after graduation

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Background: The course curriculum in years 4-6 (“clinical years”) at Suratthani University-affiliated Medical School has been used for several years. This study aims to evaluate newly-graduated general practitioners (GPs) from the school about their perceptions towards the appropriateness of time provided for medical modules during clinic years compared with their use after graduation.

Summary of Work: Eighteen first-year GPs were asked to respond to the questionnaire about their perceptions towards the appropriateness of time spent on different medical subjects during clinic years, compared with their use in clinical practice. Thirteen modules were assessed, including 4 major subjects (Medicine, Surgery, OB-GYN, Pediatrics) and 9 minor subjects (Orthopedics, Ophthalmology, ENT, Rehabilitation, Psychiatric, Radiology, Forensics, Anesthesiology, and Holistic medicine). Perception of appropriateness was evaluated using a 3-point Likert scale, as follows: 1) too long; 2) appropriate, and; 3) too short.

Summary of Results: Concerning the major subjects, 31.3% and 33.0% of respondents indicated that time spent on Medicine and Surgery was too long in relation to its actual use. In contrast, inadequate time was perceived to be spent on minor subjects: 41.2% of respondents felt that too little time was spent on Orthopedics, 43.8% on Ophthalmology, 43.8% on ENT, 33.3% on Rehabilitation, 40.0% on Psychiatries, and 46.7% on Radiology.

Discussion and Conclusions: Recently graduated GPs perceived time spent on certain subjects during clinic years to be disproportionate to their use after graduation. Time provided for many minor subjects was viewed as inadequate, whereas excessive time spent on certain major subjects was reported.

Take-home messages: Future research exploring the appropriateness of time provided for the detailed content of each subject is highly recommended.
**#4EE03 (26132)**
What kind of feedback is helpful for teachers or students? Progress Test data for teachers and students in online feedback tools in Aachen

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Sonja Finsterer, RWTH Aachen University, Medical Faculty, Aachen, Germany
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Presenter: Johann Arias*, RWTH Aachen University, Medical Faculty, Aachen, Germany

**Background:** Aachen has a reformed curriculum with 50 courses and summative exams and 11 formative progress tests. In a project in the deanery two online evaluation tools have been developed by computer scientists and faculty members to support students' and teachers' self- and course evaluation. The tools use the exam data and other evaluation data to enable self-validation and performance prediction.

**Summary of Work:** Both groups had access to their data in a particular designed Online-Tool. In a requirements analysis both tools were examined. Structured interviews helped to find out special needs of teachers and students, which were implemented in the tools.

**Summary of Results:** Analyzing the different needs led to a new design and a new accessibility of for instance the progress test data. Measurements of access and structured interviews showed a better acceptance. The interconnection of different data types was adapted to the special needs of a specific user group.

**Discussion and Conclusions:** The new design of feedback tools enhanced the acceptance of evaluation data among students and teachers. The interconnection of e.g. formative and summative data was simplified and is now easier to understand and thus to apply for a better self-evaluation and performance prediction and progress representation.

**Take-home messages:** Requirement analysis with students and teachers are very helpful to improve user interfaces in new developed curricula.

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**#4EE04 (26633)**
Improvement in student feedback scores in undergraduate Orthopaedics - what works?

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**Background:** The development and organisation of a Year 3 undergraduate orthopaedics curriculum that require clinical skills acquisition can be challenging. Using experience gained from years of undergraduate teaching, we present our improvisation techniques and outcomes from student feedback.

**Summary of Work:** This study was undertaken in the National University of Singapore medical school that oversees a cohort of 250 students per year. Using a student-reported feedback scores over a 4-year period, comparative analyses were made between academic years 2011 till 2013 and 2013 till 2015. Qualitative feedbacks were also collated and analysed.

**Summary of Results:** Average feedback scores significantly increased from 3.93/5.0 in 2011 to 4.45/5.0 in 2014 (+10.4%).

We found that the main contributors to an improvement to feedback scores were:
1. Improvisations on introductory briefing and feedback mechanisms (a) direct and regular student contacts and feedback sessions between students and the clinician programme director and assistant/administrative staffs. (b) clear instructions on learning objectives at introductory briefing vs purely circulating a list of 'must-see-must-know' condition.
2. Greater emphasis on pre-course flipped classroom teaching through making the Clinical Orthopaedics Examination Skills, CORES video and webcast of previous lectures on the University’s online management system accessible to students 2 weeks before course commencement.
3. Ambulatory teaching – randomly-selected patient vs well-selected patient tailored to learning objective.

**Discussion and Conclusions:** Timely improvisations on programme structure based on students’ needs have shown to improve student feedback. This reflects the effectiveness and student acceptance of the restructured programme.

**Take-home messages:** Clear guidelines and adequate feedback sessions help both students and the educators in teaching in an effective manner.
G.O.A.L.S- Helping Small Teaching Departments Score

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Background: Small teaching departments in hospitals are often faced with competing demands from having to provide clinical care to patients versus providing a structured clinical experience for medical students. In our Psychiatry Department, teaching scores from medical students had stagnated at the 80-85% mark over 3 years. Attempts at improving individual components of the curriculum had not yielded significant results.

Summary of Work: The aim was to implement a curriculum redesign, employing principles of current teaching pedagogy, ultimately creating an easy to use, robust and generalisable system to improve teaching and feedback scores. The redesign would need to create a common platform which would get educators, faculty and students on the same page.

Summary of Results: Despite a reduction in the posting duration, (as mandated by the University), the Department has seen incremental improvements in feedback scores, from 82% prior to change, to 92% in the year after change, to 95% in the year following that.

Discussion and Conclusions: The acronym G.O.A.L.S was adopted to help define the series of change components-

1) Grievances, or problems as experienced by teachers and learners
2) Objectives (clearly measurable) as defined by the University
3) Attributes that clinicians wanted to see develop in the course of the posting
4) Learning Plan or timetable to define the milestones needed
5) Systems requirements and studying the impact of the changes.

Take-home messages: G.O.A.L.S is a simple and structured way of approaching improvement in teaching quality for small clinical departments.

Students of Comenius University in Bratislava, the Jessenius Faculty of Medicine in Martin in a repeated feedback process

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Background: Each of us would like to have feedback that is critical yet helpful and useful for improving the subject design, subject quality and students’ learning experience.

Summary of Work: We carried out evaluation of subjects and educational process by the students of general medicine study program in the academic years 2012/2013 and 2013/2014 (winter semester). The students had an opportunity to evaluate the following 7 areas: the subject in general, teaching conditions, organization of the subject, knowledge and preparation of the teachers teaching the subject, teaching skills of the teachers teaching the subject, relationship of the teachers to students, insights and opinions. The scale A – FX, with a 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 winter semester 2012/2013 and 951 in the evaluation of winter semester 2013/2014. The total response rate was 68%. The questionnaire conclusions are processed after years of 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: Repeated feedback by the medical students not only provides information about the teaching process at the Faculty and helps to improve and refine this process but also points out that remedies were successful.

Take-home messages: It’s the constructive feedback we dissect to determine how we can improve our subjects.
#4EE07 (24986)
Do medical students enrolled through different recruitment schemes perform similarly?

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Background: Sanpasitprasong Hospital has taught clinical year students from two recruitment schemes with identical teaching staff and course syllabus, although different summative assessment were used. Little evidence exists to describe comparative performances between the two recruitment schemes. The objective of the study was to comparative performances between the two recruitment schemes.

Summary of Work: Study population included 55 and 24 students enrolled through two recruitment schemes, Khonkhaen and Ubonratchathani medical schools, who worked on different pediatric clerkships during Mar 2013 to Dec 2014. Student performance was assessed subjectively by faculty. MEQ and OSCE were used to evaluate student knowledge and skills at the end of the clerkship. Both the subjective and objective performance scores were compared between students from the two recruitment schemes, using t test and Mann-Whitney test.

Summary of Results: The mean (SD) score of MEQ and OSCE was 13.74 (1.85) and 12.28 (1.40) out of 20 respectively. There was no difference in ward work performance assessed by the faculty (p>0.158). Students enrolled through Khonkhaen medical school performed better in MEQ and OSCE than their Ubonratchathani counterpart. (MEQ 14.65,11.66 (p<0.01), OSCE 12.5,11.76 (p 0.029))

Discussion and Conclusions: Conclusions: Students enrolled through different schemes performed differently in objective performance evaluation, although they have comparable ward work performance.

#4EE08 (24177)
Curriculum assessment of cultural competence for medical professionals in Taiwan

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Background: In Taiwan, people who speak the Hokkien or other non-Mandarin Chinese languages are known as multicultural groups, such as aborigines and Hakka people. Cultural competence is an important issue of medical education. Competence limitation and cultural stereotypes among health professionals in caring multicultural groups are the disadvantageous factors in health care plan.

Summary of Work: This is the first year result of a three-year project. A total of ten multicultural clients and ten medical professionals were interviewed. 139 multicultural care curriculum from 39 medical universities were analyzed. Finally, 443 online surveys of cultural competence (279 students and 174 professionals) were collected.

Summary of Results: Approximately 40 to 50% of medical universities in Taiwan offer multicultural care curriculum. Professionals encountered the multicultural care experiences: classification of groups according to differences, self-cultural adaptation, focusing on the care skills for multicultural groups, self-multicultural exchange and learning, and eliminating personal obstacles and difficulties. The care experiences from multicultural groups included: discrimination, inequality in professional relationships, language, cultural conflicts, different medical habits, and conflicting care and home roles. The results of the online surveys found that scores of multicultural care awareness for health professionals was higher than that for students. Medical students presented higher scores in multicultural care knowledge, self-confidence, and skills than professionals did.

Discussion and Conclusions: Medical students performed better in terms of knowledge, self-confidence, and skills. However, professionals showed better results in terms of cultural awareness that imply the necessary of practical care experience need to be considered in curriculum development in future.

Take-home messages: 1. Care experience from health professionals as well as multicultural groups is important for curriculum development. 2. Students performance is better than in-service staffs.
Profiles for Primary Health Care: a qualitative analysis from undergraduate medical schools in Chile

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Background: The paradigm of medical education proclaims a biopsychosocial model, emphasizing promotion, prevention and the presence of social and human sciences. This frame, with Primary Health Care as a core strategy, was proposed by Panamerican Health Organization to Latinamerican countries for organizing Health care Services.

To know if medical education prepares future physicians for working in primary health care settings a qualitative analysis of graduate profiles in 15 Chilean schools of medicine was done.

Summary of Work: Documental qualitative analysis of profiles published on web pages of the 15 schools using Atlas Ti software for categories such as education for general practice, primary health care orientation and social approach was done. Considering ethical implications a blind analysis for each school was performed.

Summary of Results: Graduate profiles declare an orientation to general practice. However, the actual programs are in contradiction with preparation for Primary Health Care.

Discussion and Conclusions: Medical Schools are not preparing professionals for Primary Health Care. Although community issues are declared, the work in primary health and health promotion are rarely included. Humanist approach is addressed more frequently than a social one, emphasizing the humanization of care, ethical issues and religious values. Skills for teamwork and leadership are commonly included, but social and communicational skills are poorly incorporated.

Take-home messages: There is a need in Chilean medical education, to progress to a community and primary health care orientation, as Panamerican Health Organization recommends.

Perception of acquired competencies by physicians in Spanish universities compared with Latin American universities. A ten year study

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Background: The Bologna process encourages an education not only based in knowledge but also in competencies. We explored the perception of acquired competencies (Global Minimum Essential Requirements in Medical Education (GMER-ME) during medical school training by physicians from Spanish and Latin American universities, during the last 10 years (2004-2014).

Summary of Work: A 32 competencies survey (grouped in seven Domains according to GMER-ME), was submitted to 1154 physicians before beginning their Residency Programme in seven Spanish hospitals. Domains of GMER-ME*: 1) Professionalism (Prof); 2) Scientific Foundation (SF); 3) Clinical Skills (Clin-S); 4) Communication skills (Com-S); 5) Population Health and Health Systems (PHHS); 6) Management of Information (MI); 7) Critical thinking and research (CThR). Question example: “Assess the training acquired in: Respect for patient autonomy, beliefs and culture”. Scale: 0=Very Poor, 1=Poor, 2=Good, 3=Very Good.

Summary of Results: Answers rate 93.5% (1079: 874 Spanish; 205 Latin American). Mean of each Domain (Spanish versus Latin American doctors): Prof 2.25/2.60*; SF 2.12/2.31*; Clin-S 1.70/2.40*; Com-S 2/2.52*; PHHS 1.61/1.83*; MI 1.60/2.10* and CThR 1.75/2.17*. *p<0.05 (Mann–Whitney U-test). Cronbach’s alpha: 0.94.

Discussion and Conclusions: The perception of acquired competencies by physicians from Latin American universities is higher than physicians from Spanish universities. We highlight the low perception (mean<2) in competencies related to Clin-S, MI and CThR in Spanish physicians, and in PHHS in both collectives.

Take-home messages: Although our sample is not representative of all Spanish Medical Schools, this study shows the need to transform the educational model based principally in knowledge towards a competency-based model like GMER-ME, to suit the Bologna process.
Rescue of an underperforming educational module - a systematic approach

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Background: Poor performance of a planned educational activity is often multifactorial in nature and therefore solutions require a multi-pronged approach encompassing systematic evaluation of root causes and proactive engagement of all stakeholders.

Summary of Work: During an audit of a revised interdisciplinary educational module, we uncovered continual decline in student feedback scores on faculty teaching as well as end of module assessment results of students. We describe the systematic remediation of this under-performance to improve the learning environment of students.

Summary of Results: The decline in top ranked feedback scores for the revised module dipped from 33% in Y1 to 19% and 14% in Y2 and Y3 respectively. Mean academic marks showed corresponding drop from 85% in Y1 to 73% and 74% in Y2 and Y3 respectively. Interventional measures instituted included root cause analysis with focus group feedback, appointment of a change champion, direct engagement with teaching faculty and optimisation of instructional materials. Following these measures, both feedback scores (36% in Y4) and student assessment results (mean marks 82% in Y4) showed significant improvement back to the first year post revision level.

Discussion and Conclusions: The remediation of an underperforming educational module requires a proactive multipronged systematic approach.

Minor study in portfolio teaching and learning reveals fundamental problems with the medical curriculum

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Background: A pilot study was conducted in an undergraduate orthopedic course at Uppsala University Hospital to investigate the possibility of introducing a portfolio assessment as summative examination.

Summary of Work: A complimentary portfolio was conducted by six 3rd year medical students throughout a 4 week course. Weekly and end of study evaluations of educational portfolio activities were done by focus group interviews. The portfolio work was also evaluated and validated through questionnaires that also were sent out to students that had attended the course the previous three years. The interviews and questionnaires were analyzed qualitative and quantitative.

Summary of Results: Besides finding pros and cons of portfolio learning and teaching, the qualitative analysis also found several problems with the medical curriculum, including curriculum overload, time disposition and problems in learning core outcomes as physical orthopedic examination.

Discussion and Conclusions: Course structure and didactics have to change in parallel in order for the students and teachers to meet core outcomes by using of a portfolio model for learning and teaching; students and teachers also need thorough guidance in portfolio use.

Take-home messages: Curriculum design and learner and teachers training are essential when introducing new educational tools such as portfolios. A portfolio might be part of a summative orthopedic assessment if combined with knowledge and skill assessments.
Medical students’ attitude, preparedness, and skills to provide cross-cultural care

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Background: The past decades have seen medical educators in the world strive to ensure that future doctors are culturally competent when caring for patients. This study investigates Taiwanese medical students’ cross-cultural care competence (CCC) throughout different stages of medical education.

Summary of Work: The research surveyed medical students’ self-evaluations on attitude, preparedness, skills and training environment regarding CCC by using 3 sets of questionnaire adapted from a survey on students’ CCC employed by Harvard Medical School. The participants were medical students in the pre-medical, pre-clinical, and clinical years at two Taiwanese medical schools. The questionnaire was translated and modified based on the local socio-cultural and educational context.

Summary of Results: The findings indicate that most students, regardless of stage, have positive attitudes towards cross-cultural issues and recognize its influence on the quality of healthcare. However, there is decreasing agreement between the pre-/clinical students that building trust in medicine is a doctor’s responsibility and about the value of a patient’s self-evaluation regarding the cause of their illness.

Students in the pre-clinical and clinical years show a slight decrease in the level of perceived skill in effective communication with patients from diverse backgrounds. Regarding learning environment, the majority doesn’t believe that CCC development was explicitly addressed.

Discussion and Conclusions: The medical students show a positive attitude towards cross cultural competence in providing health care but a lack of confidence in their skills and training environment.

Take-home messages: The preliminary data suggest that explicit inclusion of cross-cultural training throughout the curriculum and in clinical training is necessary in order to better prepare students for the myriad of situations in real clinical settings.
An exploration of students' perspectives and proposals to improve academic feedback

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Background: Feedback has a significant influence on student achievement. We explored students' views regarding feedback through the Edinburgh Feedback Inventory – a questionnaire based review of student perspectives. The survey has collected data from over 1000 students.

Summary of Work: A phenomenology based qualitative approach was employed. We considered students' free text answers to questions on positive and negative aspects of feedback. Data was examined over two years, with 350 student responses. Line by line coding identified 12 themes.

Summary of Results: We identified academic themes in relation to lack of detail, consistency, individualisation and direction. Practical issues such as timeliness, lack of interactivity, lack of quantity as well as reasons for limitations in feedback delivery were deemed important. There were also themes in relation to exams, need for support and generic positive responses.

Discussion and Conclusions: There was little consensus in the comments collected. Students offered minimal insight into the direct effect of feedback on their academic performance. Suggestions for improvement included educating students about feedback provision and providing more positive feedback, thought to be easiest to implement. More difficult suggestions included decreasing group sizes, increasing the number of assessments and universal access to a tutor for feedback. We reveal a lack of understanding about how feedback delivery occurs, along with either ignorance or indifference towards resource constraints.

Take-home messages: To develop joint feasible and effective developments in academic feedback we not only need to understand students' perspectives but also develop shared understanding of pedagogical issues and institutional constraints.

Assessing the quality of clinical internship evaluations in a Middle East PharmD program

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Background: The Canadian-accredited College of Pharmacy at Qatar University offers a post-baccalaureate Doctor of Pharmacy (PharmD) degree whose curriculum includes 32-weeks of experiential training. Internship evaluations are completed by practice-based supervisors and consist of a rating scale accompanied by written comments. Quality narrative feedback is an important assessment component to guide support for student learning progress.

Summary of Work: We adopted the Completed Clinical Evaluation Reporting Rating (CCERR) instrument originally developed for assessment of the quality of written clinical internship evaluations of medical students. Evaluations were characterized according to nine items, each rated on 5-point scale where a score of 1 is described as “not at all”; 3 as “acceptable”; and 5 as “exemplary”. We selected a random sample (30%) of internship forms stratified across the first four program years (2010-2014) were blinded and scored by 2 independent raters.

Summary of Results: Fifty-four clinical internship final evaluations were reviewed. Overall ability to clearly understand the student's performance on the internship was rated below acceptable for 17 (31.5%). Mean item CCERR scores were below acceptable for 5 of the 9 items, including specific examples to clearly explain weaknesses (mean rating 2.48 +/- 0.84) and concrete recommendations for student improvement (mean rating 2.26 +/- 0.62).

Discussion and Conclusions: Narrative feedback in our PharmD program internship assessments is below acceptable quality. Factors may include lack of supervisor training and sub-optimal evaluation form layout to permit written comments.

Take-home messages: Achieving consistency in quality of internship reports requires supervisor consultation and faculty development programming.
Curriculum Reform of Medicine at the Pontificia Universidad Católica de Chile school of Medicine

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Background: Our University is top one in Latin America and the School of Medicine is one of the leaders in Chile. It is accredited by the AAMC and the Chilean accreditation association. The undergraduate program has 850 students and lasts seven years. In recent years we have started a curricular analysis, literature review, conducted general needs assessment and targeted needs assessment of learners taking account of academic advancement of students, new laws of health care and patient’s rights, globalization and new trends in medical education.

Summary of Work:
Curricular strengths identified were: well developed scientific and clinical components; deep experiential learning in clinical sciences with extensive period of contact with the patient and excellent clinical fields combining ambulatory/hospital settings, at private and public hospitals. However, we realized our traditional curriculum had not evolved enough; and our graduates could be unprepared to meet future challenges of medical practices.

Summary of Results: We designed a new curriculum that establishes a new graduate profile by learning outcomes in eight domains of competences of a comprehensive framework. A six years curriculum was proposed, with an improved curricular sequence, integration of contents, longitudinal teaching of disciplines, melding basic science and clinical concepts throughout the career, with development of humanities and professionalism, prioritizing an early contact with patients and expanding teaching and evaluation methods and technology implementation.

Discussion and Conclusions: It will be implemented with students’ admission 2015. We have approved protocols to evaluate general curriculum and targeted outcomes, that will allow us to make intervention to improve both process and results.

Improvement of a Nordic Summer School in Biomedicine based on student feedback

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Background: NordBioMed.net is a collaboration of the Nordic programmes in biomedicine (Karolinska Institutet and the Universities of Eastern Finland, Turku, Bergen and Copenhagen). The aim is to develop joint courses in a consortium consisting of teachers from each partner university. Joint courses include a summer school where expertise of the different universities is applied. The first NordBioMed summer school was organised in Nauvo, Finland on the island of Seili in 2014. The five day course "Omics in drug discovery" consisted of lectures, interactive group work, as well as ethics and business aspects after which the students were asked give feedback of the content.

Summary of Work: The students were asked to fill in two feedback forms after the course. The questionnaires covered topics of teaching, teachers, tutors, and general aspects. Answers were collected into a presentation for the use of the consortium.

Summary of Results: The students found a novel teaching method in the form of a game extremely motivating. Interest in traditional lectures was hugely dependent on the teaching style of the lecturer. Students also enjoyed the international environment and the location of the course. Criticism was given about the styles of lecturing, off-topic lectures, tight schedule, and confusion about the tasks needed to complete the course.

Discussion and Conclusions: Based on the student feedback the consortium decided to keep the elements which received positive feedback, for the Summer school in 2015, including the topic and the location. The poorer elements were reconsidered or changed with a focus on the revision of instructions for both students and the lecturers.

Take-home messages: Student feedback is an important factor in improving courses even though the feedback will only help the students of the next summer school. Self-evaluation is especially important when organising courses for students from different cultures and backgrounds and thus, different expectations.
A revised SEEQ questionnaire in medical education: The exam ambiance is just as important?  
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Background: With our motivational system, the number of our filled SEEQ questionaires increased exponentially, and we were able to reach a stunning 72% fill out rate, generally. We felt it is time to revise our questionnaire, and test whether the subject’s and the practice leader’s judgement influence the overall satisfaction.  

Summary of Work: We used factor analysis, to test if we can create artificial dimensions using the variables multicolinearity. We tried to minimize the number of factors while keeping most of the variance.  

Summary of Results: In the academic year of 2013/14 (After preliminary data analysis) we could use 18,909 questionnaires. The first part of the questionnaire (which covers the subject’s judgement), the KMO-factor came up with 0,971 with the Bartlett-test being significant, which proved significant correlation between the factors. Running the model came up with two factors which could keep the original 17 variables information content up to 74%. Both proved significant. Regarding the practice leader’s judgement, the KMO variable was 0,983 and Bartlett test came up significant.  

Discussion and Conclusions: The goal of our test was to determine the consistence between the questions, and to uncover the latent structures in the student’s evaluation. After out test, we were able to determine that the judgement of the subject is based mostly on the educational flow and exam ambiance. However we could not prove a latent structure, as the model came up with one factor.  

Take-home messages: Our questionnaire is able to measure student satisfaction in medical education, while the exam ambiance has proven just as important as the educational flow.
Evaluating the success of an undergraduate research programme

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**Background:** Evidence-based medicine (EBM) is a cornerstone of modern medical practice but a concept medical students often engage with late in their studies leading to a decline in the numbers of clinician-scientists. Most advocate such concepts should be introduced early in undergraduate studies. Our student-led research programme addresses this educational void and provides hands-on experience in evidence-based practice. Here we have evaluated the effectiveness of our scheme.

**Summary of Work:** Over the past four years, Acamedics has facilitated 324 clinical projects (research, systematic/literature reviews, audits) for medical students in six universities in the UK and South Africa. We retrospectively surveyed students who had taken part in a project to see how useful they had found the scheme, whether it had influenced their motivation to do research and whether they had a better understanding of the principles involved in EBM and research governance.

**Summary of Results:** After doing an Acamedics project, our study showed an increase in both understanding principles in research as well as research governance (33%). All our respondents reported they were more likely to do research in future with 88% reporting that they’d like to do another project with Acamedics.

**Discussion and Conclusions:** Medical students are more likely to be attracted to research careers with good mentorship and the right clinical skills which undergraduate curricula currently fail to provide.

**Take-home messages:** Acamedics has been a successful scheme across multiple institutions for numerous reasons. Our rigorous selection process for supervisors means we select mentors who are keen to foster medical student talent and our curriculum derived from educational needs identified by our own students.
Evaluating methods used in Foundation Year One teaching sessions

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Background: Foundation year one (FY1) doctors nationwide receive at least two hours protected teaching time per week. South Thames Foundation School (STFS) advise that these should be based on clinical scenarios and where possible should be interactive rather than lecture based. They also suggest a wide range of possible teaching methods.

Summary of Work: We looked at all FY1 teaching sessions taught so far for this year’s cohort and analysed the range of teaching methods used. We compared these with numeric feedback scores provided by FY1s and written comments that included how teaching may be improved.

Summary of Results: In FY1 teaching a narrow range of teaching methods were utilised. The majority of sessions were lecture based. Those that were interactive tended to be case based scenarios; these scored highly on feedback forms. Those that were not interactive almost always had this as a suggestion on the feedback form. Teaching sessions that involved unique teaching methods or were skills based received the most positive feedback in comments section.

Discussion and Conclusions: FY1 doctors want their teaching to be stimulating and interactive and want to improve their practical skills. They particularly enjoy teaching with unusual methods. Teaching session leaders should be encouraged to use diverse and stimulating methods following STFS guidance. Additionally the curriculum should incorporate more clinical skills sessions.

Take-home messages: Broad yet comprehensive cover of Foundation Programme Curriculum is important for FY1 doctors. They tend to prefer this when presented in a wide variety of media and when they are encouraged to participate.

A Web of Expertise Facilitating Foundation QI Education

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Background: Medical education in the 21st Century needs not only to produce doctors with scientific and clinical expertise, but also doctors familiar with the complexities of healthcare systems. This expertise includes knowledge of operational management, teamwork, people skills and human factors.

Summary of Work: Over the last five years, Health Education Southwest Severn Postgraduate Education has developed a quality improvement education programme for foundation doctors, teaching about system change and the ethos of teamwork. The trainees choose their own QI projects and learn skills in navigating complex healthcare organisations as they move towards their patient safety aim. The programme is facilitated by a group of QI and education experts who meet regularly developing a web of expertise. The faculty itself is learning in an experiential manner, as they discuss the QI programme and how to move it forward.

Summary of Results: Success can be seen by the number of trainees undertaking projects, the number of winning project presentations and the number of patient safety interventions embedded in participating Trust’s processes.

Discussion and Conclusions: This facilitating group has been fundamental in linking the trainee programmes across the region while developing the programme to help trainees learn the essential non-clinical skills that will hold them in good stead in their future careers. The trainees also gain from being able to move seamlessly between participating Trusts and to develop their patient safety ideas further or joining into existing projects.

Take-home messages: The linking of experts at regional level helps drive the education forward both for the foundation trainees and the QI leaders in the web.
"Speaking Up" - A continued study of FY1 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 specialties when seeking advice or requesting investigations.

Summary of Work: Looking beyond last years’ preliminary study, further qualitative feedback was collected from 200 Foundation trainees across the Yorkshire & Humber and North-Western Postgraduate Deaneries 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 difficulty seeking advice or investigations from other specialties 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.

Advocating for Adolescents: A Multidisciplinary Approach to Adolescent Sexual Health Training

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Background: Adolescents are exposed to sex at an increasingly younger age. We identified that many trainees felt ill equipped to advise and support teenagers on sexual health. We developed a course for paediatric, General Practice, Genitourinary Medicine and Community Sexual and Reproductive Health trainees to address these learning needs and felt that training would be enhanced by a multidisciplinary approach.

Summary of Work: We used pre and post-course surveys to assess trainees’ knowledge and confidence in different areas of adolescent sexual health. Using a focus group we designed an interactive programme with varied teaching methods and a multidisciplinary faculty.

Summary of Results: We have run the training day three times with a total of 180 delegates. Confidence in talking to young people about sexual health increased from 44% pre-course to 91% post-course. Knowledge of adolescent sexual health also increased with 44% rating it as very good or good pre-course and 91% post-course. Most delegates felt their learning was enhanced when learning with healthcare professionals from different specialties.

Discussion and Conclusions: The results showed a clear improvement in the confidence of all trainees to advise, signpost and support adolescents regarding their sexual health. They felt that inter-professional learning was beneficial for sharing knowledge and future connections.

Take-home messages: Multidisciplinary teaching enhances the learning experience in adolescent sexual health training.
#4FF05 (23607)
‘Asked To See Patient’ (ATSP)

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Presenter: PB Baker*, UK

Background: “Asked To See Patient” (ATSP) is a peer-delivered teaching programme delivered to new Foundation Year One doctors in north-west England prior to the August change over period. The ATSP teaching is based on a booklet containing guidance on the management of common clinical scenarios encountered during out of hours shifts “on call”, to aid the transition from medical student to newly qualified doctor

Summary of Work: In June every year an ATSP ‘Teach the Teachers’ course is delivered by the ATSP chairs. This is a one-day course delivered to existing FY1 doctors from all of the NHS trusts in north-west England. ATSP is subsequently delivered by the existing FY1 doctors locally at each trust in groups. Role-play is used to deliver these sessions and ATSP booklets are handed out. New FY1 doctors who attended the ATSP programme were then surveyed one month after starting work to assess the value of the ATSP course/booklet during on-calls. This electronic survey contained qualitative and quantitative assessments. This data was collated and analysed using statistical and thematic analysis.

Summary of Results: 550 FY1 doctors attended the ATSP course at their hospitals. Of the 141 who responded to the questionnaire, 58% utilised ATSP booklets during on-calls, 59% reported improvements in prioritisation of on-call jobs and 76% felt they had become a safer clinician as a result of ATSP.

Discussion and Conclusions: The ATSP programme has shown to aid the transition from medical student to a confident newly qualified FY1 doctor, who can initiate assessment, investigation and management of patients prior to obtaining senior help.

#4FF06 (28051)
A study to identify factors that have an impact on the foundation year ARCP outcome

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Background: The annual review of competence progression (ARCP) was introduced into the Foundation Programme in 2012 as a formal e-portfolio evidence review to monitor progression.

Summary of Work: We collated data for the cohort of foundation doctors (n=206) who were in foundation training 2012-2014 within Health Education Thames Valley. The dataset included gender, placement location, FY1 ARCP outcome and which speciality training scheme they applied to. We wanted to see if any of these factors affected the outcome of FY2 ARCP or the doctor’s ability to obtain a place on ST scheme.

Summary of Results: Our binary logistic regression analysis showed that none of the factors were significant. Gender did not affect likelihood of successful outcome at ARCP (p=0.653). An unsuccessful FY1 ARCP did not affect the outcome of FY2 ARCP (p=0.447). The location of placements for FY1 and FY2 did not affect outcome (p=0.235/0.962). An unsuccessful outcome did not affect likelihood of getting their first choice specialist training rotation (p=0.379).

Discussion and Conclusions: It was reassuring that the ARCP outcome was non-discriminatory for these factors, and that the outcome of FY1 ARCP did not impact the subsequent ARCP or obtaining first choice ST placement. It does raise questions about whether the ARCP is viewed as a ‘tick-box’ exercise, allowing a positive outcome for completion without recognising efforts to achieve a level above mediocrity, let alone excellence. The ARCP needs further development to assess the ‘added value’ training should provide.

Take-home messages: The ARCP process within HETV is non-discriminatory and an unsuccessful outcome has no effect on career progression to specialist training.
The Opinion of Medical Interns on The Bedside Teaching Method and Other Methods of Learning Breastfeeding in a University Medical Hospital of Thailand

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Background: Breastfeeding is important and provides many benefits for child health. A breastfeeding course is now part of medical student curriculum in their clinical year of study. However, certain physicians have difficulty teaching about breastfeeding to their patients due to their lack of experience and skill. This study aims to explore the opinion of physicians to determine the best method of learning breastfeeding for medical students in their clinical year of study.

Summary of Work: A structured questionnaire was designed for first year medical interns to recall their past experience in their breastfeeding courses. They were completed by interns who were on rotations at Mahasarakham Hospital in Mahasarakham Province, Thailand. Descriptive statistics were used to analyze data.

Summary of Results: A total of 26 out of 30 interns completed the questionnaires. There were 7 males and 19 females. We found that the independent-study method had the least benefit in terms of applying the knowledge of breastfeeding in their real practice. The majority of intern stated bedside teaching as the most beneficial method of receiving knowledge. The demonstration and observation of breastfeeding in a breastfeeding clinic provided the second and third highest benefit, respectively.

Discussion and Conclusions: This study found that the bedside teaching method is more beneficial for learning about breastfeeding compared to other teaching methods.

Take-home messages: The bedside teaching method and a demonstration of breastfeeding in a breastfeeding clinic should be utilized to improve the understanding and learning environment of clinical year medical students.

Educational impact of Twitter in PGY core curriculum

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Background: Utilization of Twitter in medical education is rare in Taiwan. We integrated the social media into our core curriculum for PGY training, and examined its educational impact.

Summary of Work: After evaluation, we selected the core curriculum of "Management of patients with hyperlipidemia" as our study curriculum. All PGY trainees who will engage in this class were informed about the preparation of a Twitter account before his/her participation. Any information regarding the class is announced in Twitter. We also use Google sheet as Twitter connection to make class-related pretest, questionnaire for satisfaction, and posttest. Lecture is conducted for about 30 minutes after completion of pretest and pre-class questionnaire. Discussion regarding the lecture is conducted by Tweet.

Summary of Results: We started the mode of education in November, 2014. The curriculum is conducted once monthly. There are around 10-15 PGY trainees participating in each class. Learning objectives will be set according to each class topic, and will be adjusted by the result of pre-test. Till now, there are 40 trainees enrolled for analysis of their educational impact. We compared the difference between pretest and posttest in each class. Satisfaction that related to each class was recorded on a Likert scale.

Discussion and Conclusions: The overall of satisfaction by Likert scale in each class is greater than 4.5. More than 60% of PGY trainees agreed with increased engagement in the lecture, and 80% agreed with getting more practical knowledge by utilization of Twitter with connection of google sheet.

Take-home messages: A comprehensive design and preparation of Twitter in core curriculum can motivate learning of PGY trainees.
#4FF09 (25335)
Reflective learning through roentgenogram based module, an innovative module of “e-learning” for post graduates of orthopaedics

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Background: Reflective learning can be instrumental in development of educational domains of residents. The purpose of the study was to introduce e-learning and to sensitize residents for reflective learning and to analyze whether reflective thinking can be incorporated in PG training module.

Summary of Work: Between July to December 2014 reflective e-learning sessions were conducted on common clinical scenarios in orthopaedics. Participants were exposed to clinical situations and were interrogated for their phasic behavioural changes. Pre and post test were conducted and post test included the questionnaire related to the reflective learning. Data were evaluated and concluded.

Summary of Results: E-learning module was introduced successfully. There was significant gain in the pre and post test scores. The absolute learning gain was 23.4% and relative learning gain was 35%. In reflective learning questionnaire it was noted that 84% of residents could identify the clinical scenario, 74% could do appropriate analysis of the condition and 53% could incorporate the learned conclusion into anticipated similar scenario.

Discussion and Conclusions: We have concluded that the inclusion of e-learning incorporated with reflective learning enhances the ability to understand clinical scenario and improves decision making capacity.

Take-home messages: We recommend inclusion of reflective learning to be essentially incorporated in the post graduate curriculum.

#4FF10 (25215)
The opinion of Faculty of Medicine Airlangga University Graduated General Practitioners about Indonesian Doctor Internship Program

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Presenter: Indri Safitri Safitri*, Faculty of Medicine Airlangga University, Biochemistry, Surabaya, Indonesia

Background: Every Indonesian general practitioner graduated using a competence-based curriculum in their education was obliged to follow Indonesian Doctor Internship Program for 1 year, divided into 8 months in type C hospital emergency room and 4 months in public health service. Since this competence-based curriculum implemented in 2005/2006 in Faculty of Medicine Airlangga University (FMAU), graduated general practitioners from FMAU in 2010/2011 were obliged to follow the Internship Program. This research was done to determine the opinion of Faculty of Medicine Airlangga University Graduated General Practitioners about Indonesian Doctor Internship Program.

Summary of Work: The method of this research was descriptive observational study. Seventy seven FMAU graduated general practitioners who finished their Indonesian Doctor Internship Program in 2013 and 19 associated doctors as counselors were recruited as study subjects. Data was collected using questionnaire and deep interview.

Summary of Results: FMAU graduated general practitioners said that the Internship Program was so beneficial to increase skill and independence. Their clinical knowledge during their education was also useful in their Internship Program. It was said that the most useful clinical knowledge in working at the hospital was from internal department, surgery department, basic life support module, psychiatry department and forensic and medico legal department respectively. While in public health service, the most useful clinical knowledge was from community medicine department, public health department, obstetric gynecology department and internal department respectively.

For the counselor, the Internship Program was very useful to fulfill the hospital or public health service general practitioners demand, because FMAU graduated general practitioners were professional enough.

Discussion and Conclusions: Both FMAU graduated general practitioners and counselors in hospital or public health service in the Internship Program said that the program was so beneficial.

Take-home messages: Indonesian Doctor Internship Program needs to be continued. Improvement is required due to some dissatisfaction of Indonesian Doctor Internship Program.
#4FF11 (26050)
Retention of Cardiopulmonary resuscitation knowledge by interns

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**Background:** Cardiopulmonary resuscitation knowledge is crucial for doctors. This study aimed to assess the retention of cardiopulmonary resuscitation knowledge of interns after six months of training.

**Summary of Work:** A quasi-experimental study was designed. The cardiopulmonary resuscitation training program was arranged for 23 interns. They took the test that divided into airways and assessment, drug usage, EKG analysis and application part before training, immediately after training, and six months after training. Their scores were measured after each test. The mean score decreased more than 20% of the knowledge after completion of the training was considered statistically significant.

**Summary of Results:** The study revealed a higher mean score of immediate post-test knowledge retention than in the pre-test scenario. The mean difference in score was 1.91 (95% confidence interval, 1.33 to 2.49). The mean score difference of the six month post-test and the immediate post-test measurement was 1.18 (95% confidence interval, 0.47 to 1.89), a mean score decrease of 8.37 % compared to the immediate post-test scenario. In comparison to the test results for the immediate post-test scenario, knowledge of drug and application decreased more after six month post-test measurement.

**Discussion and Conclusions:** Cardiopulmonary resuscitation knowledge retention by interns was considered good when tested 6 months after training. Our training program should place more emphasis on improving knowledge for drugs usage and application.

**Take-home messages:** Reassessment after teaching is essential to discover retention of knowledge, the pitfalls and to develop the training program.

#4FF12 (26073)
Factors affecting application choice for postgraduate year (PGY) training program in south Taiwan

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**Background:** Medical graduates in Taiwan are obliged to accomplish one year postgraduate (PGY) general medicine training before residency through national matching system. However, little is known about the factors affecting the application choice for entering PGY training program. The purpose of this study is to investigate the major factors that may determine these medical graduate applicants' choice for their PGY training hospital.

**Summary of Work:** This survey was performed at Kaohsiung Medical University Hospital (KMUH) in south Taiwan by 24 items questionnaire using five-point Likert scale of agreement. Totally, 175 (M:F, 67:33%) out of 186 PGY applicants completed this survey on the day of application interview. Response rates were 94.1%. Totally, 74.9% of applicants were the medical graduates from KMU, 58.9% of them were KMUH interns (last year medical students).

**Summary of Results:** Three major factors affecting the motivation to apply for PGY training were personal preference (79.4%), senior graduate’s recommendation (64.6%), and relative’s recommendation (27.4%). Independent t-test showed that KMUH interns placed significantly higher values on “learning environment and human interaction”, “workload and welfare”, and “personal identity and expectation” than non-KMUH interns.

**Discussion and Conclusions:** The main factors affecting the motivation to apply for PGY training were personal preference (79.4%), senior graduate’s recommendation (64.6%), and relative’s recommendation (27.4%). Independent t-test showed that KMUH interns placed significantly higher values on “learning environment and human interaction”, “workload and welfare”, and “personal identity and expectation” than non-KMUH interns.

**Take-home messages:** Quality of learning environment and reasonable clinical workload with welfare determine PGY applicants’ career choice for training.
Development of Broadbased Training in the West Midlands

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Background: The task for Health Education West Midlands (HEWM) was to set up a programme that followed national guidelines but also gave job satisfaction and resulted in doctors with a broader experience. Broad Based training (BBT) was a new pilot training scheme launched in August 2013.

Summary of Work: An action research approach was used, with the BBT trainees constantly providing feedback and the programme being modified accordingly. Towards the end of the first year, focus group interviews were conducted. Qualitative data relating to trainee experiences was collected and reflected on.

Summary of Results: The quotes taken show that the HEWM BBT pilot has been well received. 10% days are now 13 flexible days “it would be easier if the 10% days were already incorporated into the rota” to avoid difficult negotiations.

Job satisfaction was high, “We are treated as a trainee in all jobs and so we get equality of opportunity.” “6 month placements are good as you develop a core grounding in that subject”. The BBT trainees decided on monthly peer group teaching sessions and they were felt to be “fun and informative” and having them one day a month “made the best use of our time”. “I would have been stuck without BBT, I was in the dark and did not know what I was going to do before”.

Discussion and Conclusions: The pilot has now been extended with more BBT posts available. The experiences from developing this programme will be shared with other LETBs.

Take-home messages: BBT is an exciting innovative programme that is constantly evolving and a good career choice for trainees.

Postgraduate education in traditional Japanese (Kampo) medicine: A current survey of clinical training hospitals in Japan

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Background: No precise survey has been conducted to assess postgraduate education in Kampo medicine in Japan.

Summary of Work: We conducted a postal questionnaire survey involving 1,011 clinical training hospitals in Japan to identify the problems of establishing postgraduate Kampo education programs.

Summary of Results: There were 817 effective responses (81%). 1) Most instructors (84%) recognized the need of physicians to use Kampo medicine. 2) Most instructors (67%) thought Kampo medicine should be taught to residents during their internships. 3) Only 22% of the hospitals (representing 33% of all residents) had Kampo education programs. 4) Approximately 69%, 16%, and 7% of instructors at the hospitals with no Kampo education programs pointed out the lack of Kampo instructors, time, and need to teach Kampo, respectively. 5) Approximately 67% of the hospitals had no Kampo education program and no plan to introduce one in the future. 6) Approximately 42%, 35%, 32%, and 10% of the hospitals permitted future Kampo instruction through voluntary study, lectures sponsored by Kampo manufacturers, study sessions with other hospitals, and independent study sessions, respectively.

Discussion and Conclusions: 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, to promote postgraduate Kampo education, Kampo education programs should be introduced in large hospitals where many residents belong and Kampo instructors are likely to be found.

Take-home messages: To promote traditional medicine, training programs should be introduced in large hospitals.
Improvement of online learning (e-learning) increased the satisfaction rate of clinical teaching qualities from PGY trainees

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Background: Taiwan has introduced the PGY program since 2004 after SARS crisis on 2003. Taipei City Hospital has performed the PGY program for years. We described a 2 years’ experience with an intervention for PGY program that improved satisfaction rate of teaching quality.

Summary of Work: From Jan 2012 to Dec 2013, Education and Research division of Taipei City Hospital had examined questionnaires of PGY teaching program from 551 PGY trainees in 2012, and 502 PGY trainees in 2013. We had surveyed 4 major aspects of PGY teaching program by these questionnaires, including teaching resources, teaching quality, learning process as well as learning evaluation, and compared the satisfaction rate for these 2 years.

Summary of Results: The satisfaction rate for these 4 items from PGY trainees (n=464) in 2012 were 77.33%, 86.18%, 82.95%, and 83.10%, respectively. The results revealed PGY students were unsatisfied with teaching resources the most and learning process the second. The Education and Research division has improved the equipment in clinical skill center and increased access of online learning in 2013. The satisfaction rate for these 4 items from PGY trainees (n=464) in 2013 were increased to 80.04%, 89.29%, 85.24% and 85.87%, respectively. After analysis of all questionnaires, we found increased accessibility of online learning was the main factor for improving satisfactions.

Discussion and Conclusions: Our study revealed increasing the accessibility of online learning may help PGY trainees obtaining better learning experiences.

Take-home messages: Development of online learning can contribute a lot for PGY teaching program.

Preliminary Results of Faculty Perceptions about Feedback Taken as a Component of Program Evaluation Process in Yeditepe University Faculty of Medicine

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Background: The aim of this study was to understand the perceptions of faculty regarding students’ feedback.

Summary of Work: Feedback gathered from faculty and the students have been evaluated as a component of Program Evaluation Process in Yeditepe University Faculty of Medicine. In depth interviews were performed with twelve faculty members from various departments with different academic experience. This qualitative study was conducted using a convenience sample. One moderator and one observer, worked during these interviews. The sessions lasted between 20-30 minutes and were recorded digitally with permission from the participants. Semi-structured interview questions were prepared by the researchers to open up the interviews. After each interview, the recordings were listened to, transcribed, and correlated with the notes that interviewers had taken. Grounded theory was used to code the major themes.

Summary of Results: According to obtained data; the faculty have thought that receiving and giving feedback was objective, useful and it changed their performances in a good way. Majority of the participants pointed out that the feedbacks should be timely and mentioned about the possibility of stratifying student feedbacks according to their academic success and participation level in the school activities. Older faculty declared that the current students were different compared to graduated ones as they were using the internet and social media effectively and the faculty should be up to date.

Discussion and Conclusions: The improvements should be performed in feedback process itself using technology to be timely and implementation of faculty development programs in the areas of the needs of the faculty members.

Take-home messages: Students are using the current technology and social media very effectively, the older faculty members need up to date faculty development programs.
Making transfusion learning relevant to Global clinical practice and Society: report of an innovative teaching initiative in progress

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Background: Transfusion is integral to medical care world-wide. Medical education in Transfusion should be enhanced because of its importance in Clinical Medicine. Haemo-vigilance agencies have also emphasised the need to improve teaching Transfusion to medical undergraduates. Surveys of UK Medical Schools demonstrate significant variation in teaching Transfusion.

Summary of Work: Between 2011-14, two initiatives were deployed at RFL to inform a strategy for improving teaching. (1) A mini-CEX replaced OSCE to competency-assess Foundation-year doctors in Transfusion. (2) A 4-week-long medical student-selected-component was offered on the theme 'From Genes to Society: using transfusion as a lens in Medicine'. This module aimed to improve the understanding of transfusion, and awareness of local/global context of Transfusion.

Summary of Results: (1) At 2 years, there was improved uptake, performance and satisfaction with mini-CEX method; trainees identified clinical focus of assessment and learning from discussions with assessor as major benefits. (2) 4 students selected this SSC; all found the content inspiring, valuable and relevant. Their end-of-module presentations were rated highly by the faculty.

Discussion and Conclusions: We sought to improve engagement, commitment and learning by rendering course content clinically focussed and globally relevant. Based on positive responses from post-graduate teaching initiatives, a unique sensitising programme was initiated to import and embed these techniques in an existing undergraduate teaching programme. Competency-based teaching and providing global context of Medicine were favourably received by students and trainees. Strategies to incorporate these can improve teaching in Medicine, this is particularly suited to Transfusion.

Take-home messages: Structuring teaching around clinical and social relevance and importance significantly help student engagement and learning. Post graduate initiatives can be successfully incorporated in medical student teaching of Transfusion.

Using the electronic health records carrying problem list as a perfect tool for the Health-Care Matrix in a Residency Training Program

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Background: The healthcare commerce is experiencing a digital uprising. To assess the utility of electronic health records (EHR) problem list in health-care matrix to improve patient care in terms of aims for improvement and core competencies.

Summary of Work: Health-care matrix forum is held monthly as part of residency education. Residents choose cases and develop a flow matrix under faculty supervision and multidisciplinary group discussion. The matrix is presented after reviewing problem list, and consensus action proposal is produced after discussion. Approximately one year after initiation of the program, residents completed an anonymous 13-item survey.

Summary of Results: This study includes 12 health-care matrix conferences held from 2013 to 2014. All cases were perceived to have patient safety concerns by both IOM aims and ACGME competencies. Residents declared that the program was beneficial after combining both health-care matrix and EHR problem list. About two-third felt awkward presenting errors that were made by their superiors, about eighty percent of the residents found preparation time consuming, and ninety percent perceived improvement in their communication skills through presenting a matrix.

Discussion and Conclusions: This report highlights the importance of EHRs, not only is problem list maintenance easier, but an EHR provides this evidence to view their medical records online, offer follow-up care, gain a novel understanding of their diagnosed health and complete medical record across all physicians through health information conversation.

Take-home messages: Utilizing an EHR problem list in the health-care matrix program is foremost to providing our multidisciplinary bridge with the best clinical decision making support available and guarantees that our patients receive the best level of care.
Problem based & traditional based learners: attitudes from students and doctors towards basic sciences in medical education

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Background: Whilst there is general consensus about the positive effect of Problem-based learning (PBL) on skills and application of knowledge, there is little consensus as to whether PBL students are significantly lacking in basic sciences knowledge compared to traditional counterparts. Heterogeneity between studies makes it difficult to determine an absolute answer to the question.

Summary of Work: Nine Likert-scale statements assessing attitudes towards basic sciences were distributed to students (survey monkey) and doctors (manually). Four questions were added to determine demographic. Responses were divided into “PBL” and “Traditional” cohorts. The Mann-Whitney U test was used for statistical analysis.

Summary of Results: Responses to statements (S) 6&7 were analysed for the poster. Differences between the cohorts were not found to be statistically significant for S6 but were found to be for S7.

Discussion and Conclusions: S6 & S7 favour traditional and PBL courses respectively. 15.8% of traditional medics (n=3) agreed with S6 versus 29.3% PBL (n=12) (z<1.96; p>0.05). 82.9% PBL medics (n=33) agreed with S7 versus 57.9% of traditional medics (n=11) (z>1.96; p<0.05).

Small cohort sizes and disparity of numbers; PBL (n=41), traditional (n=19), are limitations of this study. Qualitatively assessing opinions of clinical medical students and doctors with a larger and more equally distributed cohort could prove useful in detecting whether or not there is a need to form a new curriculum from these two curricula.

Take-home messages: Responses from PBL and traditional medics suggest they would favour a hybridised course, composed from aspects of each curriculum.
#4GG03 (28125)
Problem-Based Learning System: A Chance for Research Education

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Background: Problem Based Learning (PBL) is one of the uprising approaches to transform education from a passive to an active process. PBL plays a role not only in developing scientific curiosity, but also in bracing students to become professionals capable of playing multiple roles in practice. The aim of this paper is to use PBL to integrate skills that will be beneficial in research outcome.

Summary of Work: Phase 1 includes an extensive review through different databases including: Pubmed, ScienceDirect, and EBSCO; about PBL and delivering research competencies. Phase 2 aims to find a new model to integrate research competencies into PBL through brainstorming sessions with students, educators, and PBL facilitators. Phase 3 includes implementing this model into medical curricula and observing the outcome.

Summary of Results: PBL, by its unique design, fosters many skills and competencies; hence can be used as an opportunity to integrate more research specific skills. Our study results suggest that PBL design should emphasise on areas needing further research; students could be asked to formulate PICO questions, use up-to date sources and original articles, and write mini-proposals as extra activity. Finally, simplified concepts could be infused into each PBL session, progressing in complexity parallel to the PBL sessions and current phase.

Discussion and Conclusions: Curriculum developers can invest in PBL, being a well followed model, and enhance it to become more research oriented. This will help equip students with diverse skills including research competencies.

Take-home messages: The aim of PBL should not be limited to increasing students’ knowledge, but also to create better physicians in terms of general skills and competencies.

#4GG04 (26745)
Problem-based learning, Experience of implementing in Astana Medical University

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Background: Problem-based learning (PBL) develops clinical thinking and stimulate students to acquire knowledge through self-searching and analysis of the medical information. Students takes a more active role in trying to solve a practical problem. This becomes especially important at the present time due to the transition of the educational process in the credit system.

Summary of Work: PBL technique has been tested in 4 groups of 1-2 courses students. After the PBL tutorium students completed anonymous feedback questionnaires in which they reflect their attitude to studies by the method of PBL. Scores are calculated on a point system, where 5 - strongly agree, 4 - agree, 3 - hard to say, 2 - disagree, 1 - completely disagree.

Summary of Results: Analysis of the questionnaires showed that 96.9% students liked conducting classes using the new method, 3.1% filled in the column “Hard to tell.” According to all students (100%), PBL is a useful technique for more efficient assimilation of the subject. 67.9% liked the approach and style of work of tutors. 100% students liked to independently formulate questions for further study. 93.8% liked how our tutors are encouraged to discuss between the all members of the group, guided group.

Discussion and Conclusions: PBL develops the student skills such as team work, improving leadership skills, ability to listen and participate actively in the discussion, collaboration and cooperation, respect for the views of colleagues, the ability to analyze and critically evaluate literature, focused study and use of resources, mastery of presentation skills.

Take-home messages: Interdisciplinary approach in PBL becomes very relevant because students can see the close relationship between the basic sciences, as well as to understand their practical value in clinical practice.
#4GG05 (27448)  
Combined Simulation with Problem-Based Learning - ‘SIM-PL’ - for Teaching Undergraduate Medicine

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Oscar To, Newham University Hospital, Undergraduate Medical Education, London, UK  
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Background: Simulation combined with Problem-Based Learning (PBL) - ‘SIM-PL’ has been successfully pioneered by our unit for teaching surgical topics to medical students. We now investigate whether this modality would also be effective for teaching management of acute medical conditions.

Summary of Work: ‘SIM-PL’ presents students with a clinical problem to work through and research, as in traditional PBL, but prior to discussion of the learning objectives, SIM-PL also involves the students engaging in a simulation of the problem without the tutor being present, although a senior can be consulted by telephone at any time. Immediately after the session students have the opportunity to reflect on their practice and discuss concerns openly with colleagues and tutors to maximize their learning experience. Fifteen 3rd year medical students participated in two ‘SIM-PL’ sessions centred on diabetic ketoacidosis, chest pain or sepsis. Following each session students anonymously completed written feedback questionnaires employing a Likert scale.

Summary of Results: All 15 students either “strongly agreed” or “agreed” that SIM-PL improved their confidence in the assessment, diagnosis and management of the medical topics. All students recommended ‘SIM-PL’ should be formerly incorporated into the undergraduate curriculum.

Discussion and Conclusions: This pilot study demonstrates that ‘SIM-PL’ is a popular and effective teaching method improving student confidence in the assessment, diagnosis and management of medical topics in real time, without risk of causing harm to patients.  
Take-home messages: ‘SIM-PL’ is a versatile new teaching method that allows medical students to translate theoretical knowledge into clinical practice in a safe environment and improves student confidence in managing acute medical conditions.

#4GG06 (27230)  
Self-Assessment of the Effectiveness of Problem-Based Learning Course In Medical School in Taiwan: a Longitudinal Survey

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Background: Problem-based learning (PBL) was an innovative and alternative method for medical education. In a medical school in Taiwan, Problem-Based learning (PBL) was implemented for about 15 years. However, there were few surveys for the evaluation of student reactions to learning PBL. Therefore, we designed a questionnaire for students that can determine changes in attitude during and after learning PBL and the abilities and medical knowledge that students acquire.

Summary of Work: Three questionnaires (one pre-term, one mid-term, and one post-term questionnaire) were designed for third grade students, who just started PBL course, to determine the frequency of reading textbooks dropped off after entering the course, their attitude, concerns, and expectations toward the course and changes in the end of semester.

Summary of Results: We found that the cooperative atmosphere among classmates was recognized as the most important factor affecting the PBL process; organization and integration of information were abilities that students hoped to acquire from the course; Time consuming was the main reason that students dislike PBL.

Discussion and Conclusions: Generally speaking, the current PBL course is well designed. Further evaluation for fourth grade PBL course to find the transition from grade three to grade four may get more information.

Take-home messages: 1. The frequency of reading textbooks dropped off after entering the course. 2. The cooperative atmosphere among classmates was recognized as the most important factor affecting the PBL process. 3. Organization and integration of information were abilities that students hoped to acquire from the course. 4. Time consuming was the main reason that students dislike PBL.
The outcomes of PBL curriculum and OSCE on oral hygiene students: a pilot study in Kaohsiung Medical University

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**Background:** Dental treatment and care are performed by a team which includes dentists and oral hygienists. Oral hygienists must be competent in cognitive behaviors including assessment, analysis, problem-solving, and decision making for the purpose of addressing and treating patients’ dental needs as well as promoting their health and wellness. Therefore, we implemented a PBL curriculum and OSCE on oral hygiene students to achieve a result-oriented learning. The pilot study was to investigate the learning outcomes.

**Summary of Work:** Twenty-nine 3rd-year oral hygiene students participated in the PBL curriculum of oral-maxillofacial surgery and students' performance was evaluated by Rubrics. After the PBL curriculum, we implemented an OSCE to examine the learning results. The six OSCE stations consisted of two patient communication and four clinical skill scenarios. After the test, the students recorded their opinions on feedback forms. The compiled written examination scores from the first to third years of the courses were also analyzed. A Pearson correlation coefficient was used to compute the relation between these scores.

**Summary of Results:** The students were satisfied with the PBL and OSCE course. The majority of students in this study believed that the OSCE enhanced their clinical learning abilities. The results indicated that the scores of OSCE on SP stations were significantly associated with the Rubrics scores of PBL course related. The OSCE evaluation scores were not significantly correlated with the written examination scores in the first to third years of school but were significantly related to the internship performance scores.

**Discussion and Conclusions:** In the PBL curriculum, students are encouraged to effective problem solving skills and self-directed learning in the school. The results indicated that it can effectively improve student performance in the course of clinical practice.

**Take-home messages:** A style of active learning is important to oral hygiene students’ attitude towards future clinical practice.

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The effects of personality traits on students’ performance in problem-based learning tutorials

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**Background:** In problem-based learning (PBL), peer-assessment is often used to facilitate students’ collaborative learning processes. However, there is a lack of research on exploring factors affecting students’ performance in PBL tutorials. This study examined how different personality traits (temperaments) could influence individual students’ performance in a PBL environment.

**Summary of Work:** Year 2 students (N=80) in a medical school in South Korea completed a Korean version of the Temperament and Character Inventory (TCI) in the first week of a year-long PBL sessions. At the end of each unit, students evaluated their peer students based on their participation, completion of self-study, communication, and contribution. Multiple regression analyses were conducted to examine how four temperaments (novelty seeking, harm avoidance, reward dependence, persistence) were associated with peer-assessment scores.

**Summary of Results:** Correlational analyses indicated that students’ participation was negatively related to harm avoidance (r = -.290, p <.01) whereas students’ self-study completion was negatively related to reward dependence (r = -.351, p <.01). In the regression analysis predicting students’ participation, none of the four temperaments was a significant predictor. When predicting students’ self-study completion, reward dependence (β = -.259, p <.05) remained a significant predictor.

**Discussion and Conclusions:** Temperaments, in particular reward dependence, had an effect on student performance in PBL tutorials.

**Take-home messages:** Faculty members may consider advising students who are high in reward dependence before they engage in PBL tutorials in order to facilitate collaborative processes.
**Understanding the principles of problem-based learning (PBL) for instructors at Faculty of Medicine, Thammasat University**

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**Background**: Faculty of Medicine at Thammasat University has implemented the problem-based learning (PBL) curriculum since 1992. All new tutors must enroll in a PBL-training course before conducting the actual PBL group. However, the correct knowledge of tutors about the PBL concepts, which may have an effect on the learning outcome, has never been assessed.

**Summary of Work**: This study aims to assess the knowledge about PBL of tutors involved in PBL at the Faculty of Medicine at Thammasat University. The questionnaires using true-false answers and open-ended questions about PBL were distributed to all tutors at the Department of Pre-clinical Sciences at the Faculty of Medicine, Thammasat University. Descriptive analysis was used to interpret the results. Differences were tested for statistical significance using chi-square test.

**Summary of Results**: The overall response rate was 87.5% (49/54). The data showed that 83.67% of tutors had correct knowledge of the PBL concepts while 16.3% of tutors missed some concept of PBL. There was no statistical difference in the PBL knowledge between tutors with experience under 5 years and tutors who had more than 5-year experience (P > 0.05).

**Discussion and Conclusions**: The majority of tutors in the Department of Pre-clinical Sciences, Faculty of Medicine, Thammasat University had correct knowledge of the PBL concepts. However, there was some misconception, especially the role of tutors during the PBL session occurring in tutors with both below and more than 5 years of experiences. To achieve the utmost benefit of PBL for teaching medical students, all tutors should be trained regularly to refresh and to update their knowledge about PBL and the group-facilitation skill. This should be added up from the training when they first received.

**Take-home messages**: Tutors should be trained regularly to refresh and to update their knowledge about PBL and the group-facilitation skill.

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**Actual Issue of Implementation of the Method of Problem-Based Learning at the Akaki Tsereteli State University**

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**Nato Alavidze**, Akaki Tsereteli State University, Department of Clinical Medicine, Kutaisi, Georgia
**Irina Pkhakadze**, Akaki Tsereteli State University, Department of Clinical Medicine, Kutaisi, Georgia
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**Background**: Akaki Tsereteli State University takes an active position in the implementation of modern educational technologies, including problem-based learning.

**Summary of Work**: The questionnaire consisted of a demographic section which aimed to identify the culture of institutions, the academic rank, and the teaching and PBL experience of the respondents.

**Summary of Results**: The differential analysis of the results of the questionnaire indicates that there are four factors affecting the implementation of PBL in institutions. These factors are, namely, resource, quality assurance, student factor and teaching conception of faculty members.

**Discussion and Conclusions**: The method allows not only to form and fix skills of knowledge acquisition, but also to learn specifics of work in team. Important advantage of PBL is development of abilities of the orientation in interdisciplinary situations and ability to find and process a necessary material by means of use of various information sources (lectures, textbooks, dictionaries and reference books, Internet sources and others).

**Take-home messages**: Thus, PBL is the methodology of teaching based on special pedagogical strategy. The method allows to acquire a material through understanding of real life situations that provides full development of a material by students by means of collecting and studying necessary (individual for everyone) to information and creates possibilities of development of skills of activity and adoption of concrete decisions in team.
Problem-Based Learning, Student engagement: the role to improve hospital management

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Background: Medical students themselves are not directly involved in hospital system management which is a necessary skill for professionals when they graduate and work in community hospitals. To make them familiar with the management skills, we have set the hospital problem -based learning activities in community hospitals for 6th year medical students. We hypothesized that the hospital systems management can be improved through the students' management proposals.

Summary of Work: During a 4-week of community medicine rotation, 69 medical students were divided into 18 groups and attended at affiliated community hospitals. Each group was assigned to study hospital systems and ascertain the problems. The students were encouraged to apply the Fishbone Diagrams and Action Priority Matrix to determine elements causing problems and create problem-solving proposals. The proposals were presented to the hospital executives. The acceptance and utilization of the proposals by hospital executives were evaluated.

Summary of Results: Medical students identified 18 hospital problems which were classified into clinical practice management, medication safety, health care delivery, risk management and community involvement issues. Twelve proposals (66.7%) were accepted by hospital executives and intervened to solve the hospital problems.

Discussion and Conclusions: Hospital management projects proposed by medical students as a part of problem-based learning in community hospital have a role to improve the hospitals’ systems.

Take-home messages: Problem-based Learning should be encouraged as well as the student engagement in improving hospital system management.

Integrated Theory and Practice in Novel Tutor Training

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Rossana Rojo

Background: The tutors’ role is important for the success of the tutorial process in small group Problem-based Learning (PBL), as well as the theoretical and practical comprehension of the methodology. Because of this, a training programme was conducted for novice tutors as part of a course. The aim of this study was to identify the perception of tutors and students regarding the training programme.

Summary of Work: The training programme involved 24 tutors (volunteer invitation with consent). After the tutorials, the tutors attended 16 microteaching sessions of 30 minutes each, structured into five units: PBL, small group work, tutors role, case design and evaluation. A descriptive study and content analysis was carried out to evaluate the perception of tutors and students regarding this training programme. Tutors evaluated the programme by opinion surveys. Students evaluated tutors performance using a questionnaire (23 items), which were applied at the middle and end of the course.

Summary of Results: Regarding the opinion of the participants of the programme (i.e. tutors), the most relevant aspects are: to share experiences with other tutors, the methodology used, relationship between theory and practice, and the quality of learning. Among their suggestions, schedule problems were identified as important. On the other hand, the students’ evaluation revealed that the strengths of tutors were: commitment, willingness to create an atmosphere of trust and respect, and methodological domain. The weakest areas were delays in the delivery of the assessments and communication skills.

Discussion and Conclusions: From the perspective of tutors, the integration of theory and practice was valued. Also, tutors appreciated the opportunity to share their experience with other tutors, enriching the formation of the educational community.
Background: The problem–based learning (PBL) was recently introduced in few Romanian medical schools. Yet, there are no studies regarding the perspective of students and facilitators on PBL curriculum in Romania as a learning process.

Summary of work: PBL was introduced in our University as a mandatory module (1 ETCS) in the 1st year curriculum for all three lines of study (Romanian, English and French). 6 clinical cases designed by the academic staff (66 facilitators specifically trained) are discussed during the allocated 28 hours. For each case the group of students identify the unknown or less clear aspects of the given clinical situation. After a self-study period the students’ group meets again and apply the new acquired knowledge to solve the clinical problem. At the end of all the PBL sessions, students and facilitators filled a questionnaire form that sought opinions on rating of PBL model as a tool in understanding concepts' compared with regular teaching sessions.

Summary of results: Students indicated a strong preference for PBL method. A new asset was the possibility to work with small groups of 8 students, although the 1st year students group usually consists of 13-14 students in other modules. Overall, female students responded more positively towards PBL than male students.

Conclusions: A direct effect was the active involvement of students in self-directed learning compared to the traditional method. Given the evolving medical education in the Romania medical schools toward problem-based learning it is suggested that self-directed learning and life-long skills should be emphasized to prepare students for practice in the new millennium.
#4HH Posters: Postgraduate Education - The Early Years
Location: Hall 4, SECC

#4HH01 (27687)
Faculty development for paediatric emergency training programme for primary care physicians

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Kazuhiko Kodama, Kodama Paediatric Clinic, Center for Medical Education, Wakayama, Japan
Yasuhiro Konishi, Kyoto University, Kyoto, Japan
Hiroshi Nishigori, Kyoto University, Kyoto, Japan

Background: In 2009, we developed an off-the-job paediatric emergency CPD (continuous professional development) programme for primary care physician in Japanese context. By January 2015, this programme had been held at 54 times at 30 institutions for 1270 healthcare professionals. So far, over 200 facilitators participated in teaching in this programme without any faculty development. The aim of this study was to clarify what elements/expertise facilitators need to have in this programme's context.

Summary of Work: We conducted a focus group for 7 facilitators in October 2014. All discussions were audio-recorded and transcribed verbatim. Data were read iteratively by the first author (TM) and analyzed thematically. The last author (HN) read the transcripts separately and discussed the identified themes with TM.

Summary of Results: Nine elements/expertise were emerged for facilitators to have; (1) knowledge on paediatrics, (2) master-apprenticeship approach, (3) transactionalism, (4) dilemma in standardization, (5) facilitation skill, (6) conceptualization, (7) reflectivity, (8) learner-centred approach and (9) training of simulated parents.

Discussion and Conclusions: In many off-the-job CPD programmes, its contents were standardized with de-contextualization, resulting in less reality (content validity). Therefore facilitators were requested to fill the gap between its contents and the real world by conceptualizing participants’ experiences.

Take-home messages: In CPD programmes, facilitators are requested to fill the gap between standardized contents of the programme and participants’ real experiences.

#4HH02 (27561)
Teacher development and medical education: mirrors and reflections

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Background: This research aimed to investigate how the actors of Brazilian medical schools institutionally realize teacher development. The teaching of medicine has gone through several curricular and methodological changes in order to graduate students with a holistic profile. Therefore, the involvement and updating of teachers are fundamental to achieve innovative proposals.

Summary of Work: This way, we mapped aspects of teacher development of professors working in 41 Brazilian medical schools regarding the didactic and pedagogical training, technical and scientific updating, participation in assistance and managerial capacity services. Each medical school was represented by the following institutional actors: administrative technician, professors and students, who answered a questionnaire and collectively wrote a text justifying the answer.

Summary of Results: The thematic analysis of these justifications showed that, in most schools, the offer of training and updating is sporadic. The outcomes pointed out that it is up to the professors not only the personal investment, but also to instigate the institutionalization of continuing education programs focusing on political, social, theoretical and methodological principles and in didactic and pedagogical strategies of emancipatory character.

Discussion and Conclusions: Thus, the evaluation process allows to reflect the practice itself suggesting a glow in the "mirrors" of teacher education that are consequently expanded on the "reflexes" of creativity and the necessary knowledge for professional practice.

Take-home messages: The structure of an institutional policy of teacher training is the way to consolidate a dialectic educational formation and committed to the course.
### #4HH03 (24100)

**Examiner training for objective structured clinical examination (OSCE): What do the examiners make of it?**

Zaheer Mangera, UCL Medical School, London, UK
Helen Nolan, UCL Medical School, London, UK
Paul McGovern, UCL Medical School, London, UK
Sarah Bennett, UCL Medical School, London, UK
Alison Sturrock*, UCL Medical School, London, UK

**Background:** The OSCE has been widely adopted in medical education and training of examiners is regarded best practice to reduce examiner variation. Although medical schools have introduced video training, it is important to understand what the examiners’ perceptions are of training and how it can be improved.

**Summary of Work:** UCL Medical School examiners choose between online and face to face training. They are shown videos of simulated OSCE stations with candidates of differing quality and are asked to complete marksheets. For online training, examiners compare marks they have awarded to a gold standard. During face to face training, examiners also share and discuss the marks they award with their peers. We will evaluate both approaches by asking examiners to complete a questionnaire (including anchor statements and a 5 point Likert scale).

**Summary of Results:** An initial pilot survey suggests it is the discussion of performance of candidates on videos (during face to face training) rather than the use of videos itself that examiners value. Experienced examiners are also less likely to value the need for examiner training. We will analyse in full the findings of questionnaire responses for this academic year.

**Discussion and Conclusions:** Although the need for examiner training is well established in terms of improving the reliability of OSCEs, the manner in which it is delivered requires development to ensure examiner engagement. The opportunity to discuss videos is a powerful exercise to improve their approach to examining.

**Take-home messages:** Understanding the values and usefulness examiners attach to examiner training is a vital step in improving the quality of examiner training.

### #4HH04 (27797)

**Developing a Faculty for Simulation based training: One size does not fit all**

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Elsa Randles, Newcastle University, School of Medical Education, Newcastle upon Tyne, UK
Hazel Townsend*, University Hospital of North Durham, Department of Anaesthesia, Durham, UK

**Background:** Delivery of effective simulation training requires a range of specific skills. Identification and training of faculty is critical to the sustainable delivery of high quality training.

**Summary of Work:** CDDFT is currently setting up a simulation based training facility. Training needs analysis was undertaken with a number of aims: 1. Raise awareness and quantify interest. 2. Identify potential faculty and their training needs. 3. Identify wider training needs within the Trust. A six item questionnaire was delivered via Survey Monkey to approximately 300 senior staff including consultants, senior nurses, educationalists and the patient safety team. Respondents could choose to remain anonymous.

**Summary of Results:** 63 responses were received (22%). Of these, 62 asserted an interest in simulation. Staff from eight speciality areas responded, with a wide variation in response rates between specialities. Only four respondents reported no prior experience in simulation. Regarding future involvement, 34 indicated a desire to teach on courses and 29 to deliver their own courses with support. Qualitative data provided valuable insight and diverse ideas for the direction and construction of training. 35 respondents were willing to be contacted for further discussion of ideas.

**Discussion and Conclusions:** Experience of simulation based training, engagement levels and perceived needs differ markedly between specialties. Further work through focus groups will clarify specialty specific needs, augment effective faculty construction and target areas where awareness and skills may otherwise be lacking.

**Take-home messages:** A well directed survey allowed rapid identification of and engagement with potential faculty in the inception of a new simulation centre.
“How I manage... “: improving tutor engagement with a middle-grade doctor-led teaching session for medical students

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Background: Our hospital offers weekly teaching sessions for undergraduate medical students delivered by middle-grade doctors. In response to a high tutorial cancellation rate and poor student feedback we re-oriented tutorials with university curricula, and refocused on clinical rather than theoretical aspects of practice.

Summary of Work: Before our intervention there was no coordination of tutorial subjects and tutors had no guidance about structuring their session. Tutorials overlapped and lacked focus on curricular outcomes. We devised a tutorial programme aligned with university curricula. Sessions address a specific topic, structured as “how I assess / investigate / manage... “. Tutors volunteer to teach a particular subject, and students receive the teaching timetable in advance. Formal and informal feedback confirms significantly improved student satisfaction and tutor engagement.

Summary of Results: In five weeks no tutorials were cancelled, compared with four cancellations in the preceding five weeks. Session content feedback is significantly improved.

Discussion and Conclusions: In theory, unstructured teaching timetables facilitate broader subject coverage and varied teaching styles. However we found this approach intimidated potential tutors, who had little understanding of evolving student needs during lengthy clinical attachments. Students were frustrated by the resulting overlaps in taught content, and complained they were not exposed to more advanced subject areas. By structuring sessions, coordinating topic coverage, and publishing teaching timetables, we improved tutor engagement and student satisfaction. This approach engages middle-grade doctors with medical education, and provides students with much broader curriculum coverage.

Take-home messages: Structured tutorials, aligned with student learning objectives, can improve student satisfaction and tutor engagement.

Designing Faculty Development Based on Direct Faculty Input: A Novel Application to Needs Assessment

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Alice Frohna, University of Wisconsin School of Medicine and Public Health, Dean's Office, Office of Faculty Development, Madison, Wisconsin, USA

Presenter: Patricia Kokotailo*, University of Wisconsin School of Medicine and Public Health, Dean's Office, Office of Faculty Development, Madison, Wisconsin, USA

Background: Most literature discussing faculty development needs assessments summarizes quantitatively-scored surveys. Using guided interviewing to assess less-quantifiable needs of faculty development is promising.

Summary of Work: A guided interview questionnaire was developed to ascertain the status of current faculty development. Respondents were equally solicited from the different tracks at the medical school. Faculty were asked to report types of assistance they received as new faculty members, retrospectively what they would have liked to receive, and what they would like to see offered to new colleagues. Specific areas that were addressed during the interviews were: institutional opportunities for faculty growth, orientation, staff and financial assistance, technical support, mentoring, and community of practice.

Summary of Results: Transcripts of the interviews were reviewed independently by 3 investigators and 6 main themes were identified: work place culture, gender issues, academic leadership, mentorship, research, and resource allocation. Assessment followed a grounded theory approach. Within each theme, areas of opportunity for program development were established. Review of the transcripts identified specific desire for interdepartmental collaboration, development of shared physical and virtual spaces, and interest for faculty mentorship during mid- and late-career transitions.

Discussion and Conclusions: Identified themes and opportunities for development served as a framework for proposed program planning. This process was the impetus to develop robust, well-evaluated faculty education programs supporting collaboration between departments and promoting school-wide promotion and mentorship seminars aligned with the identified needs of the school.

Take-home messages: A faculty development program based on faculty-identified needs and goals, incorporating more shared ideas and values, will be more successful than initiatives mandated from the ‘top down’ by administration.
An exploratory mixed-methods approach: creation of a preceptor professional development program for veterinarians

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Peggy Schmidt, Western University of Health Sciences, College of Veterinary Medicine, USA
Nicole Chavarry, Western University of Health Sciences, College of Veterinary Medicine, USA

Background: To create a successful preceptor professional development program (PPDP), input from all stakeholders must be gathered and considered; thus, ensuring a final program contains relevant content and is delivered in a user-friendly format. This can be a significant challenge when preceptor span multiple settings and specialties across many states and countries.

Summary of Work: Using an mixed-methods approach, a needs assessment was undertaken to determine content and delivery method for the PPDP. Deductive thematic coding of transcripts from face-to-face and online stakeholder focus groups was completed using Boyer’s four areas of scholarship (discovery, integration, application, and teaching) as the theoretical framework. Transcripts were also evaluated inductively for emergent themes that did not align with Boyer’s framework. Resultant themes were used to develop a PPDP preferences survey to gather quantitative data on content and desired delivery method.

Summary of Results: The following theme and items were identified: discovery (16); integration (48 items); application (0 items); and teaching (20 Items) for inclusion in the survey. Participants rated the usefulness of each item on a five-point Likert scale. Six items had >80% of respondents indicating the topic was very useful or useful, all of which were related to communication (5 integration, 1 teaching). Web-based modules (70%) and webinars (62%) were the preferred method for delivery. Only 22% preferred campus-based seminars.

Discussion and Conclusions: The exploratory mixed-methods approach was successful in assessing the needs for a PPDP for veterinarians.

Take-home messages: The resultant ranked item list generated from this mixed-methods study provides program developers with the items to be developed for the initial deployment of the PPDP.

Establishment of blended learning teacher education program for new staff members at medical universities in Hungary

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Background: As medical education progresses towards more and more professional approaches it is necessary and important that the involved members of the faculty are prepared for the ever increasing demands of the task. For this reason the deans of Hungarian medical universities have reached an agreement that young new staff members must complete a brief course that guides them in their teaching work.

Summary of Work: The aim of the brief blended learning type course is to clarify the role of the novice teacher, to equip them with methodological knowledge and skills and to prepare them for possible problems and conflict situations. The key objective is that all prospective instructors must realize that they have a fundamental responsibility for the quality of their teaching. To put the program together we had to achieve firm backing from the deans and find possible fundings for the project’s costs.

Summary of Results: The final program consists of 18 approximately 20-minutes-long videos addressing various topics such as the 12 roles of a teacher or small group learning. After watching these the participants continue with discussing their thoughts with a seasoned teacher in a theoretical or clinical setting based on their choice. The course end with a test where participants need to prove their understanding.

Discussion and Conclusions: The program is being implemented from September, 2015 thus no feedback is available yet but according to our expectations it will increase the quality and reputation of teaching.

Take-home messages: A country-wide common blended learning teacher education program needs proper preparatory groundwork, dedicated deans and teachers and appropriate funding.
#4HH09 (27336)
ECME: The in-house training course in Medical Education
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**Background:** To change the role from clinician to medical teacher is usually a big obstacle in many medical schools. After Ministry of Public Health (MOPH) started CPIRD in 1995 to increase rural physicians by collaboration with Ministry of Education, we have commenced some faculty development programs such as CPIRD Annual Medical Education Conference and some short courses in medical education to handle this problem. As time passed, we realized that we needed more organized course in medical education that can help doctors solve some education problems in their Medical Education Centers (MEC) or hospitals.

**Summary of Work:** In 2013 the Essential Course for Medical Educator (ECME) was arranged. It is one-year long course. We aimed to train 40 doctors each year from 37 MECs around Thailand. The course comprised 6 components: 1. Medical Education course for Rookie Teacher, 2. Assessment Toolbox I and II, 3. Research In Medical Education, 4. Curriculum Development, 5. CPIRD conference, and 6. Assignments (select 12 from 20 topics).

**Summary of Results:** Now we have 2 batches of ECME students. Most of them are from MEC and some are from University Hospitals. We recruited 41 delegates for the first batch and 46 delegates for the second batch. Post course evaluation by the ECME students showed very positive results. They also made a network when they went back to their hospital.

**Discussion and Conclusions:** We held the advantages of in-house training that are cost effective, customized and flexible in our ECME course. To fulfill the request of educator in each MEC, ECME could be one of the solutions for that problem.

**Take-home messages:** Faculty development is a field of dream in medical education. Well-designed in-house training program can help us to focus on the practical parts in our situation.

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#4HH10 (26651)
Paradoxical Perceptions Of The Educator Competency: The Transplantation Society’s Experience
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**Background:** Professional health societies traditionally focus on clinical/scientific content. However, health professionals play roles in educating trainees often with no formal training as educators. In 2013 The Transplantations Society (TTS), an international interdisciplinary society, offered a webinar format educator course at no cost to all members (https://www.tts.org/education/tts-education-academy).

**Summary of Work:** Of the society members (> 6,000 physicians, surgeons, scientists, nurses, pharmacists and others), 85 members attended at least one webinar. We then conducted an online anonymous survey of TTS members on the perception of their competency as educators, need for such courses and reasons for non-attendance.

**Summary of Results:** Of 236 respondents, 92% are involved in education, 97% valued involvement in education, 97% agreed that TTS should invest in offering programs focused on education. However 92% thought they were effective educators. Majority of attendees rated the webinars very highly. Of non-attendees, 63% were not aware of the course but would consider it. Lack of time was identified as a major barrier to participation.

**Discussion and Conclusions:** The agreement among such a diverse cohort that professional societies should offer educator courses justifies TTS mission and investment and suggests a perceived training gap. Contradicting previous studies on educator competence, a majority perceived themselves as competent educators, which may have contributed to limited participation in the webinars.

**Take-home messages:** Many health professionals perceive a training gap in educator competency and identify professional societies as having a critical role in bridging that gap. Increasing awareness of core educator competencies, appropriate program offerings and time support seem essential for participation in such programs.
Developing a Postgraduate Certificate in Medical Education for Radiologists

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Background: Although there are postgraduate medical education degrees for surgeons, emergency medicine doctors and GPs, there is currently no similar course for radiologists. The Royal College of Radiologists (RCR) has been collaborating with the University of Dundee’s Centre for Medical Education (CME) to produce what we believe to be the world’s first Postgraduate Certificate in Medical Education for Radiologists.

Summary of Work: The RCR has created an educational fellowship for a senior radiology trainee to develop a new 15 credit level Masters level module in Radiology Education. This module will sit within CME’s established Postgraduate/Diploma/Masters programme. We used a modified Delphi Technique, conducting semi-structured telephone interviews with a panel of ten radiologists with a particular interest in education. These were recorded and transcribed and after several iterations eventually formed the basis for a module specification.

Summary of Results: The indicative content will be:

- What makes learning radiology different?
- Educational theory and radiology practice
- Designing radiology teaching for different audiences
- Resourcing and supporting a radiology learning environment
- E-learning and technology
- Feedback and assessment in radiology

Discussion and Conclusions: Best practice in medical education is the same across most specialties. Nevertheless, each medical specialty has its own idiosyncrasies. Teaching and learning psychiatry, for example, is very different to teaching and learning radiology. This new course will help address these nuances. There has been enormous enthusiasm for it from College members and Fellows. We are now collaborating to develop a similar module for oncology.

Take-home messages: This course will help develop medical educators in radiology internationally, and will further professionalise radiology education.

Peer collaboration as a tool for professional development for university teachers

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Background: Higher education teacher training is a hot topic among educational developers. Informal conversations are one important way of learning for university teachers. Combined informal and formal peer collaboration was used as a tool for professional and also faculty development.

Summary of Work: Eight teachers from medical faculty used peer collaborating during a 4 month period. The four pairs were given written guidelines to structure their collaboration. Some optional elements (shadowing a colleague and keeping a learning log and to observing peer at teaching) were described. Monthly carried out pair discussions were suggested. In the end all participants were interviewed.

Summary of Results: All participants felt they gained from the peer collaboration. For some collaboration gave a chance to reflect difficult situations at work or helped the tension between teaching and clinical work. For some collaboration supported more specific skills e.g. put to use new instructional technology. The broad variability of different means to use collaboration surprised us and on faculty level we got valuable insight on what teachers themselves felt they needed to enhance.

Discussion and Conclusions: The purpose was to highlight the area between informal and formal professional development. Peer collaboration introduces an alternative and more informal combination of development methods. That is the way the teachers’ personal needs are truly met.

Take-home messages: Our model of university teachers’ peer-collaboration works as a tool of professional development and enhancement of teaching. It suited well to its purpose.
#4HH13 (26354)
Assessor training for workplace-based assessment of international medical graduates

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Presenter: Shannon Murphy*, Alberta International Medical Graduate Program, University of Calgary, Calgary, Canada

Background: The Alberta International Medical Graduate (AIMG) Program is responsible for the assessment of foreign-trained physicians for entry into postgraduate training. In 2014, 20 candidates participated in a pilot project to assess candidates’ clinical skills in a workplace-based setting. Assessment involved multiple modalities (case-based discussion, mini-CEX and global rating of overall performance). In response to the need for more standardized completion of assessment forms, we are enhancing our assessor training program.

Summary of Work: Two half-day in-person training workshops have been designed and will be delivered to the assessors. Content will include a review of evaluation forms, supervision expectations, discussion of trainee level expectations, and practice evaluation scenarios.

Summary of Results: We hypothesize that assessor training will enhance the reliability of evaluations.

Discussion and Conclusions: Training of workplace-based assessors is critical to the success of subjective evaluations inherent in workplace-based assessment. As shown by Holmboe et al. (2001), structured training of assessors leads to higher quality and more specific written evaluations. We hypothesize that a similar phenomenon will occur leading to a more robust and useful appraisal of AIMG Program candidates.

Take-home messages: Training of assessors is a key component of workplace-based assessment.

#4HH14 (26801)
Faculty development program in undergraduate medical education: Georgia experience

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Background: Reform in undergraduate medical education in two medical schools in Georgia -Tbilisi State Medical University (TSMU) and Tbilisi State University (TSU) was initiated by three year (2011-2014) TEMPUS project MUMEENA (“Modernizing Undergraduate Medical Education in EU Eastern Neighboring Area”). Needs analysis performed in these schools indicated urgent necessity of faculty development in medical education methodology.

Summary of Work: Faculty development in TSMU and TSU was preceded by training of working groups in partner EU universities (in the UK, the Netherlands, Spain and Italy) based on TOT principle. Prospective trainers were trained in medical education methodology. Trained working groups members elaborated faculty development program comprising 7 modules: 1) Methods of assessment, 2) OSCE, 3) Principles elaboration of integrated undergraduate curriculum, 4) Case-based clinical reasoning, 5) Portfolio, 6) Research methodology, and 7) Teaching in large groups.

Summary of Results: Trainings were conducted in newly established Faculty Development Centre at TSMU. A total of 226 academics were trained in aforementioned modules during the last 2 years. Surveys performed by the end of each module showed that 87,5% of trainees were highly satisfied with faculty development program; the rest of respondents reported the modules were not comprehensive, lack of time for discussion, absence of necessary equipment at their departments.

Discussion and Conclusions: Training in medical education methodology resulted in increased self-confidence and in improved teaching skills of academic personnel.

Take-home messages: Reforming undergraduate medical education in Post-Soviet countries should be preceded by training of academic staff in medical education methodology.
What were necessary supports for new medical teachers in service hospital? Experience in Udonthani medical education center, Thailand

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Background: In 2009, Udonthai hospital signed agreement with Ministry of Public Health in the collaborative project to increase a number of rural doctors in Thailand. Since then we have been taking responsibility in clinical teaching for the fourth to sixth-year medical students from faculty of medicine of Khon Kaen university. Despite of that, as our hospital was always busy, almost all medical staff had no time for long-length proper medical-teacher training courses.

Summary of Work: This qualitative study was done by in-depth interview and participating observation of all administrative staff and teaching staff in Udonthani hospital during 2009-2014. The objectives were to see how the current teaching staff developed their teaching skills and what supports were necessary to improve their teaching further.

Summary of Results: Even though only a few staff had taken medical education classes before our center opened, everyone had confidence in clinical teaching, mainly from their experience in teaching juniors during their undergraduate and postgraduate training time. Moreover, when national medical-teacher training program took place, all staff chose to participate only in specific topics related to their encountered problems. Besides, they expressed opinions that 1) all supporting education materials and assistants must be comprehensively provided, 2) essential information should be delivered to individual staff directly and as quickly as possible, and 3) a person-specifiable medical-teacher training course should be made available.

Discussion and Conclusions: Adequate supporting teaching materials, assistant personnel, good communication and, person-specifiable medical-teacher training courses should be considered in supporting and developing new medical-teachers in service hospital.

Take-home messages: Only clearly identified-need staff development program is necessary.

What influences medical trainees’ growth? A qualitative study

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Background: A physician’s effectiveness depends on good communication, clinical skills, medical knowledge, leadership and professionalism. The first year doctor (post graduate year one; PGY-1) should try to attain these abilities so he or she can grow. Although processes of medical faculty’s growth have been described (David 2001), there is no research on trainees’ personal growth. The purposes of this study were to explore elements and processes related to personal growth among medical trainees and to analyze situations and conditions that trainees perceived helped them develop as physicians.

Summary of Work: Twenty-one qualitative semi-structured interviews with Japanese PGY-1’s at Okinawa Chubu Hospital (2014, 2015) were undertaken, recorded, transcribed, anonymized, and inductively coded. General themes were identified.

Summary of Results: An actual experience was essential for trainees’ personal growth. The most common finding was that trainees realized their growth when, compared to earlier in training, they could diagnose and manage patients who were more complex. In addition, feedback from attending physicians and self-reflection made the experience more educated and promoted personal growth, effectiveness and motivation. The cycle “actual experience→receiving feedback→reflection” helped trainees develop their skills.

Discussion and Conclusions: Personal growth among trainees was different from that of medical faculty because it highly depended on actual experiences. Accumulating these experiences with feedback and reflection enabled trainees to grow.

Take-home messages: The realization of how experiences influence personal growth among physicians-in-training can make their development more effective. Incorporating experiences, feedback and reflection could lead to improved work-based learning in teaching hospitals, classrooms and practice sites.
Choosing wisely: factors in the residency selection process that predict intern performance

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Background: Cognitive metrics, such as USMLE scores, strongly influence how residency programs rank candidates. However, despite programs’ reliance on these metrics, they have not been demonstrated to be reliable predictors of residency performance. This may be due to the fact that these assessments do not measure key interpersonal traits relevant to residency success.

Summary of Work: In this study, we conducted a preliminary criterion-related validation study of the utility of USMLE scores, structured interviews, and program rank in predicting intern mid-year performance in four residency programs. The structured interviews were developed to specifically measure key interpersonal competencies.

Summary of Results: Results demonstrated that USMLE scores were not useful predictors of intern performance. In contrast, structured interview scores were useful predictors of systems-based knowledge (SBK) and interpersonal and communication skill (ICS). Program rank was a significant predictor of SBK, medical knowledge and an overall performance composite after controlling for USMLE and structured interview scores.

Discussion and Conclusions: This preliminary study reinforces previous findings that USMLE scores have limited utility in predicting residency performance. It also suggests that structured interviews and holistic ranking processes deserve further investigation as residency selection tools. These findings are important for program directors as they decide which metrics to use in the residency selection process.

Take-home messages: This study demonstrated that the residency selection process can be strengthened by measuring and explicitly taking into account key non-cognitive interpersonal competencies.
Teaching of surgery in MBBS forms an important component of the undergraduate curriculum. Surgical teaching effectively brings about integration of basic sciences particularly applied anatomy and pathophysiology with clinical practice. It allows students to learn about, beside surgical therapy, the art of effective communication, informed consent, management of premorbid conditions, cancer therapy, cost-effectiveness of technology, patient safety, interprofessional and after-hospital care, quality of life, medico-legal and ethical issues. With the advent of curriculum reforms there has been a gradual reduction in surgical placements and exposure. There is also a misperception that surgery as a discipline is too specialized at undergraduate level. With increased emphasis on community and family-based education in the curriculum, planning emphasis has shifted to include only generic skills in surgery. This symposium will highlight and deliberate on planning of an appropriate undergraduate surgical syllabus and its delivery in an integrated curriculum.

For researchers conducting or planning to undertake practitioner or ‘insider’ research in their workplace, whether on campus or in a clinical setting, the ethical considerations do not stop when the ethics approval has been obtained. In this symposium, we shall consider what is regarded as good ethical conduct in education research; and we shall share some of the dilemmas we have been faced with as researchers and discuss tensions between obligations to the research participants and to professional and personal codes of practice, and how this aligns to the informed consent process. The symposium offers the opportunity to identify and debate such tensions and provide guidance for new and early careers researchers faced with ethical dilemmas.
Introduction: Little has been written about the value of the written comments that medical students are traditionally asked to provide to evaluate the teaching they receive. Some have suggested that such comments can be used to guide faculty development, while others feel they are too subjective to improve teaching habits and practices. The aim of the present study was to examine written teaching evaluations to understand how teachers’ behaviours and performance are conceptualized by medical students.

Methods: All written comments collected from students about teachers in the two Surgery clerkships at our school in 2009/10 and 2010/11 were collated and anonymized. A grounded theory approach was used to analyze this dataset, with iterative reading and open coding to identify recurring themes. A framework capturing all variations observed in the data was generated until data saturation was achieved. Domains and subdomains within the framework were named using an in situ coding approach.

Results: The conceptual framework generated contained three main domains: ‘Physician as Teacher’, ‘Physician as Person’ and ‘Physician as Physician’. Under the ‘Physician as Teacher’ domain, students commented on specific acts of teaching (eg. discussion, asking questions, explaining) and subjective perceptions of an educator’s teaching values (eg. passion, learner-focused, supportive). Under the ‘Physician as Person’ domain, students commented on elements of their educator’s physicianship, including communication and collaborative skills, medical expertise, professionalism and role modeling. Under the ‘Physician as Person’ domain, students commented on how both positive and negative personality traits impacted their learning.

Discussion and Conclusions: This framework describes how medical students perceive their teachers and how they use written language to attach meaning to the behaviours they observe. We plan to share this work with our students and teachers in order to foster a shared understanding of the teaching enterprise. This framework will be used to help students provide more constructive feedback to teachers, and to assist in faculty development efforts aimed at improving teaching performance.

control items (21:47 +/- 05:27 mins vs. 13:30 +/- 05:24 mins per seminar; p < 0.001). Cronbach’s alpha of the entry, exit and retention exam was 0.663, 0.905 and 0.895, respectively. In the exit exam, all but one item yielded a discriminatory power of >0.3, and in the retention test, only three out of 30 items had a discriminatory power of <0.3. Mean percent scores in the entry, exit and retention exams were 22.6 +/- 11.3%, 53.0 +/- 24.4% and 52.4 +/- 23.4%, respectively. At the 6-month follow-up, students achieved significantly higher scores in intervention items than control items (56.0 +/- 25.8% vs. 48.8 +/- 24.7%, p < 0.001). Accounting for differences in time between presentation formats in a linear regression analysis also adjusted for sex and general student performance levels did not change the results.

Discussion and Conclusions: Repeated case-based learning augmented with key feature questions is more effective than repeated case-based learning alone in enhancing long-term retention of clinical decision-making skills in general medicine. This study suggests that by implementing longitudinal formative key feature testing in undergraduate medical education, student learning outcome on relevant aspects of clinical medicine can be enhanced.


#S53 (23652)
Optimism and grit: Key to success in the widening access student’s journey into medical school

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Introduction: Across the world, young people with the academic and personal attributes to successfully study medicine and be doctors face disadvantages associated with demographic factors such as ethnicity, minority group membership and/or low income. Aspiring to medicine and attaining the necessary academic and non-academic entry requirements, are hugely complex, intersecting issues which are tied up with wider societal issues of social justice and equality, and sociological issues of cultural and social capital (Bourdieu, 1986). Previous studies in this area have focused on barriers to successful application to medical school, such as cultural and social norms (Greenhalgh et al., 2006), lack of social or parental support (e.g., Hill et al., 2004; Robb et al., 2007) and/or lack of attainment (e.g., Chowdry and Goodman, 2013). However, in contrast, we were interested in the experiences of “non-traditional” applicants who succeeded in obtaining a medical school place, to explore the individual and social factors which contributed to their achievement.

Methods: Grounded in social constructionism, 14 semi-structured interviews were conducted with medical students from three UK medical schools, who self-identified as being from widening access backgrounds and responded to emails about the study from the research team. Narrative interviewing techniques were employed to capture their lived experiences of getting in to medical school.

Results: Data coding and analysis were initially inductive, using framework analysis. After the themes emerged and after considering many possible interpretative frameworks (Bordage, 2009), we applied the conceptual lens of positive psychology (Seligman, 2000) to the data. Psychological resilience was a common trait in our participants, who bounced back from (the many) challenges in their journeys by using positive emotions such as perseverance, motivation, determination and goal setting to cope. Emotional support from family played a crucial part in this resilience, counterbalancing poor support and discouragement from teachers. While contextual, relational and material factors affected how the journey into medical school played out in facilitative and inhibitive ways, the individual factors of grit and optimism seemed key to success: “I’ve had people tell me that I can’t do this, I can’t do that because I come from so-and-so. But the thing is, I never listen to any of that crap, I move forward, it’s about perseverance”. Further examples of data will be presented at AMEE.

Discussion and Conclusions: This work gives a unique insight into the journey to medical school of “non-traditional” applicants. Our findings are important given the importance of non-cognitive factors in attainment generally, and the importance of resilience in terms of clinician well-being and support. It may be that medical students, who have often fought against the odds to gain a place a medical school, are more emotionally resilient than “traditional students” for whom the journey to medical school tends to be smoothed by social and cultural advantage. If so, widening access may bring specific gains to the medical profession, challenging the dominant discourse of meritocracy within the widening access literature (Trowler, 2008). Further research is required to explore if this is indeed the case.


#S54 (23705)
Forum for conflict: a qualitative evidence synthesis of touch in healthcare

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Introduction: Touch is integral to clinical practice. It is a significant component of nonverbal communication and a frequently taken for granted activity in medicine. Yet, touch is part of doctors’ everyday practice, from shaking a patient’s hand, to intimate examination, and the performance of procedures. Our objective is to identify, describe, critically analyze, and synthesize the literature on touch in everyday clinical practice; to conceptualize how touch is used in healthcare.

Methods: This study is a qualitative evidence synthesis, using meta-ethnography. Multiple databases (MEDLINE, CINAHL, PsycINFO, EMBASE, SocioFILE, ERIC) were searched using MeSH headings and filters. Papers were critically appraised independently by 2 reviewers using the CASP tool. Thematic data was tabulated to record first order (study findings) and second order (author interpretations) constructs, then discussed amongst the team to develop third order constructs (reviewer interpretations). Team reflexivity informed analysis. The heterogeneous nature of studies challenged synthesis. Studies were grouped per discipline. For each group, a high quality paper was used as the initial focus for study integration, as part of a sensitivity analysis. Findings of each group were then assimilated as a line of argument. Preliminary findings were presented as the study evolved and shared with selected primary authors. In keeping with the methodology, presenting this paper will share findings and continue to test their validity.

Results: Our search yielded 1011 papers; application of exclusion criteria resulted in 369 papers; 27 of which were qualitative (Medicine 4, Dentistry 1, Physiotherapy 2, Nursing 20). The study population in medicine was family doctors. Nursing studies focused on touch with elderly patients or the experience of nursing. Medicine studies focused on touch with the elderly or the experience of medicine. Other disciplines were preoccupied with the appropriateness of touch, its enactment within the workplace is tense. The arena is constructed out of society’s wish for ‘on display in the arena’ to express our findings. The walls of the arena are hegemonically constructed by boundaries of age, illness acuity, discipline and gender. The body is not a neutral territory. Touch becomes a form of engagement between practitioner and patient, which involves a range of active strategies from moment to moment.

Discussion and Conclusions: Touch is a relatively unmapped area of research in healthcare. Family medicine is the only medical specialty reporting empirical research. More examined more in nursing, studies focus largely on gender and power relations. Although publications emphasized a need for education on touch, no study has yet addressed how to do this. Future studies will explore physician experiences of touch with a view to informing body pedagogics in medical education.


#5D5 (23718) “A little more time”: A simple question provides insight into student thinking.

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Introduction: Assessment of medical students by standardized patient (SP)-based examinations provides an opportunity for a purposeful review of clinical skills. Examinations are resource intensive, resulting in limitations such as strict time restrictions for the patient encounter. When provided with an opportunity to return to the patient’s room, students frequently “revisit” with the patient to perform additional portions of the interview or physical examination. For this project, we studied students’ descriptions of information they would obtain if given an opportunity for more time with the patient.

Methods: Data from our 2013 and 2014 senior medical student Clinical Skills Examination (CSE) were used for this study. Beginning in 2013, an oral presentation [OP] station was added to our CSE. The OP, a 10-minute post-encounter activity, occurred immediately following a 15-minute SP-based encounter. OPs were facilitated and scored by specially trained SPs. Students were instructed to provide an uninterrupted presentation of the patient, including the differential diagnosis and initial diagnostic plan. Upon completion, students were prompted with the query “if you had more time with the patient, what additional information from the medical interview or physical examination would you obtain?”. All encounters were video-recorded. The desired “additional patient information” articulated by the students was transcribed, the specific information requested was grouped by medical interview or physical exam and assessed for relevance to the patient encounter.
**Results:** Two hundred nine students participated in the 2013 CSE, 217 students participated 2014 CSE. Useable data were available for 96.7 and 97.6% of students respectively. Overall performance score on the OP station was satisfactory for 72.2% (2013) and 88.2% (2014) of students. In 2013, 41% of students requested additional medical interview information, and 85% suggested that there were additional physical examination maneuvers they would perform. In 2014, 65.5% requested additional medical interview information and 42.5% described additional information from the physical exam they felt would be helpful. Students who stated that “nothing additional was needed” were more likely to have received an unsatisfactory overall score on the OP station in the 2013 exam. Of note, the patient encounter that served as the basis for the OP station was different in 2013 and 2014; the 2014 scenario prompted a differential diagnosis more focused on a single organ system.

**Discussion and Conclusions:** Our findings build on prior work related to “revisit” activities during CSEs. Time for reflection outside of the patient room (typically during the note writing process) allows students to identify important missing patient details that may help in the decision making process. In our current work, students had limited time for quiet reflection before engaging in an oral case presentation. Our findings suggest that even during the active process of the oral presentation of a patient, students were able to reflect on the patient encounter and recognize additional information that would be helpful diagnostically. SP facilitators commented that the “more time” query was helpful in their assessment of the students. Actively inviting the student to share this information provides an additional opportunity to observe critical thinking skills.
"Please do not admit this patient under my service"!

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**Summary**: A 75 year old woman comes to the Emergency Department with complaints of four day history of "ticor in right lower phalanx", ten day history of "gooler in the Mulan region" and one month history of episodic "trilocking and pain in the entire cutem". Past history is remarkable for "quoritis" and "ticlomatous polytreopathy". She has previously been admitted thrice under "Vacuumology" service and once under "Turfology". Patient stays in the Emergency department while Consultants and Residents on call debate whole night long as to which is the appropriate admitting service? Possibility of Right lower cutem "Phalangitis" versus “mulangitis” or “bafflamation of right google” noted by various super-specialities. The patient and the flustered family keep hearing the same words echoing in the Emergency department "Please do not admit this patient under my service" !...... So who should admit this patient? My fellow professionals, isn't this the not so grand finale of the era of ultimate fragmentation of care? Whither goes 'holistic' Medicine? I suggest and reflect: Does it really matter who admits the patient !??

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**Storytelling for Scientists: A Novel Approach to Communicating Effectively with the Non-Technical World**

**L. Lipkin**, Story Strategies, Amsterdam, Netherlands

**Summary**: There is arguably no better way to make complex subjects come to life and lodge in our memories than through the power of a good story. Business publisher Chris Brogan wisely said, “Stories are how we learn best. We absorb numbers and facts and details, but we keep them all glued in to our heads with stories.” Yet all too often, we negate the need for stories, disregarding them as ancillary, ignoring their capacity to inspire people to action. Scientists and medical educators have been particularly reticent to change the way they deliver information, due in large part to their training which says “Evidence first, not personalities.” But in fact, it is exactly their personalities, and the ideas they are passionate about that fuel their imaginations and help the listener to understand and appreciate their important work. Now, more than ever, institutions and researchers are dependent on grants and private donations. They must convince donors, department chairs, and co-workers of the value of their work. Being able to engage and persuade audiences is tantamount for professional survival. This interactive session will show medical educators how to use storytelling strategies to persuade, engage, and communicate their important ideas more effectively.
#5E3 (25404)
On why your work does not make you happy

Menno de Bree*, University Medical Center Groningen, Institute for Medical Education, Groningen, Netherlands

Summary: Aristotle famously proclaimed that happiness is the ultimate end we all strive for. If you ask yourself why you do the things you do, the ultimate answer would be... because you think that it will make you happy. Nowadays, we tend to see love relations and work as two of the most rewarding ways to achieve happiness. But we also know that the relation between love and happiness is notoriously difficult. Work seems easier. Most people still seem to think (if you look at the time and effort that we put into our careers) that the fruits of their work will ultimately make them happy. My goal is to show that this thought, that you can achieve happiness via work, is just nonsense. My talk has three parts. First I want to argue that becoming happy is an inherently difficult project. In the second part, I will show that there are some extra reasons to just laugh at the suggestion that work leads to happiness, and that things only get worse when you are working in a hospital. I will conclude with some philosophical advice on how to become as happy as possible and to make the best out of it. But I have to caution you that, given the hopelessness of our situation, these tips are presumably quite obsolete.

#5E4 (25953)
Is a picture worth a thousand words? Clinical educators reflecting on their teaching

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Summary: ‘I’m like that dog on the beach in the photo... I love teaching. I run headlong into it and hope my enthusiasm is catching.’ As a form of visual metaphor, photographs offer a creative springboard for storytelling, assisting educators to reflect on their teaching experiences by describing something else. This fringe session investigates how images of everyday objects and social scenes can provide learners with conceptual tools and words for representing more complex or abstract aspects of educational practice (including professional beliefs, values and challenges). In this presentation I will ask the audience to participate in a brief visual metaphor exercise to demonstrate how photographs can be used to help us to think differently about our teaching. Participants will be invited to share their own reflective metaphor activities and to consider the sensitivities involved in facilitating such strategies in group-based learning environments.
Is there an app for that?
David Topps*, University of Calgary, Family Medicine, Calgary, Canada
Maureen Topps, University of Calgary, Family Medicine, Calgary, Canada
Doug Myhre, University of Calgary, Family Medicine, Calgary, Canada
Jean Rawling, University of Calgary, Family Medicine, Calgary, Canada

Summary: We all want easy access to information, preferably with a single click – the perfect app that reads our minds, knows what we want and delivers it seamlessly. Ever been involved with a group that has gotten excited, nay starry-eyed, over creating this? Or worse, the painful process of actually trying to design this? Building on previous Fringe experience, this year our team will present a skit with variety of audience interaction approaches (multi-screen, live feeds, hecklers, jugglers, juggling of hecklers – it could get ugly!).

Spicing up your EBM teaching
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Veerle J Langenhorst, Isala Hospital, Princess Amalia Children’s Centre, Zwolle, Netherlands

Summary: Background: Although they are considered important skills for clinical practice and research, clinicians and educators struggle with teaching evidence based medicine (EBM) skills. EBM is considered to be an academic exercise with little relationship to everyday clinical practice. Teaching and learning EBM skills is considered tedious and dull by many. Not by us, though! Clinicians use odds ratios every day. Most commonly, however, they confused them with relative risks because this mistake is abundant in the medical literature and in the lay press. Unless you are an experienced sports gambler, or a trained statistician, the odds ratio is a difficult concept to comprehend. But it is important to understand and to be able to teach this concept to junior doctors because it is frequently being misused as an inflated estimate of the effect. We present a playful 15 minute session in which the difference between the relative risk and the odds ratio is being taught in such a way that it will stay with you forever. You are forewarned, though, we will be requesting the use of 6 volunteers. We will also be using 3 wine bottles (but we will bring those ourselves) and we guarantee a lot of fun. Who should attend? Medical specialists and educationalists who are interested to learn how to teach this concept in a simple, playful, memorable, and highly engaging way, as an inspiration to spice up your EBM teaching at home.
#5F Short Communications: Assessment

**Location:** Argyll 1, Crowne Plaza

#5F1 (27916)

Medical School Performance as a Predictor of the National Specialization Examination

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David Hope, University of Edinburgh, Clinical Education, Edinburgh, UK
Helen Cameron, University of Edinburgh, Clinical Education, Edinburgh, UK
Recep Ozturk, Cerrahpasa Medical Faculty, Infectious Diseases, Istanbul, Turkey

**Background:** A medical qualification is supposed to indicate competence to practice, but how well medical school performance predicts future performance is not always known. Medical educators find it important to make future predictions about student performances with today’s data. This might help the profession of medicine in allocating limited resources of education for students who are most likely to show good future performance.

**Summary of Work:** 246 students who matriculated to medical school in 2007 were studied retrospectively. The group included two cohorts who undertook identical (but separate) programmes within one medical school, but each had been admitted under different criteria. Students’ year based Grade Point Averages (GPAs) and end-of-school (final) GPAs were calculated using a weighted mean method. Their post-graduation national exam scores, at their first attempt after graduation, were matched with their school GPA. Bivariate correlations were calculated between year specific GPAs, final GPAs and post-graduate national exam scores.

**Summary of Results:** Students’ inter-year GPAs showed strong significant correlations (“r” ranging from 0.59 to 0.86, p<0.001). Their final GPA also had a strong significant correlation with national exam scores (“r”=0.65, p<0.001). Linear regression models showed the significant relation between medical school performance and post-graduation national exam performance, final GPA contributing to variance of around 44% for post-graduation national exam scores.

**Discussion and Conclusions:** Predicting future achievements of medical students is important for medical educators. When end school national exam is accepted as an indicator, medical school GPA is a good predictor.

**Take-home messages:** Medical school performance may be helpful in predicting achievements of young graduates.

#5F2 (25718)

Ethnic and social disparities on different types of examinations in undergraduate pre-clinical training

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**Background:** Numerous studies have shown that ethnic minority students underperform compared with those from the ethnic majority. However, there are inconsistencies in findings on written and clinical examinations. In addition, little is known about the performance of first-generation university students and on performance differences across ethnic minority groups. The aim of this study was to investigate underperformance across ethnic minority groups and first-generation university students in different types of written and clinical skills examinations during pre-clinical training.

**Summary of Work:** A longitudinal prospective cohort study of progress on a 3-year Dutch Bachelor of Medicine course was conducted. Participants included 2435 students who entered the course over a consecutive 6-year period (2008-2013).

**Summary of Results:** Compared with Dutch students, the three non-Western ethnic minority groups (Turkish/Moroccan/African, Surinamese/Antillean and Asian) underperformed on the integrative theoretical tests, the language test and the OSCEs. Findings on the other written tests and for Western minority students were less consistent. Age, gender, pre-university grade point average and additional socio-demographic variables (first-generation immigrant, urban background, first-generation university student, first language, medical doctor parent) could explain the differences in theoretical and language skills tests, but not in clinical and writing skills examinations. No significant differences were found for first-generation university students.

**Discussion and Conclusions:** Ethnic minority students underperform in pre-clinical training, but there are differences both across ethnic subgroups and between different types of written and clinical examinations.

**Take-home messages:** In designing assessment programs care should be taken to avoid possible unintended effects of certain types of examinations for certain groups of students.
Exit Level Assessment of Undergraduate Medical Students’ Clinical Competence for Sub-Saharan Africa Using the Context of the Millennium Development Goals

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Susan van Schalkwyk, Stellenbosch University, Centre for Health Professions Education, Faculty of Medicine & Health Sciences, Cape Town, South Africa

Background: Given the shortage of trained health care professionals (HCP) and the burden of disease in Sub-Saharan Africa (SSA), it is crucial that graduating HCPs are suitably skilled. Certifying this requires appropriate assessment, but what constitutes ‘appropriate’ in this setting? The Millennium Development Goals (MDGs) provide an approach to delineating health care needs and priorities.

Assessment of HCPs aligned with these goals could ensure competent graduates better equipped to manage SSA health challenges. An investigation was conducted into what exit level assessment practice reveals about the clinical competence of SSA medical graduates with relevance to the MDGs.

Summary of Work: This study investigated exit level assessment (ELA) practices in three SSA undergraduate medical programmes, focussing on two clinical disciplines and pertinent health-related MDGs. A process of mapping provided an overall picture, through analysis of documents, examination questions and observations of assessments.

Summary of Results: While question content had appropriate clinical emphasis, the proportion relating to the selected MDGs was variable. ELA methods used were similar to those employed in other medical schools worldwide, and most were aligned with accepted criteria for sound assessment.

Discussion and Conclusions: Although a range of assessment methods were utilised and followed accepted standards, their suitability for resource-constrained settings deserves further investigation and review. Focussing better on relevant health care needs requires consideration. This study has provided an overall picture of exit level assessment at selected SSA medical schools. A stronger MDG focus is warranted.

Take-home messages: Assessment practices may need to be re-aligned to address prevailing needs so that graduating doctors are fit for practise in SSA.

The relationship between academic assessment and psychological distress among medical students: a systematic review

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Nichola C Wilson, The University of Auckland, Department of Surgery, Auckland, New Zealand
Jill Yielder, The University of Auckland, Medical Programme Directorate, Auckland, New Zealand
Andrew G Hill, The University of Auckland, South Auckland Clinical Campus, Auckland, New Zealand

Background: A systematic review was conducted to determine the relationship between academic assessment and medical student psychological distress with the aim of informing assessment practices.

Summary of Work: A systematic literature search of six electronic databases (Medline, Medline IN PROCESS, PubMed, EMBASE, Psychinfo, ERIC) from 1991 to May 2014 was completed. Articles focusing on academic assessment and its relation to stress or anxiety of medical students were included.

Summary of Results: From 3986 potential titles, 82 full-text articles were assessed for eligibility, and 23 studies met review inclusion criteria. Studies focused on assessment stress or anxiety, and assessment performance. Consistent among the studies was the finding that assessment invokes stress or anxiety, perhaps more so for female medical students. A relationship may exist between assessment stress or anxiety and impaired performance. Significant risks of bias were common in study methodologies.

Discussion and Conclusions: There is evidence to suggest academic assessment is associated with psychological distress among medical students. However, differences in the types of measures used by researchers limited our ability to draw conclusions about which methods of assessment invoke greater distress. More rigorous study designs and the use of standardized measures are required. Future research should consider differences in students’ perceived significance of assessments, the psychological effects of constant exposure to assessment, and the role of assessment in preparing students for clinical practice.

Take-home messages: Assessment invokes stress and anxiety, perhaps more so for female medical students, and can impact academic achievement. Grading systems and assessment methods can increase student stress and anxiety.
UCAN: 10 years of experience in cooperative medical assessment

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Jana Jünger, Umbrella Consortium for Assessment Networks (UCAN), Heidelberg, Germany

Background: In order to face the future challenges in medical assessment, institutions have to cooperate more intensively. 10 years ago, UCAN was formed as such an interinstitutional cooperation. Today 60 schools and boards from 7 countries work closely together to share their knowledge, to combine and optimize their resources and to engage in collaborative research.

Summary of Work: In 2006, UCAN developed the ItemManagementSystem as a web-based platform for the authoring, sharing and reviewing of items and exams. Since 2007, exams can be delivered on computers or on scanner-readable sheets. Exams can be evaluated with test statistical analysis and graded with customizable algorithms. In 2010, a Simulated Patients Database was added to administer the SP programs (role management, billing). Since 2012, OSCEs and since 2014 MCQ exams can be delivered on tablets.

Summary of Results: More than 220,000 items were added by 6,000 colleagues. Best practice examples for reliable exams, assessment content and workflows are collected and used at the partner institutions. New item- and exam formats are continuously developed. So far, over 4 million students were assessed successfully in 12,300 exams.

Discussion and Conclusions: 10 years of cooperation in a collaborative network has proven to be an efficient way to face new challenges in medical assessment. Especially with the future requirements in the assessment of competencies, close tie-ups are highly recommendable.

Take-home messages: Assessment institutions should work together in order to tackle common challenges. 10 years of successful cooperation at UCAN proves this approach to be both innovative and feasible.

Assessment of professionalism by portfolio: The challenges of implementing change in a traditional medical curriculum

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Background: The medical programme at the University of Auckland has introduced a longitudinal Personal and Professional Skills domain of learning. It is assessed principally through the compilation of a portfolio reflecting the learning outcomes for the themes of the domain.

Summary of Work: Our implementation process includes a cyclical model to evaluate and improve the use of the portfolio. The introduction of the portfolio has been monitored and modifications made in light of student feedback.

Summary of Results: The standard of student work is mostly outstanding, showing personal and professional development not previously evidenced. We will present our process for introducing the portfolio, challenges, strengths and limitations, format, examples of student work, and how we are dealing with student feedback.

Discussion and Conclusions: Engaging with changes in a traditional medical school culture can be particularly challenging for students who have already experienced a previous curriculum. Students struggle with their perception of the relevance of reflective practice in the ‘real world’ of being a doctor. It is essential to respond to feedback in a sensitive way in order to make the portfolio process acceptable and ‘safe’ whilst emphasising the need for a form of assessment that is different to others in the programme.

Take-home messages: We maintain that it is best for students to learn the process of reflective practice early in the medical programme to overcome barriers and optimise professional competencies when they begin medical practice. It is imperative that breaking new ground in the medical curriculum is supported by robust evaluation and responsiveness.
#5F7 (24885)
Peer Organised Mock OSCE – An Invaluable Learning Opportunity

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A Sachdeva, University College London Medical School, UK
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Background: Due to changes in the curriculum, undergraduate students in their penultimate year will sit one summative Objective Structured Clinical Examination (OSCE) at the end of the academic year (instead of sitting 3 modular OSCEs). A peer organised optional mock OSCE for the Child and Family Health with Dermatology (CFHD) Module was devised, and participants’ feedback evaluated.

Summary of Work: Sixteen stations were designed by a committee of medical students and approved by a senior clinician. Candidates sat the mock exam either individually or in pairs. Doctors or medical students assessed the candidates, based on a marking scheme. Each station was 5 minutes long and followed by 2 minutes of constructive verbal feedback. All candidates completed feedback sheets rating the quality of individual station feedback and overall components of the mock exam from a scale of 1–5 (1–Poor to 5–Excellent).

Summary of Results: 192 students attended and rated 87.5% of individual station feedback as either Excellent (49.9%) or Good (37.6%). Overall the Mock OSCE received positive feedback (either Excellent or Good) by 95.8% for content, 94.3% for variety of stations, 94.3% for organisation, 87.5% for similarity to formal exam setting and 95.8% for usefulness. Qualitative feedback from participants highlighted the perceived demand for more OSCE practice.

Discussion and Conclusions: The mock OSCE was found to be an invaluable learning experience for the participating students, which has caused the medical school to consider if a similar event could be incorporated into the curriculum.

Take-home messages: Peer organised mock OSCEs can be useful for revision purposes.
A foot in both worlds-writing about artworks as an educational tool

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Roshni Beeharry, St George's Hospital Medical School University of London, Institute of Medical and Biomedical Education, London, UK

Background: Art, film and literature are increasingly used in medical education, encompassed within the medical humanities. At St. Georges University of London Medical School, a humanities-based approach was used to redesign the Foundation Year Student Selected component (Foundation SSC).

Summary of Work: The new design was a conscious effort to move away from purely scientific stance and allow students to explore art works as a stimulus of enquiry. Students were asked to visit any museum of their choice, and select an artefact. Students then wrote a 1250 word essay reflecting the relevance of the artefact from their stance as a member of society and as a new medical student entering medicine.

Summary of Results: Students wrote about a range of artefacts including medical and non-medical related artwork and equipment. Students wrote on how they responded emotionally and intellectually to their selected artefacts. Assessment detailed focused assessor impressions of the writing.

Discussion and Conclusions: By giving students the freedom to explore the world beyond the confines of the medical school, and moreover, beyond the expected scientific and medical sphere, this SSC facilitated students discovering new insights and demonstrating emotional expression. Art can provide a lens for society to examine itself and we demonstrated this exercise could enable students to develop a critical / vocal perspective on health as an expression of society.

Take-home messages: This SSC gives opportunity for students to expand their curiosity, interpretation and criticism of the world through the world of art as a journey of increasing self-awareness.

Improving Journal Club

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Background: Journal club (JC) sessions are conducted in different formats; many having the learner present an article from a podium. This often leads to a disengaged audience especially when many participants do not read the article prior to a JC session. A lecture format fails to teach learners how to critically read a manuscript and does not encourage organized discussion.

Summary of Work: We have utilized a JC format requiring all learners to submit a pre-discussion article evaluation; the learner assigned responsibility for the session serves as a facilitator of structured, open, and critical discussion of the paper. We have utilized questionnaires to assess learners' attitudes and perceptions regarding Journal Club. We have also evaluated pre- and post-discussion evaluations of our sessions to study trends in critical thinking.

Summary of Results: Our surveys of perceptions and attitudes of learners demonstrate that Journal Club is more meaningful and engaging than when we had a presentation style format. Learners' assessments of articles demonstrate critical thinking.

Discussion and Conclusions: Our experience with traditional presentation style JC did not result in critical analysis of articles discussed; only a few learners would participate in the activity. Using pre- and post-discussion evaluation forms and changing our format to structured open discussion has created lively debate and improved our learners' ability to critically assess articles.

Changing the format of JC from a passive to an interactive environment has invigorated our training program activity and enhanced our learners' ability to critically read and think.

Take-home messages: Journal club should be an active and engaging exercise.
#5G3 (24553)

A pilot project of screencasts to enhance a longitudinal faculty development fellowship

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Background: Medical education fellowships are longitudinal faculty development programs that prepare faculty as clinician educators. In “flipped-classrooms”, learners build requisite knowledge frameworks from preparatory activities, allowing for practice and feedback during face-to-face sessions. We describe using screencasts in a flipped-classroom model of a fellowship.

Summary of Work: The Scholars for Teaching Excellence Faculty Fellowship is an 8-month long program focusing on instructional methods and curriculum development. In 2013, the fellowship was redesigned using the flipped-classroom model. Screencasts were created to supplement preparatory readings. These screencasts emphasize foundational concepts and provide examples, permitting classroom time for applying concepts to the fellows’ educational projects.

Summary of Results: Individual interviews of fellowship participants (n=8/11) explored the use of screencasts for learning. Screencasts are 5-15 minutes long, and are saved in mp4 format. Participants selected portable devices or laptop computers depending on setting and time available. Screencasts were used to prepare for classroom sessions, and also for review and reinforcement. The mp4 format allowed “skipping forward” or rewinding, which permitted some participants to learn during “gaps in time”.

Discussion and Conclusions: These screencasts conform to principles of effective multimedia instruction because they permit auditory and visual processing. Core concepts are highlighted using images and verbal emphasis. Screencasts are designed to be an optimal length for learning. They afford flexibility and portability, permitting participants to learn at times that best suit their needs. Effective screencasts require clear articulation of foundational concepts and linking of preparatory materials to classroom activities.

Take-home messages: Existing screencasting apps allow medical educators to effectively use the flipped-classroom model for educational fellowships.

#5G4 (26147)

Enhancing medicine logistics knowledge and skills development of first year pharmacy students

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Elzabe Bekker, North-West University, Faculty of Health Sciences; Pharmacy Practice, Potchefstroom, South Africa
Anne-Marie Bekker, North-West University, Faculty of Health Sciences, Pharmacy Practice, Potchefstroom, South Africa

Background: Training in medicine logistics previously consisted of first year pharmacy students observing the logistics surrounding the receiving and storing of medicine during a visit to a public sector hospital. This was an ineffective and passive learning process and intensive experiential learning was needed. Learning through self- and peer assessment and reflection, aided by the use of video software programs were investigated.

Summary of Work: In the simulation laboratory students received and stored medicine according to prescribed policies and methods. These procedures were video recorded. Each group assessed their own and two other groups’ procedures, followed by reflection on the assessment received from the other groups using a video analysis program.

Summary of Results: Students initially experienced challenges in making video recordings and using video analysis software. Mean test-scores increased by 12%. Student reflections indicated meaningful and deeper learning.

Discussion and Conclusions: Students understood the theory of medicine logistics better after they experienced the procedures themselves. Reflecting on their own procedures and assessing their peers increased their awareness of detailed steps involved and enhanced knowledge retention. Video analysis of their own and other students’ practices provided valuable learning opportunities with increased student engagement, critical thinking and learning. Students gained knowledge and skills of medicine logistics after participating in an experiential reflective learning approach.

Take-home messages: Video-capturing of practical procedures by students followed by self-assessment, peer-assessment and reflection using video analysis software provided a more intensive experiential learning opportunity.
Medical translations in medical education. A road to synergy?

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Jannis Papazoglou, Executive Board, European Medical Students’ Association (EMSA)

Kristina Filipova, Medical Education Pillar, European Medical Students’ Association (EMSA)

**Background**: Engagement in medical translations and ‘technical’ work with medical texts for many physicians is a form of intellectual detachment from clinical practice. The purpose of this study was to examine a group of undergraduates and early postgraduates who perform such translations, judging the impact it has on their medical knowledge.

**Summary of Work**: 25 people from 8 countries (15 junior postgraduates and 10 medical students) were interviewed via an on-line questionnaire. 17 questions were designed to identify e.g. the length of involvement in translations or motivation and satisfaction levels. Most importantly, the respondents evaluated if and HOW such a commitment influences their medical performance.

**Summary of Results**: 88% of respondents agreed that translating helps to keep their medical knowledge up-to-date. 80% admitted that they feel "pushed" to investigate medical matters they’d otherwise skip. Coming across latest articles and developing an eye for language details were other popular replies (selected by 48% each).

**Discussion and Conclusions**: Interestingly, when eventually everyone was asked to sum up if they’d recommend work in translations as enhancement for medical education, 72% of participants gave positive and very positive replies. Providing students with opportunities to translate (e.g. in cooperation with translation offices) could be yet another academic tool, with additional financial incentive.

**Take-home messages**: Outcomes of the study performed with representatives of various countries, academic systems and language backgrounds signal potential benefits of involvement in medical translations for the development of a healthcare professional. By encouraging engagement in such activities, medical students could not only sharpen their language skills but, in parallel, work on their medical background.

Educational interventions aimed at improving cost-consciousness of physicians: a realist review

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**Background**: Physicians’ central role in health care makes physician training an important focus of cost-containment interventions.

**Summary of Work**: We conducted a realist review to identify which factors play a role in educating learners (physicians, residents and medical students) in cost-conscious behavior. Our systematic search identified 2460 articles of which 69 articles met the final inclusion criteria.

**Summary of Results**: Data-analysis identified three underlying factors. One of these factors that plays a role in changing behavior is the learners’ perceived ability to perform ‘cost-consciously’. Interventions that focused on knowledge-transmission, and especially those who provided recommendations for change, increase the feeling of capability. A second factor that turned out to play a role is the culture in which the learners are trained, for example if there is an environment of cost-consciousness. The third factor that emerged from the analysis is the individual values and beliefs of the learner towards high-value, cost-conscious care. These individual values and beliefs can be influenced, for example through feedback or environmental notice of the need for the delivery of appropriate care. All factors contribute to the intention to behave cost-consciously. Context, for example payment-system, agency, or accountability, proved to be important.

**Discussion and Conclusions**: Training physicians for their role in high-value, cost-conscious care is complex and needs to take context into account. The development of this modified version of the theory of planned behaviour-framework can help to guide the development of future education in the area of high-value, cost-conscious care.

**Take-home messages**: Educational interventions should strive to educate physicians beyond “the usual suspects”.
## #5H Short Communications: Selection 3 – Widening Participation

### #5H1 (25401)

**Widening participation via a skills-based approach: using medical ethics to improve under-represented students’ BMAT essay-writing skills**

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*Cecilia Rossler*, University College London School of Slavonic and Eastern European Studies, London, UK  
*Emily Unwin*, University College London Medical School, London, UK  
*Jayne Kavanagh*, University College London Medical School, London, UK

**Background:** Many applicants from under-represented backgrounds are put off applying to medical schools using the BioMedical Admissions Test (BMAT) due to its ‘essay’ section. Our widening-participation programme found that such applicants often lacked the ability to construct well-formed arguments; a skill needed to succeed in the essay.

**Summary of Work:** We devised a 6 session medical ethics course that aimed to increase students’ aptitude and confidence to sit the BMAT essay. We hypothesised that developing students’ critical thinking skills would improve their BMAT essays. New topics were explored weekly via interactive activities. These required students to synthesise, critique and defend different viewpoints – essential skills for a strong essay. A baseline BMAT essay question was set after the first session, followed by a mock essay paper in the penultimate session. Only 20 minutes of the 12 hour course was spent directly discussing the BMAT essay. Entry and exit questionnaires were administered. Participants were followed-up after BMAT results.

**Summary of Results:** 19/21 students completed the course. Their average argument construction mark improved from 3.0 to 3.5/5.0 (p=0.016) and written communication mark from B to A (p=0.013). This brought their scores from below to above the applicant average (3A). All students reported increases in confidence to sit the BMAT essay (p<0.001). 18/19 students who completed the course responded to the follow-up questionnaire. 13 applied to BMAT medical schools, scoring an average of 3.5A.

**Discussion and Conclusions:** The course meaningfully improved students’ BMAT essay-writing skills, with a long-lasting impact, and increased their confidence. **Take-home messages:** Medical ethics provides an effective platform to develop BMAT essay-writing skills.

### #5H2 (24352)

**Changing the profile of medical students in the UK**

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*Pete Johnson*, University of Nottingham, School of Medicine, Nottingham, UK

**Background:** Medicine applicants and entrants do not reflect the UK population: women, young people from Asian communities, those whose secondary education was in independent or selective schools, and those from advantaged backgrounds are over-represented. Medical schools typically use academic and aptitude test thresholds to decide invitations to interview, after which offers are made. It’s important to understand how decisions to apply and the selection process operate to produce this unrepresentative result.

**Summary of Work:** Research questions: How school background relates to medicine application? What impact academic and aptitude thresholds have on the socio-demographic profile of medical students. UK applicants who had taken UKCAT (2009-2011) were studied (n=33,103). Data comprised socio-demographic information, educational qualifications, and aptitude test data.

**Summary of Results:** Medicine applications are dominated by a small proportion of UK secondary schools/colleges, typically selective, with applicants mainly from professional/managerial backgrounds, neighbourhoods with high participation in HE and low deprivation. These schools/colleges have large numbers of Asian and White and small numbers of Black applicants. Both A level tariff and UKCAT score were sensitive to all socio-demographic variables examined – significantly lower proportions of disadvantaged applicants meeting typical cut-offs.

**Discussion and Conclusions:** Pupils from half UK secondary schools/colleges do not apply for medicine. Likely factors are lack of aspiration, support, and access to outreach. High academic and aptitude test thresholds in selection operate against young people from disadvantaged backgrounds or minority ethnic communities (e.g. Afro-Caribbean). Selection requires contextual data and lower A level grades or UKCAT scores for disadvantaged applicants to widen participation further. **Take-home messages:** Widening participation requires engagement of schools and pupils who do not currently consider medicine, and adjustment of academic thresholds.
#5H3 (25028)

'Holistic' Assessment in Medical Student Selection: Confronting an Uneasy Hidden Curriculum of Privilege

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Brian Hodges, University of Toronto, Wilson Centre, Toronto, Canada

Background: In Canada, medical students from high income families are 6-8 times overrepresented and students from physician families are approximately 70 times overrepresented, when compared to population share. Calls for changes to student selection demand 'holistic' assessments of students' candidacies in order to seek out greater representativeness of students from diverse and marginalized backgrounds. Do these 'holistic' assessments achieve this end? What might the hidden curriculum within 'holistic' assessments be?

Summary of Work: We conducted a three phase qualitative study discourse analysis of the student selection process from the institutional, applicant, and selector perspectives, using text analysis and semi-structured interviews.

Summary of Results: We uncovered many instances of hidden privilege in student selection. Applicants reported constant adaptations to their performative behaviours during the selection process to "fit in" to hegemonic ideals of excellence. Selectors consciously valued experiences, such as volunteering, which may be more reflective of opportunities afforded by class or socioeconomic status.

Discussion and Conclusions: When hidden privilege became marked in the student selection process, a tension was created at the acute perception of the contributions of class and socioeconomic status, in terms of social and symbolic capital, to an individual candidate's 'excellence'.

Take-home messages: It is worth casting a critical gaze on the notion of 'holistic' assessments in student selection. If 'holistic' assessments are used, then faculty development for those using them should focus on the development of a critical consciousness, in order to examine the underpinnings of social judgments resulting in success at merit-based competition for medical school positions or not.

#5H4 (26416)

Standing out & moving up: performance appraisal of cultural minority physicians

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Petra Verdonk, VU Medical Centre, Medical Humanities and VUmc School of Medical Sciences, Amsterdam, Netherlands
Reina Steenwijk, VU Medical Centre, Pastoral and Spiritual Care, Amsterdam, Netherlands
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Background: In the bigger cities of the Netherlands, cultural minorities within the medical student population approximate 20–30 %. This cultural diversity, however, seems not to be reflected in the medical staff and residents working in Dutch academic hospitals.

Summary of Work: A critical diversity study was completed in an academic hospital using interviews (N=27) and focus groups (15 participants) with cultural minority physicians and instructing specialists.

Summary of Results: In addition to explicit criteria, all respondents consider implicit norms on professionalism crucial in qualifying for medical specialty training. They see qualification as a process engrained in the work environment and enacted in social interactions between medical professionals. Respondents indicate that stereotyped imaging and categorical thinking on culture and identity of minority physicians underlie these daily processes. They also point to other identity factors as class and gender as influencing successful profiling for selection into residency and specialist positions.

Discussion and Conclusions: Implicit criteria based on categorical thinking and reflecting social hierarchies appear to hinder influx of cultural minority physicians and other professionals perceived as 'different' in academic hospitals. An intersectionality approach can help raise awareness of the possible biases within performance appraisal, prevent responsibility for change to be placed solely with cultural minorities, and stimulate development of general space for 'difference'. To increase diversity of hospitals, attention should be paid towards how implicit norms of medical professionalism affect medical selection. Emphasis should be on joint scrutinizing of exclusionary/normalizing processes and developing of inclusionary practices.

Take-home messages: Implicit selection criteria seem to influence influx of minority physicians in academic hospitals.
Widening participation students’ performance in Medicine at the University of Glasgow

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Background: Medicine is a competitive degree programme and selection processes are complex, requiring evidence of academic excellence, strong personal statements, and high scores in UKCAT and interview. While it is desirable that demographics of the medical workforce match that of the general population it serves, the admissions process is thought to be one barrier to accessing the professions (Sutton Trust, 2010), contributing to greater representation of higher socio-economic groups among applicants and medical students.

‘Reach Scotland’ is an important part of our strategy to widen participation in undergraduate medicine in Glasgow, and aims to raise awareness of and encourage and support able S4-S6 pupils to gain a place on the course. Since 2012 this programme has helped 93 pupils from low progression schools and disadvantaged postcode areas in the West of Scotland. Their contextual data was used to allow some flexibility in admissions criteria.

Summary of Work: To evaluate how ‘Reach’ students have progressed on the course, we have tracked their performance to date. We examined associations between student demographics, preadmissions measures and performance indicators in years 1&2 as in Sartania et al., 2013.

Summary of Results: Preliminary results indicate that additional support is needed to help widening participation (WP) students through the course, raising the issue of adequate resources for schools striving to meet the Government’s WP agenda.

Discussion and Conclusions: We will present results from the regression analysis used to compare the ‘Reach’ students’ outcomes versus the rest.

Take-home messages: The Reach programme allows effective engagement with a diverse population of prospective students; however extra support needed to help them succeed on the course.

Promoting Diversity in Medical School: The Effect of Differential Weighting of Academics, Experiences and Core Competencies Measured by Multiple Mini Interview (MMI) on Under-Represented in Medicine

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Background: Promoting diversity among medical students has been a major focus within medical education. The present study examined whether a) academic, experience and MMI core personal competencies scores vary across ethnicities under-represented in medicine (URIM), and b) if changes in weighting of scores would alter the proportion of URIM applicants in the entering class composition.

Summary of Work: Retrospective data were obtained from 1339 applicants interviewed for entering classes 2011-2013 and included academic (GPA, MCAT scores), Service/Clinical/Research (SCR), and MMI scores. A one-way MANOVA was conducted to evaluate whether URIM ethnicities differed from non-URIM across GPA, MCAT, SCR and MMI scores. “What-if” analyses were conducted to determine if alternative weighting methods would have changed final admissions decisions and entering class composition.

Summary of Results: The MANOVA revealed significant differences between ethnicities on performance measures (F=70.8, p<0.001). URIM applicants had significantly lower GPAs (Mean ± SD: non-URIM:3.7±0.20, URIM:3.5±0.24, p<0.001), MCATs (non-URIM:2.7±3.2, URIM:28.5±3.4, p<0.001), and SCR (non-URIM:10.4±1.8, URIM:9.7±1.9, p<0.001) but NOT with MMI scores (non-URIM:10.4±1.6, URIM:10.4±1.3, p=0.58). Alternative weighting analyses showed declining URIM acceptances with decreasing emphasis on MMI. URIM acceptance rate declined from 57% (100% MMI) to 43% (10% GPA/10% MCAT/10% SCR/70% MMI), 42% (15% GPA/15% MCAT/70% MMI), 39% (30% GPA/70% MMI), and 22% (50% MCAT/50% MMI).

Discussion and Conclusions: The present study provides evidence that MMI preserves demographic diversity. Factoring in academic variables for final decisions after initial screening may adversely affect class diversity.

Take-home messages: Exclusive use of the MMI may enhance URIM diversity in medical school admissions.
The choice of scoring method for a Situational Judgement Test influences the resulting internal consistency reliability

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Background: Prior research has demonstrated the effectiveness of Situational Judgement Tests (SJTs) for selecting medical students based on their noncognitive competencies. To increase the effectiveness of Likert-scale SJTs, this study will scrutinize one particular SJT characteristic, the method of scoring respondents’ answers.

Summary of Work: An SJT measuring integrity was administered among 521 medical school applicants and 16 Subject Matter Experts (SMEs). After three months, 284 applicants completed a retest. Respondents used a 4-point Likert-scale to judge the appropriateness of 50 response options to 10 corresponding scenarios. Twenty-nine different methods were used to convert applicants’ judgments to scores. The scoring approaches, which can be roughly classified into four categories (raw consensus, standardized consensus, dichotomous consensus and endorsement rate) were compared with regard to internal consistency reliability, test-retest reliability and ethnic subgroup differences.

Summary of Results: Depending on the used scoring method, internal consistency reliability (Cronbach’s alpha) varied from .24 to .75. Test-retest reliability varied from .33 to .47. All scoring approaches showed a significant effect of ethnicity, with an effect size ranging from .03 to .06.

Discussion and Conclusions: Although variation in test-retest reliability and ethnic subgroup differences was low, variation in Cronbach’s alpha indicates that the choice of scoring method makes a difference between an acceptable and unacceptable internal consistency reliability. These findings indicate that the use of an SJT in a high-stakes selection context, such as medical school selection, should be accompanied by a thorough examination of the scoring method to be used.

Take-home messages: The choice of scoring method strongly influences the acceptability of the resulting internal consistency reliability.
A shared vision for postgraduate medical education 2020 at VU University Medical Center Amsterdam

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Background: To face major challenges in health care and postgraduate medical education (PGME) a vision shared by a diverse group of health professionals and a strategic plan are needed. The aim of this project was to develop a common vision and goals in the nine hospitals of the Teaching and Education Region of VU University Medical Center Amsterdam.

Summary of Work: During 4 brainstorm meetings, in small groups, residents, teachers, (vice) dean, hospital management and educational advisors (n=142) discussed: 1) What characterizes our residents and young doctors? and 2) Which direction should our PGME take for 2020? The data from all the sessions was independently categorized by 3 faculty development members. In a final conference the future goals were prioritized.

Summary of Results: We would like to educate doctors who are academic, down to earth, competent in medical and generic skills, humanitarian and collaboration-oriented. The directions our PGME should take were prioritized as a) focusing on generic competencies alongside medical competencies; b) enabling education pathways customized to individual resident’s needs; c) collaborating with hospitals in the region; d) paying attention to social accountability. This input formed the basis of the Strategic Plan 2020.

Discussion and Conclusions: Specialization in generic competencies, like management and teaching skills, was the main goal for 2020. Customized education pathways and regional collaboration were seen as the means to achieve this.

A common identity and direction for PGME were formulated by engaging different stakeholders.

Take-home messages: Involve a diverse group of stakeholders to formulate a shared vision.

A changing Doctor for a Changing Landscape: findings from an ongoing evaluation of a Broad-Based Training Pilot in England

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Background: Two-year Broad-Based Training (BBT) programmes are being piloted in six regions in England. Devised by the Academy of Medical Royal Colleges (AoMRC), BBT follows Foundation training and provides 6-month placements in general practice, core medical training, paediatrics and psychiatry.

Summary of Work: Commissioned by Health Education England/AoMRC, our evaluation of BBT takes a longitudinal mixed-methods approach. This presentation reports findings from questionnaire data: BBT 2013/14 (n=38;24) and comparator trainees following traditional training routes (n=42;48).

Summary of Results: In comparison with traditional trainees, more BBT participants did not feel ready to choose their career specialty (60% compared with 4%). This percentage was higher for the most recent cohort (58% BBT 2013; 71% BBT 2014). Gaining experience across specialties was a key attraction. Comparator groups also thought that training more generalists is a good idea (90%). BBT 2014 were less confident that BBT would prepare them well for progression into their chosen specialty.

Discussion and Conclusions: Both groups identify positively with the majority of BBT aims and the need for doctors who have a broader experience in a range of specialties. However, some BBT trainees feel uncertain about their progression to post-BBT training.

Take-home messages: The landscape of health provision is changing; producing a generation of doctors with experience in a number of specialties is becoming increasingly important. BBT is one programme that attempts to address this. How BBT trainees transition to specialist training needs to be studied.
A Novel Multifaceted Curriculum for Educating Scientists in the Field of Translational Medicine

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Background: The translational scientist is the central professional figure in translational medicine (TM). TM encompasses a complex interface of science, medicine, business, management, regulation and policy in an interdisciplinary team-based context. Current training in TM is generally focused on a single discipline and does not provide the knowledge and skills needed to traverse this multifaceted pathway. Rather, success as a translational scientist needs understanding of the process of TM as well as complementary skills that facilitate disciplinary domain crossing, critical analysis and team-based problem solving.

Summary of Work: The Eureka Institute (http://www.eurekainstitute.org/) organizes a not-for-profit international comprehensive annual one-week training program in TM to educate established clinician-scientists in the knowledge domains of TM within a formal and informal curriculum that features self-reflection, critical analysis using non-traditional frameworks, group problem-solving, and mentorship by experts in TM and education.

Summary of Results: Since 2009 144 early and mid-career professionals in life sciences from 30 countries participated in the course. Course evaluations reveal high scores for teaching effectiveness and for both formal and informal curriculum components. Feedback (both immediately after the course and in an online survey 1-4 years later) showed an impact on professional identity and careers.

Discussion and Conclusions: Our results show high impact of a one-week international and multidimensional course in TM on professional outcomes. This provides a basis for further studies that identify the impact of curriculum on professional outcomes on the long term.

Take-home messages: One week of intensive training in TM has high impact on participants professional identity and careers.

Producing a best fit in resident selection

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Background: National Resident Matching Program International (NRMPI) provides physician matching services to public and private organizations located outside the United States and Canada. It is a subsidiary of the National Resident Matching Program, a United States-based non-profit organization in existence since 1952. NRMPI manages a Match called TANSEEQ for the Health Authority – Abu Dhabi (HAAD).

Summary of Work: Applicants send applications to the training programs of their choice, and program directors select which applicants to interview. Using NRMPI’s secure, proprietary software—which is accessible from Internet-connected computers located anywhere in the world—applicants and program directors rank each other in order of preference from most-preferred to least-preferred. NRMPI processes those preferences using a Nobel Prize-winning mathematical algorithm to place applicants into training programs. Applicants match to their most-preferred program that also ranked the applicant and did not fill with applicants more preferred by the program, producing a “best result”.

Summary of Results: In 2014, TANSEEQ encompassed 435 applicants and 23 programs offering 150 positions. All of the positions were filled, and 95% of UAE nationals were matched.

Discussion and Conclusions: NRMPI modified its web-based software to accommodate HAAD requirements, which included giving preference to UAE nationals and allowing applicants to rank only programs where they interviewed.

Take-home messages: By filling 100% of TANSEEQ positions, NRMPI demonstrated that the integrity, reliability, and accuracy associated with NRMP is transferrable outside the U.S. and that NRMPI and the host country can collaboratively develop policies and software modifications that meet unique cultural and geographical needs.
Identification of clinical reasoning and therapeutic challenges in family medicine practice: a critical insight to improve family medicine education?

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Background: The scope of family medicine (FM) encompasses all ages, both sexes, each organ system and every disease entity (American Association of Family Physicians). These characteristics lead to an exciting but challenging specialty. Nantes University Hospital (France) has created a hotline to provide immediate assistance for clinical reasoning and therapeutic challenges in FM practice. The purpose of this study was to identify family physicians’ clinical reasoning and therapeutic challenges.

Summary of Work: A three months prospective, cross-sectional, observational study was undertaken. Calls’ challenges were identified with a questionnaire and classified in clinical reasoning, therapeutic or joint challenges. Family physicians were then systematically recalled to obtain additional demographic and professional data.

Summary of Results: Two hundreds and seventy-six calls have been registered and 237 physicians identified. Sixty-one percent of calls were clinical reasoning challenges, 20% were therapeutic challenges, and 12% associated clinical reasoning and therapeutic challenges (7% of other reasons). Clinical challenges represented 57% of calls, biological challenges 19% of calls, and joint challenges (clinical and biological challenges) 17%. Detailed results will be presented in Glasgow in September.

Discussion and Conclusions: Clinical reasoning challenges on clinical issues represent a significant concern in FM practice. Analyses of FM’s graduate medical education program and continuing professional education program seem appropriate to explore teaching activities related to these subjects. The identification of FM practical challenges may represent a critical insight to evaluate FM programs and explore the adequacy between objective needs and teaching activities.

Take-home messages: Clinical reasoning on clinical matters is a significant concern in FM and the adequacy with teaching activities should be explored.

Specialty Training’s Organizational Readiness for curriculum Change (STORC): development of a questionnaire in a Delphi study

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Background: In postgraduate medical education (PGME), programs have been restructured according to competency-based frameworks. The implications of these adjustments justify a comprehensive implementation plan. Organizational readiness for change (ORC) is seen as a critical precursor for a successful implementation of change initiatives. Therefore our aim was to develop an instrument to assess Specialty Training’s Organizational Readiness for curriculum Change (STORC).

Summary of Work: A Delphi procedure was conducted to examine the applicability of a preliminary questionnaire, which was based on existing instruments designed for business and health care organizations, in PGME. Panellists (19 trainees and 22 supervisors) from 4 different countries were asked to rate the relevance of an 89-item questionnaire with regard to changes in specialty training on a 5-point Likert scale. Furthermore, they were invited to make qualitative comments.

Summary of Results: In two rounds the 89-item questionnaire was reduced to 44 items based on individual item scores and qualitative comments. In the absence of a golden standard, this Delphi procedure was considered complete when the overall questionnaire rating exceeded 4.0 (scale 0-5). After two rounds, this study was closed since the overall item score reached 4.1.

Discussion and Conclusions: STORC appears to be a valid questionnaire to measure ORC in PGME. Since ORC is measured on various subscales and presented as such, its vigour lies in analysing these subscales. The latter makes it possible for educational leaders to identify and anticipate on hurdles in the implementation process and subsequently optimize efforts for successful curriculum change.

Take-home messages: STORC appears to be a valid questionnaire to measure ORC in PGME.
Developing a near-peer revision course for final year students benefits students, teachers and your organisation!

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Background: Near-peer teaching is a popular teaching tool, benefitting both student and trainer. OldhamOSCES is an annual teaching course started in 2012 by junior doctors who recognised the need for structured teaching for final year medical students.

Summary of Work: The model incorporates near-peer teaching, interactive sessions and feedback alongside patient examination and scenario based learning.

Summary of Results: Since its conception OldhamOSCES has had over 200 student delegates and trained over 60 medical staff in delivering teaching. The course has had a positive response, and grows in popularity every year. Involvement in formal teaching has helped junior doctors to develop essential teaching skills, and provided the organisation with a strong teaching reputation. The project has evolved with consideration given to feedback from students and teachers.

Discussion and Conclusions: The development of a course is a dynamic process. Finance, advertising and access to infrastructure are all obstacles to be considered. In addition, the teaching must be tailored to the needs and ability of the students and the trainers. Measuring the outcomes is essential in the progression of the course. The use of feedback has not only guided the advancement of the teaching but also provided valuable insight into the learning practices of students. By sharing our experiences of near peer teaching we hope to encourage other institutions to start similar programmes.

Take-home messages: Junior doctors are a valuable resource in delivering teaching to undergraduates. Involvement of managers, consultants and the medical schools is vital to success. Actively seeking feedback (and evolving practice to match this) is key.
#5J Short Communications: Reflection

Location: Alsh 2, SECC

#5J1 (25993)
How do medical students reflect upon their experiences? Using genre analysis to look beyond the reflective essay

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Shannon Erichsen, University of Alberta, Surgery, Edmonton, Canada
Susan Chaudoir, University of Alberta, Surgery, Edmonton, Canada
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Background: Reflective essays are used at many medical schools to help students cultivate self-awareness, build narrative competence and develop insight in difficult situations. This study sets out to discover how medical students respond when they were allowed to reflect using forms other than the traditional essay.

Summary of Work: Reflective assignments have been used in two surgery clerkships at our school since 2007. From 2007-10, students were asked to produce a reflective assignment which was up to one page long and constructed using words. From 2010-12, students were allowed to reflect using any form they chose. All assignments submitted were anonymized and analyzed, and the genre of each was identified.

Summary of Results: A total of 1,196 assignments were analyzed; 20% were identified as a genre other than the traditional essay (19% before 2010, 23% after 2010). A wide range of genres were represented: these were classified into Written Genres (poetry, letters, hospital artifacts, lists, parody, satire, dialogue, diaries, comedy, fiction, scripts/screenplays, emails, adverts, cut-ups, recipes, lyrics, editorials), Visual Genres (painting, drawing, video, photography), Sound Genres (rap, slam poetry), and Combined Genres (games, audiovisual).

Discussion and Conclusions: This study demonstrates that medical students use a rich variety of genres to reflect. We believe that it is important to encourage students to develop skills in creativity and self-expression, and to think beyond the traditional essay as they reflect on their experiences in developing their professional identities.

Take-home messages: Medical students can reflect upon experience using a wide variety of genres beyond the traditional essay.

#5J2 (28116)
Recognizing and handling own emotions in difficult patient encounters: reflection in action

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Naomi Ehrlich, VU University Medical Center, Medical Psychology, Amsterdam, Netherlands
Albert Wenisch, VU University Medical Center, Medical Psychology, Amsterdam, Netherlands

Background: The ability to recognize own emotions and the ability to work efficiently despite own emotional reactions when the situation requires to do so (1) is considered to be one of the key objectives for teaching communication skills to medical students. How do we teach this? Literature describes reflection courses where students can discuss their emotions after the actual experience. However, literature on how we can teach students to deal with their own emotions in action is sparse.

Summary of Work: At VU University Medical Center, third year bachelor’s students attend seven training sessions on difficult conversations (e.g. non-compliant, demanding or angry patients). In simulated contacts with patients (actors) they follow a three-step model:
1. recognize own emotions
2. ‘diagnose’ the situation: what do emotions tell you about yourself and/or the patient?
3. ‘treat’ the situation: choose an intervention that matches the ‘diagnosis’.

The simulations are interrupted by the teacher to discuss the steps.

Summary of Results: Student ratings (n=315) show that the students consider the three-step model useful for dealing with difficult patient encounters with a mean of 3.74 (on a 1-5 Likert scale).

Discussion and Conclusions: We teach our students to recognize and handle their own emotions in difficult conversations. The more awareness they have of their own emotional reactions, the less they will feel overwhelmed. Accordingly they will choose more deliberately appropriate interventions.

Take-home messages: By using a (reflection in action) three-step model we can teach students to recognize and handle own emotions.

What ethical problems are out there? – a study of medical students’ reflexive writing about ethical dilemmas in the clinic

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Lise Kirstine Gormsen, Aarhus University, Center for Medical Education; Health, Aarhus, Denmark

Background: As many other countries, Denmark has implemented the seven physician roles as the basis for medical education. Pre-graduate medical education in ethics contribute to making the role as professional a subject of learning, however teaching ethics is rarely related to the students actual clinical experiences. The Medical School at Aarhus University has attempted to overcome this gap by implementing a course where students produce reflexive texts concerning ethical dilemmas, which they identify during their clinical stay in hospitals.

Summary of Work: This study is the first part of a longitudinal qualitative project that will provide an overview of what ethical dilemmas students meet during their clinical stay and how they reflect about it (cf. D. Schön).

We have collected reflexive texts (26 texts, 104 pages in total) produced by 4th-year students (n=186). The texts were analyzed and patterns were characterized.

Summary of Results: The students observe ethical problems related to four themes: 1) confidentiality, 2) treatment options and side effects, 3) the role and responsibility as a student, 4) informed consent and style of communication.

Three styles of reflection were observed: academic reflection, practical-clinical reflection and reflection on experience.

Discussion and Conclusions: A challenge for this type of teaching is that students may construct the ethical reflections in order to meet assumed teacher preferences, rather than reflect themselves. The study shows that students through reflexive writing are able to identify, discuss and reflect on a broad variety of clinical ethical dilemmas.

Take-home messages: Integrating tasks of ethical reflection for medical students in clinical settings is an effective and meaningful educational tool.
#5J5 (24655)
The assessment of reflective writings of Malaysian medical undergraduates and its implications for teaching and learning

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Background: The use of reflective writing in promoting reflective practices in medical education is well documented although less so among the Asian medical undergraduates.

Summary of Work: This project evaluated the level of reflection in the reflective writings of the final year medical undergraduates in a single medical university in Malaysia and evaluated the reliability of grading reflective writings as a method of assessment. Reflective writing was written by 87 students in response to a standardised case vignette and three faculty independently rated these using an agreed-upon code of operational definition. Two levels of coding were used. In the first level of coding, the presence or absence of six components of reflection were be evaluated. For the second level of coding, each piece of reflective writing was coded and categorised as showing ‘no evidence of reflection’, ‘evidence of reflection’, or ‘evidence of critical reflections’.

Summary of Results: On average 24.9% of the reflective writings were non-reflective in nature, 50.6% reflective while 24.5% critically-reflective. There was a fair level of inter-rater agreement between the three raters where the Cohen’s kappa analysis ranged between 0.277-0.349 between the rater pairs.

Discussion and Conclusions: There is a need for both faculty and students training in utilising reflective writings in enhancing reflection among medical undergraduates in our institution.

Take-home messages: Further research should focus on faculty readiness to facilitate and enhance students’ reflective skills as well as attempts at improving reliability of assessment of reflective writing.

#5J6 (28101)
Feedback on Reflective Writing Exercise for Medical Students: Lesson Learned

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Background: Reflection is a metacognitive process that creates greater understanding of self and situations. Feedback is critical for the process to be most effective in medical education (Sanders, 2009).

Summary of Work: We implemented a reflection exercise during Metabolism, Nutrition, and Endocrinology (MNE) for M1 students. The goal was to teach science, doctoring, and reflection in an integrative way. The exercise was based on narratives involving a physician-patient interaction. We developed a scoring rubric and trained raters. Part 1 asked students to reflect on issues in one of several interactions (e.g., alpha-reductase deficiency case), to examine issues in the physician-patient relationship, to refrain from assigning blame, and to reflect on improving the interaction. Part 2 was a self-assessment of students’ capacity to learn from didactics, patient panels, and readings. Part 3 included writing self-defined learning objectives.

Summary of Results: Fourteen raters were trained on the scoring rubric. Criteria included completeness, professionalism, and adherence to instructions. The training consisted of group readings of several essays and iterative application of the rubric until consensus was achieved. Evaluation ranged from Inadequate to Expected Performance. The assignment was worth 10 points; with those receiving below 7 points were re-scored by second rater.

Discussion and Conclusions: 99% of students turned in the assignment. Approximately 25% requested clarification about their score. The resources needed to score 400 assignments were significant (i.e., 14 people x 4 hours). The sustainability may depend on recruitment of volunteer faculty.

Take-home messages: Reflective writing allows medical students the opportunity for increased insight into professional identity formation. Providing feedback is important but labor intensive.
Evaluating Critical Incidents in Teaching: Using a coding scheme to assess and categorise levels of reflective thinking in professional development

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Background: The learning on a faculty development programme begins with the real experience of the lecturers in their role as facilitators of learning, and requires an integrative consideration of practice, theory and self as learner. This study examines the use of Critical Incident techniques to support and measure reflective professional development for programme participants.

Summary of Work: Participants on a Postgraduate Diploma in Health Professions Education are required to utilise a critical incident as a reflective tool in the context of a reflective portfolio. The critical incident approach is used widely in health sciences education and increasingly in teacher education contexts (Branch 2005; Rademacher 2010). The critical incidents of participants (n=22) were analysed independently by three coders using Kember et al. (2008) four level reflective coding scheme (non-reflection; understanding; reflection; and critical reflection, with transitional categories possible).

Summary of Results: Findings revealed that the analysis and use of the coding process was useful in identifying categories of reflective thinking. On average, 40% of the writing was coded as critically reflective.

Discussion and Conclusions: The analysis provided insight into the value of this reflective tool to the programme participants, and the role of critical incidents in providing opportunities for insight and change. The analysis also provides information on levels of reflective cognition in participants on a faculty development programme.

Take-home messages: Critical incident analyses act as a medium to provide and promote critical reflection for medical educators, but also as an evaluative tool for tracking the development of critical reflection.
“We complemented each other in our knowledge and approach”. Interprofessional Prescribing Education with Pharmacy Undergraduates: the views of Medical Students

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SA Coulman, Cardiff University, Pharmacy, Cardiff, UK
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Background: Interprofessional education (IPE) involves two or more professions learning with, from and about each other to improve collaboration and quality of care. Research has highlighted the need for effective collaboration between pharmacists and physicians to reduce prescribing errors and ensure patient safety. However, relationships between them are often suboptimal; academically distinct healthcare education is therefore a concern.

Summary of Work: Following ethical approval, semi-structured one-to-one interviews with medical students engaging in IPE explored their experiences of interprofessional learning, including how they applied knowledge and skills in practice developed during the session. We plan to conduct around 20 interviews; currently data has been gathered from 5. Data collection will be complete by March 2015. Interviews are being audio-recorded, transcribed verbatim and analysed thematically.

Summary of Results: Preliminary results suggest medical students felt underprepared for the session. As a result of interacting with a pharmacy student their knowledge of pharmacists’ roles increased, their medication history-taking skills improved and knowledge of prescribing increased, especially effective use of the British National Formulary. Limited interaction within the large group was identified as the major disadvantage.

Discussion and Conclusions: Whilst feedback from students was largely positive, most students felt a small group approach with compulsory preparatory work would improve the IPE experience. The results will be used to further improve undergraduate IPE sessions in medical schools and may help inform development of IPE with pharmacy students.

Take-home messages: Medical students reported IPE with pharmacy students was effective in improving knowledge of prescribing and awareness of pharmacy.

Interprofessional student clinics: a logical location for team learning

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Jenny Keating, Monash University, Melbourne, Australia

Background: There is a need to prepare all health science students for a collaborative approach to primary health care delivery. This presentation will summarise our findings from a series of studies investigating interprofessional undergraduate student clinics.

Summary of Work: Student clinics were established in community health, general practice and residential care. Students from final years of medical, nursing, pharmacy and allied health programs worked in mixed discipline teams to consult older and/or chronic disease patients. Student teams were required to collaborate in patient assessment and suggest appropriate management strategies or make recommendations. An economic analysis was conducted to compare cost to traditional single discipline hospital placements.

Summary of Results: Students rated highly the interprofessional learning experiences in student clinics and reported gaining a more comprehensive perspective of health, teamwork skills and knowledge of other’s roles. In some cases useful patient management strategies were proposed and implemented. Patients enjoyed the consultations and some reported learning more about their health condition. The costs of running interprofessional clinics for student learning were higher than traditional single discipline hospital placements.

Discussion and Conclusions: Interprofessional education in primary care is logical, enjoyed by students and educators, appreciated by patients, and exposes students to the roles of others. Given the substantial investment in creating and sustaining interprofessional clinics, serious investigations that give us confidence that the investment is worthwhile are now required. This project received funding from the Australian Government and the Department of Health, Victoria.

Take-home messages: Primary care is a useful location to situate undergraduate interprofessional clinical education.
Neighborhood HELP: unique service learning program that promotes interprofessional education

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Background: There is consensus that interprofessional education has benefits for students, but there are many challenges to curricular change that allows interprofessional learning. The Herbert Wertheim College of Medicine at Florida International University is a new medical school in the US (first graduating class 2013). A core component of the curriculum is a service learning program: the Green Family Foundation Neighborhood HELP (Health Education Learning Program).

Summary of Work: The NHELP curriculum assigns second year medical students, senior nursing students, and social work students to teams caring for needy households in the local community. Medical students remain with these households for three years. Students complete team visits, identify needs, and develop collaborative plans to address the needs. Teams make monthly phone contact with households and four visits per year under faculty supervision.

Summary of Results: In AY 2014-2015, there are 121 2nd year medical students in the course. Each medical student is paired with a 4th year nursing student. There are four social work students shared between the households. Students have completed 87 visits and 587 phone contacts this year. Implementation challenges include: aligning schedules for nursing, medical, and social work students; creating an electronic communication and documentation infrastructure; and creating appropriate assessment rubrics.

Discussion and Conclusions: The educational value of interprofessional education goes beyond knowledge acquisition. Students working together in a clinical setting learn teamwork and collaboration, but there are challenges to successful implementation.

Take-home messages: Interprofessional education in the medical curriculum has tremendous value but requires significant institutional commitment and resources.

Interprofessional teaching sessions for improving working relationships and enhancing students learning experience in the clinical environment

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Background: Poor professional relationships in the clinical environment (CE) are well known to adversely affect medical students’ learning experience (LE).

Summary of Work: An interprofessional (IP) teaching session was introduced to 4th year obstetrics and gynecology module in Queens’ University Belfast. A mixed method study was carried out to assess the effectiveness of the session in improving MS’ learning through improvement in five main domains relevant to learning in the CE: anxiety, familiarity and preparedness, confidence in interacting with patients and other professionals.

Summary of Results: Significant improvement was seen just after the session in all five domains. The immediate effects were sustained when exposed to the CE. The thematic analysis of qualitative data identified new themes such as the IP teaching giving an opportunity to learn skills unique to other professionals and to be a part of the team, which enhanced the LE.

Discussion and Conclusions: The IP teaching session simulated a clinical scenario on childbirth, role played by midwifery students, prior to MS’ placement in the CE. This facilitated the interaction between student groups in a relaxed environment leading to significant improvement in MS’ performance in the CE and in their LE.

Better LE could be achieved by facilitating the domains relevant to learning in the CE. This can be successfully achieved through IP teaching sessions facilitating hidden curriculum and situated learning, embedded in a didactic curriculum.

Take-home messages: Facilitation of hidden curriculum and situated learning through IP teaching can improve professional relationships as well as students’ LE.
**An interactive and inter-professional prescribing training day**

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Emer Sheridan, University of Manchester, Manchester Medical School, Manchester, UK  
Kurt Wilson, University of Manchester, Manchester Medical School, Manchester, UK

**Background:** Cohorts of medical and pharmacy students shared two inter-professional education days, learning together about safe hospital prescribing. Training began with interactive seminars regarding difficult prescribing areas. Students split into inter-professional groups to jointly apply their knowledge to seven prescribing problems.

**Summary of Work:** Students completed a questionnaire, ranking components on a 1-10 Likert scale. Positive and negative comments were collected. Quantitative and qualitative data were compared between different professions and training days.

**Summary of Results:** Mean medics scores were significantly higher for a fluids seminar and the day overall on both training days. Final day ratings were mostly higher.

Medical undergraduates highlighted that ‘working with pharmacist in interactive workshop was really good’ and that it was ‘good to have pharmacists and medics together’. Pharmacy students commented that the days had allowed them to ‘see things from a medical student point of view’ and that ‘working with medics allowed us to demonstrate and share each others knowledge’. Some pharmacy students commented that they felt the day was ‘too focussed towards medics’ and one requested that we ‘split the day up with pharmacists and medics working separately’.

**Discussion and Conclusions:** The day evolved from a medic-only prescribing day. Some topics may need separate profession delivery, allowing understanding and relevance to their profession before joint discussion.

Case pitch allowed opportunity to share knowledge and perspectives.

The prescribing day is evolving and improving. As students progress through the semester understanding should increase as their application skills progress.

**Take-home messages:** Students enjoyed the inter-professional prescribing day with opportunity to learn about each other’s perspectives and skills.

**Thinking outside the box? why not do it outside the box? – Promoting interprofessional collaboration outside academic institution: The Indonesian young health professionals’ experience**

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Mawar Putri Julica, Indonesian Young Health Professionals’ Society, Pangkal Pinang, Indonesia  
Fitri Arkham Fauziah, Indonesian Young Health Professionals’ Society, Yogyakarta, Indonesia

**Background:** The lack of health professionals and fragmented practice causing difficulties in fulfilling the Millennium Development Goals (MDGs) on 2015. To cope with this issue WHO suggest the revolution of approach in health professional education and practice to promote interprofessional collaboration (IPC). Institutions have difficulties in incorporating IPC into their curriculum, mainly because of resources issues and siloed management.

**Summary of Work:** Students and young health professionals in Indonesia start an initiative to answer this challenge. Supported by government and health professional educators, we develop an interprofessional education module to be delivered in two-day stand-alone training named “Nusantara Health Collaborative (NHC) 2014”, involving students and young health professionals across disciplines such as: dentistry, pharmacy, nursing, public health, nutrition, midwifery, and medicine.

**Summary of Results:** Held in 10 cities across Indonesia, attended by hundreds of participants. In each city the theme is altered to answer local needs, but following a basic curricular framework. We adopt multiple teaching and learning approaches in accordance to local context. Feedback from participants and stakeholders are very encouraging.

**Discussion and Conclusions:** There are challenges in running the project, mainly because the committees are spread across archipelago. But technology, in particular messaging app and e-mail, keep us connected.

The students’ and young professionals’ interest in IPC is high. Investing in it may bring long-term impact to promote collaboration. It also opens up bigger opportunities nationally and regionally to promote IPC.

**Take-home messages:** Promoting IPC is not bounded within academic/healthcare institution; Students and young professionals can make a big impact; Simple technology can help bring people closer while separated physically.
Simulation & interprofessional learning in the wilderness

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Background: A pre-hospital emergency medicine wilderness program was developed to build interprofessional collaborative and practice skills amongst medical and paramedic students.

Summary of Work: The structured residential 2-day program, held in remote southern Tasmania, comprised (i) a pre-briefing session, (ii) 12 simulated emergency scenarios with facilitator, (iii) a simulated multi casualty incident (MCI) involving drowning, fire and motor vehicle injury and (iv) debriefing. Equipped with a backpack containing basic first aid supplies, small mixed groups of students hiked between different scenarios that required assessment of the situation, application of wilderness medicine principles, immediate management and referral and handover to a retrieval team. The MCI, held in the evening, enabled new teams to form and apply learning from the earlier scenarios. The program was evaluated using pre and post-event surveys which included RIPLs and Working in Health Care Teams questionnaires and completion of post event reflections.

Summary of Results: There was a significant improvement in RIPLS teamwork and collaboration score after the event ($t(26) = 2.41, p = .023$). Post event reflective comments showed a change in focus from the abstract to applied, and from team work/collaboration actions to outcomes.

Discussion and Conclusions: Discussion: Conducting scenarios in the wilderness focused students on harnessing available team resources and skills to analyse and solve clinical problems to achieve patient outcomes.

Conclusions: The low-resource wilderness environment effectively focused student interprofessional learning on practice.

Take-home messages: IPL in a wilderness setting challenges students to apply clinical learning rather than be distracted by SimCentre technologies.
#5L Short Communications: Computer Based Learning

Location: Boisdale 2, SECC

#5L1 (28208)

Breaking Through the Barriers to Technology Enhanced Learning

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Background: Healthcare professionals and students on placement face a number of technology barriers to accessing learning materials, ranging from ageing equipment and lack of wi-fi to overly restrictive Internet access policies and constraints on the use of personal tablets and smartphones.

Summary of Work: We report on strategies for addressing these barriers based on collaborative working amongst NHS and University IT and medical education and elearning colleagues. The NHS-HE Forum and NHS Health Education TEL Hub have provided platforms to review barriers to accessing technology enhanced learning, suggesting recommendations for improving and reducing the obstacles.

Summary of Results: A series of case studies from UK NHS Trusts and Medical Schools have been developed and shared to help educators address local barriers to accessing technology enhanced learning opportunities.

Discussion and Conclusions: A culture change is required by healthcare organisations to lift restrictions on access to Technology Enhanced Learning. However, our experience is that case studies and sharing good working practice are helping to change perceptions many of the historical restrictions on social media, online video and other media are beginning to disappear and access to wi-fi is becoming increasingly available to students and staff.

Take-home messages: There are many barriers to accessing technology enhanced learning in healthcare but by working together and sharing good practice these are slowly beginning to be challenged and disappear.

#5L2 (27267)

eLearning is really all about the learning

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Background: eLearning is an approach to engaging health professions learners in a form of education that applies technological approaches to teaching, learning and scholarship and may include asynchronous and synchronous learning and interactions, which assist in the communication of knowledge and skills and their development and exchange. A scoping review (Arksey and O’Malley, 2005) about eLearning was conducted using Schwab’s curricular algorithm (Schwab, 1973) to examine the insights about the learners, teachers, subject matter and eLearning strategies.

Summary of Work: Literature searches were conducted in MEDLINE, EMBASE and ERIC for 2009-2014, resulting in 275 references. Following calibration across reviewers, the primary screen deemed 78 articles met the inclusion criteria for abstracting.

Summary of Results: A total of 36 articles were included for full text analysis. Demographics of articles by learners, teachers, subject milieu informed how best to include eLearning in health professions. A key finding was that learners usually benefit from the inclusion of effective use of eLearning with evidence of better learning outcomes than with solely didactic methods.

Discussion and Conclusions: Consideration must be given to both learner preferences and learner readiness for the effective inclusion of eLearning to support and enhance learning outcomes. The reviews yielded surprisingly little information about the needs or best practices for the teacher who designs eLearning, but did identify the additional skills and efforts required of teachers when including eLearning. The educational benefits of eLearning need to be broadly considered, carefully employed and consistently evaluated to ensure the anticipated educational goals and learner objectives are achieved including consideration of the best ‘match’ for the learners, teachers and educational aims.

Take-home messages: eLearning is useful for learners but needs to follow general learning, teaching and assessment principles.
TuBS: using technology to organise teaching events and coordinate feedback

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Background: Evidence of involvement in teaching is a growing requirement throughout medical training and continued professional development. Trainees and trainers are under increasing pressure to provide evidence for portfolios, as well as collecting feedback on the quality of teaching. Current paper-based systems are cumbersome and outdated; web-based technology and mobile devices offer a better platform to seamlessly integrate these requirements.

Summary of Work: TuBS (tutorialbooking.com) is an online, web-based, tutorial booking and feedback system - developed by NHS Fife with ACT funding. It caters for the full gamut of teaching activities that currently take place in medical education: from last-minute ad-hoc events, to large-scale programmes such as hospital grand rounds. The system creates a log of teaching events and attendee lists, as well as seamlessly incorporating feedback from attendees. Users can directly access their own records, with the ability to print certificates for their portfolio and download feedback data for audit. The system has been rolled out across NHS Fife and NHS Lothian.

Summary of Results: TuBS now has over 3000 registered users and in the 6 months to Jan 2015 has hosted 538 teaching events - targeted primarily at undergraduate students, foundation doctors and junior trainees; across both NHS Fife and NHS Lothian. Users appreciate the ability to access their own log and feedback data, and the ability to print certificates for their professional portfolio. Project organisers have made good use of data export functions to link into existing systems and audit their teaching activity.

Developing a MOOC in Genomic Medicine

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Background: MOOCs (Massive Open Online Courses) are a significant development in education technology, allowing large numbers of global learners to be reached. However, limited assessment models mean their value in healthcare disciplines is unclear, and they are criticised for their perceived reliance on didactic teaching methods.

Summary of Work: St. George's, University of London and St. George's University Hospitals NHS Foundation Trust have collaborated on the development of a MOOC in Genomic Medicine, specifically targeting existing healthcare professionals.

Summary of Results: Building upon the partnership’s expertise in the use of scenario-based learning and virtual patients the course is launching on the FutureLearn platform in Summer 2015, providing a short 5 week introduction to the subject area. FutureLearn supports the use of an engaging, story-telling approach to encourage high levels of learner engagement.

Discussion and Conclusions: The development of a MOOC course requires the creation of a number of high quality educational technology resources, which can prove expensive and time-consuming. Collaboration and reuse or repurposing of existing resources is therefore essential. Fostering a sense of community and discussion is critical to retain learner engagement. By providing high-quality educational resources and well-targeted, engaging activities, a MOOC can provide a rewarding learner experience. Future developments in assessment models will make such courses valuable for continuing professional development.

Take-home messages: The creation of a MOOC is a challenging process, but developments in the technology and platforms will make such courses increasingly valuable in healthcare disciplines.
Innovative instructional models for MOOCs: can we apply PBL principles in a MOOC setting?

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Background: Massive Open Online Courses (MOOCs) are a global trend that will potentially change the whole concept of higher education. Many existing MOOCs are criticized for lack of sound instructional design. They have gone back to a traditional information-delivery model of education, with a focus on offering (recorded) lectures and study materials. What participants do and how they interact depends on their own motivation and skills. Guidance or feedback by teaching staff is absent or very limited. This is in contrast with established insights from educational research that stress the importance of active, contextual and collaborative learning.

Summary of Work: Maastricht University aims to contribute to the development of educationally sound MOOC designs by developing a MOOC about Problem-Based Learning (PBL) following the principles of PBL.

Discussion and Conclusions: Innovative instructional models for MOOCs are a challenge, because the massive number of participants limits the feasibility of facilitation by teachers. The massive drop-out is a further complication, especially for any form of organized collaborative learning activities. In this design PBL happens without human tutors for each group. Group sizes are monitored and when too many group members drop out groups are merged.

Take-home messages: It is possible to apply the evidence-based learning principles of PBL in MOOCs.
#5M Short Communications:
Community Oriented Medical Education
Location: Carron 1, SECC

#5M1 (24993)
Veterinary preceptors’ motivations for teaching veterinary students in community practice locations

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Background: There is a paucity of research regarding veterinary preceptors’ motivations to teach veterinary students in community practice locations, and how these motivations may differ between preceptors on the basis of species focus or veterinary practice location.

Summary of Work: A 13 item questionnaire was utilized to determine veterinary preceptors’ motivations for teaching veterinary students. A total of 101 preceptors (33.70% mixed animal practitioners) were included in the study. Forty-three (42.60%) participants worked in a rural location.

Summary of Results: Contributing back to the veterinary profession and intellectual stimulation from teaching were rated as important motivations for teaching. As compared to companion animal preceptors, mixed animal preceptors were significantly more motivated by the potential to recruit future veterinarians to their practice (p = .006), and food animal preceptors were significantly more motivated by the opportunity to promote their field of veterinary practice (p = .012). The potential to recruit future veterinarians to their practice was a significantly stronger motivator for rural preceptors than for non-rural veterinary preceptors (p = .03).

Discussion and Conclusions: The response rate was so good that we may conclude our EPC tutors to experience their facilitation work as positive, even more positive than in earlier inquiries. A major contributing factor may be that we have now the generation of GPs who themselves have experienced EPC visits as students. The positive reputation of tutoring may also have an effect. EPC program may also in future be carried out with facilitating GPs. Emphasis must be put in maintaining their commitment.

Take-home messages: Both students, facilitators, patients and also the faculty benefit from EPC.
Transformative Learning at the FMUL: Lessons from 20 years of Community Teaching outside the health system

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Miguel Barbosa, Faculty of Medicine, University of Lisbon, Institute of Introduction to Medicine, Lisbon, Portugal
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Background: The Lancet Report in 2010 called stakeholders’ attention for the need for ‘a global social movement to promote a new century of transformative professional education. Transformative learning is one proposed outcome to achieve this goal as the highest of three successive levels, moving from informative to formative to transformative learning’.

Summary of Work: Since 1995 the FMUL first year students (n=350) were sent every year to the community (in small groups) to visit two institutions which mission is to support vulnerable people outside the health system (prisons, old age homes, centres for refugees, etc.). Following these visits each student returns to the institution to interview one user or a technician. An individual portfolio is requested as well as a presentation in group at the ‘Seminar to Share Experiences’ of the ‘main message students got from the visits as future health professionals’.

Summary of Results: Evidence on positive results will be presented, concerning students’ personal and professional development, based on: a) written evaluation made each year by students b) written evaluation made by same students after 6 years when they are in their first year of medical practice c) report from the committee responsible for faculty external evaluation

Discussion and Conclusions: The main factors responsible for positive results appear to be: a) Institutions selected by the quality of their mission b) Quality of tutors c) Individual and group reflexion from students d) The objectives of portfolio e) The range of 60 excellent institutions offering different opportunities for strong and relevant experiences

Take-home messages: Despite being an extremely demanding learning experience (administrative support, costs with transports, time required with some institutions far from faculty, ... ) there is evidence that the objectives of this innovative teaching/learning experience were achieved.

Preclinical Medical Students as a transformer: Student and Health care provider

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Background: Community-based learning is an essential skill for Med-student in the 21st Century. To transfer knowledge studied in class, Med-students need to select proper media to access the target group. Community radio could provide two-way communication, students and villagers, for contributing health promotion and disease prevention.

Summary of Work: Third year Med-students do health broadcasting to the poor. Steps of works: analyzing the common health problems, consulting with authorized persons in the village, health knowledge-developing, pretesting, implementation and evaluation. They prepare health care messages which adapted to suit local needs. Every morning, village leader broadcasts the knowledge on air, and ending with questions to the audiences to ask and let them ask about the topics they need.

Summary of Results: Three year experiences, about 80% of requested topics are about chronic and seasonal diseases. Most of feedback are positive and show about audience engagement. The responding is increasing day by day.

Discussion and Conclusions: Knowledge acquired in class and PBL-SDL abilities could fulfill Med-students to be a great health promoter and educator. This activity helps Med-students to learn not only health problems and researches, but also communication skills, learning by doing, self-directed learning, cross-cultural understanding, creative thinking and having public mind.

The study finding supports the imperative roles of local broadcasting to disseminate educational messages that significantly affect listeners. Med-students act as transformer, being student in class then act as a health educator in community. Med-students in pre-clinical years could create excellent activities, relevant to their knowledge.

Take-home messages: The earlier communal experience, the better professionalism
#5M5 (27520)
Has enhanced Community Learning had an impact on student experience in the new C21 programme at Cardiff, UK?

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**Background:** The Community Learning programme is based on evidence from a BEME Systematic Review (Dornan 2006), and international papers on the effect of immersing students in community health care practice. It aims to add clinical and contextual relevance to learning in the early years, develop early confidence in consulting with patients and develop reflective learning. It has been a huge logistic exercise, to get 600 students to four geographical locations twice a week, and to source and engage a diversity of health care providers across the NHS to facilitate sessions within their teams. In the longer term, it aims to encourage students to consider a career in communities and in underserved areas of Wales.

**Summary of Work:** Measuring the impact of Community Learning after its first year, using the following measures:
- Student discussion group themes and survey feedback
- Sampling student reflective writing based on community learning
- Tutor feedback
- External peer review
- Attendance and participation

**Summary of Results:** The evaluation data will be presented. Students have shown delighted and active participation, engaging with their new placements enthusiastically. Feedback from tutors about student performance and professionalism has been very positive. Peer review by Keele University will be presented.

**Discussion and Conclusions:** Future plans for enhancing Community Learning include the development of a 5th campus, aligning and contextualising social sciences learning further, extending community learning into each year of the curriculum, development of a rural and urban health theme, and a multi-professional student-run ward.

**Take-home messages:** Community Learning can be extended beyond traditional ‘Primary Care’ boundaries, using learning spaces with newly emerging community teams that are not usually engaged by undergraduate placements.

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#5M6 (24344)
Free Clinics for the Uninsured: A Teaching Opportunity

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Jacob Urkin, Ben Gurion University, Faculty of Health Sciences, Beer Sheva, Israel

**Background:** Two clinics serve uninsured clients, free of charge. Patients are asylum seekers from many countries. One clinic is run by the Ministry of Health, while the other is run by Physicians for Human Rights, an independent non-governmental organization. Both clinics are used for teaching students. Some of the activities are extra-curricular, others are electives: Students shadow the volunteer doctors, participate in activities outside the clinic, prepare seminars on selected topics and submit papers describing their experience to their schools.

**Summary of Work:** The goals of this effort are to expose the learner to an unusual population, to make the learner aware of socio-economic, psycho-social and political issues, and to stimulate interest, discussion and intervention by the students. A separate teaching goal is to understand the fundamental differences between the two clinics. Students served as advocates for patients.

**Summary of Results:** The outcome is a line of students who volunteer at the clinic on a permanent basis, two students developed software for one of the clinics, which has become the standard tool. Two papers were written by students and submitted to their Schools. Two students followed patients going on home visits.

**Discussion and Conclusions:** Conclusion: Students can become aware of the modest, resource-poor way of practicing medicine under difficult circumstances. They are exposed to governmental and non-governmental efforts to resolve these issues.

**Take-home messages:** Teaching at such clinics increases social awareness of learners.
Does posting in community centre influence students' passion to work in primary health care?

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Background: Health services problem in Indonesia is due to inequality number of doctor in primary health care (PHC). The community-based curriculum that involved posting student in PHC has been known to give impact of students' willingness to work in PHC. The objective of this research was to evaluate the impact of student placement in PHC on their passion to work after graduation.

Summary of Work: This was a cross sectional research to evaluate the impact of student placement in PHC. A validated questioner was distributed to the 60 students who rotated in Public Health Department, Faculty of Medicine, Universitas Padjadjaran, Indonesia. They were placed in PHC in Southern part of West Java for 5 weeks and worked under supervision of local preceptor. They were asked to response on their learning experience in PHC and whether it was contributed to the choices of their future work. This research was conducted in 2014.

Summary of Results: More than 60% of students agreed that placement in PHC influence their willingness to work.

Discussion and Conclusions: The result concludes that placement in PHC did influence students' willingness to work in PHC after graduation. Their experiences of living and working in remote areas motivated them to be more mature and worked for the community. The problems in living facility could interfere this willingness. The medical school should provide facility that was suitable for living and learning. The engagement with local preceptor and community strongly influenced this willingness.

Take-home messages: The community-based education should be strengthen to provide more opportunity for students to learn.
#5N Short Communications:
Curriculum Mapping
Location: Carron 2, SECC

#5N1 (26284)
Anchoring Assessment Feedback

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Background: Memorial University’s Medical Doctor program has been modified to reflect a more integrated model. This resulted in assessments that no longer focused on one single subject area (i.e., Anatomy) but rather an integration of all subjects related to one theme (i.e., Healthy Growth and Development). Learners could easily identify weakness in a subject area when examined on a single subject, however, in a integrated model it is not as easily achieved.

Summary of Work: A curriculum blueprinting system, CBlue, was developed and implemented to build the MD curriculum, linking learning outcomes (each with a numeric identifier) to sessions. The numeric identifier for each objective was used to tag exam questions in a question bank system. Once an exam has been completed, feedback reports are generated detailing the learner’s results in the exam. Each student can self-assess for areas of improvement or for remediation.

Summary of Results: Students are provided a feedback report outlining, for each question on the exam, the learning objective and the session that covered that objective. This feedback report enables learners to focus self-study for improvement or remediation.

Discussion and Conclusions: This process has been recently implemented and is a work in progress. Our next step is to investigate the efficacy of these reports on student self-assessment for areas of improvement and remediation.

Take-home messages: A curriculum blueprinting system that links learning objectives, learning sessions, and assessments allows for focused individualized feedback and remediation.

#5N2 (27126)
The Use of Technology to Track Learner Outcomes

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Gerald Thrush, Western University of Health Sciences, Office of Academic Affairs, Pomona, USA
Terence Ma, Albert Einstein College of Medicine, Office of Medical Education, New York, USA

Background: Using a combination of currently available technologies, we have affordably and quickly implemented a web based, working, successful, real-world technology solution to track learner outcomes.

Summary of Work: We used Microsoft SharePoint and ExamSoft technologies in combination with an in-house developed academic progress website to tag multiple choice exam questions to each of the institutional, program, course, and board licensure learning outcomes.

Summary of Results: Because our solution is, by design, very easy to use, 100% of faculty tag all of their exam questions with our learner outcomes ontology. Faculty advisors and students can review student progress in real-time via a readily available and secure web interface.

Discussion and Conclusions: The data generated and insights gained through these systems greatly facilitates our ability to track learning outcomes, and allow us to establish continuous improvement feedback loops at the institution, program, course, faculty, student, and curricular levels. Additionally, students are empowered in a way previously not practical to identify their specific weaknesses throughout the curriculum continuum, within and beyond the course level, alter their study strategies, and perform better academically.

Take-home messages: We will share our experiences, triumphs, and challenges, so that your institution can immediately and successfully begin to implement technology to track learner outcomes.
#GN3 (27095)
Grounded in reality: technology enabled real-time curriculum mapping and analysis

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Background: We implemented a real-time map as the curriculum is actually being delivered to the students. This “Organic Curriculum Map” (OCM) greatly simplifies the mapping process and creates a detailed representation of the curriculum, rather than a general architecture.

Summary of Work: Using Microsoft SharePoint, we were able to create our OCM which empowers faculty to analyze the curriculum from broad, multiple course spanning topics, to granular levels, such as institutional, program, course, national professional licensing board learning outcomes, standardized national library (e.g., MeSH) terms, and Bloom's taxonomy. The information provided has focused us on opportunities for improving the curriculum immediately, in the near future, and during regular curriculum revision cycles.

Summary of Results: For the past two years, faculty have used data gathered from the OCM to revise their courses and learner activities. Using this tool, we can better prevent unplanned redundancies and identify gaps in the curriculum. In addition, the curriculum committee uses the information to take a global look at our curriculum and determine whether it meets all of our institutional learner outcomes.

Discussion and Conclusions: OCM gives faculty access to a wealth of information which we use to implement changes in the curriculum.

Take-home messages: Curriculum mapping often provides too little information to effect meaningful change. Implementing a real-time time representation of the curriculum has provided us an effective tool to monitor, evaluate, and improve our curriculum.

#GN4 (26475)
Effective Curriculum Mapping Using a Staged, Faculty-Centered Approach

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Background: With a team of course and clerkship directors and education administrators, Washington University School of Medicine (WUSM) implemented a staged approach to mapping our four-year MD-degree program curriculum, capturing relationships between program-, course-, and session-level objectives; assessment methods; and keywords. Our goal was to create an effective, dynamic tool to identify curricular gaps, redundancies, and innovation opportunities.

Summary of Work: Mapping occurred over a two-year period in three distinct stages. Stage 1: a high-level review of content and assessment in relation to our program-level objectives; Stage 2: mapping course- to program-level objectives; Stage 3: mapping session- to course-level objectives, and mapping an internally developed shortlist of keywords to sessions. Tailored faculty development at each stage ensured uniformity of mapping approaches across thirty-four courses.

Summary of Results: Faculty, with support and review by the curriculum dean and staff, created a comprehensive curriculum map. The map functions as a tool to identify gaps and redundancies, triggering additional curricular content and assessments. Stage-specific group and individualized faculty development ensured sustainable skill development among all course directors for ongoing mapping.

Discussion and Conclusions: Our curriculum mapping approach was based on faculty participation and ownership of the process, with each stage designed to be “doable” by novice and expert faculty participants alike. Our adaptable approach can be widely applied across all health profession programs.

Take-home messages: A faculty-centered approach to curriculum mapping can be successful when implemented in stages of progressive complexity and supported by stage specific faculty-development activities.
Benchmarking International Medical Education with the AAMC Curriculum Inventory

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Background: Using the MedBiquitous international curriculum inventory data exchange standard, the AAMC developed a data collection tool that allows medical schools great flexibility in uploading details of innovative curricula from curriculum management systems. Collected data is used for benchmarking of medical school curriculum content, structure, and pedagogy; research; and responding to inquiries from legislators and media.

Summary of Work: AAMC contracted with MedBiquitous in 2010 to lead the development of the curriculum inventory data exchange standard, and the standard was approved by ANSI in fall 2012. The AAMC began developing a data collection system in spring 2011, and the system was piloted in fall 2012. Two data collection cycles have been completed.

Summary of Results: 90 US and Canadian medical schools participated in the first data collection cycle (academic year 2012-2013), and 120 participated in the second cycle (academic year 2013-2014). Preparations are underway for the third cycle (academic year 2014-2015).

Discussion and Conclusions: Hundreds of thousands of data points have been collected to date from 120 medical schools. Aggregating this very disparate data has been extremely challenging, and we have determined that additional data validation must be built into the system to ensure that dates and other data are within appropriate ranges. More advanced reporting tools are being developed and will be piloted in fall 2014.

Take-home messages: The Curriculum Inventory is currently available for benchmarking for US and Canadian schools and is being piloted for data collection with a small number of Osteopathic schools. Future development / implementation efforts will include making the CI available to medical and osteopathic schools in other geographic areas.

Inter-professional Education in the UK: mapping of regulatory standards for pre-registration education in the health care professions

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Background: Inter-professional education (IPE) is championed as a key approach to help develop a workforce prepared for the challenges of healthcare in the 21st century. As the interest in IPE has developed, so has the move towards competency based education. Several competency frameworks for IPE exist. The Centre for the Advancement of Inter-professional education recommend that regulators ‘agree and publish a joint statement regarding the outcomes they require from students on completion of pre-qualifying IPE in health and social care’.

Summary of Work: A mapping exercise was undertaken to identify areas of overlap in regulatory standards for pre-registration education in the UK for medicine, dentistry, nursing and midwifery, pharmacy and the 16 health professions regulated by the health care professions council. Areas of overlap were reviewed as potential areas for IPE. Standards unique to each profession were also reviewed.

Summary of Results: There is significant overlap in expectations of pre-registration health care professionals according to regulatory documents. Key areas of overlap include communication skills, teamwork, patient-centredness, patient safety and continuing professional development. Additionally the mapping exercise demonstrated the specific educational requirements for each profession.

Discussion and Conclusions: Significant overlap exists in standards required of pre-registration health care professionals in the UK. Development of this exercise will allow IPE leads to develop curricula that can be mapped to standards set by the regulatory bodies.

Take-home messages: A mapping of pre-registration standards for health care professions in the UK may aid the development of IPE curricula and learning activities that are aligned with standards set by health care regulatory bodies in the UK.
Preparing the Next Generation of Medical Educators: A Scholar Track for Medical Students

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Jamie Padmore, MedStar Health & Georgetown University School of Medicine, Academic Affairs, Washington, USA
Mary Furlong, Georgetown University School of Medicine, Pathology, Washington, USA
Sonya Malekzadeh, Georgetown University School of Medicine, Otolaryngology, Washington, USA

Background: The presentation will describe a Scholar Track that introduces students to the scholarship of teaching and learning in a medical/clinical environment. Because a scholarly approach is an effective way to address challenges in education and improve pedagogy, by providing experience with research methods, students will not only become informed consumers of the medical education research literature, but also become contributors.

Summary of Work: Over three years, each cohort completes track components including didactics in research design, library searching, and statistics; the AAMC Medical Education Research Certificate (MERC); and their own scholarly project. Each submits their manuscript to a peer-reviewed journal. Students receive special distinction at graduation.

Summary of Results: Our third cohort of students will graduate in May 2015. To date, descriptive data and anecdotal feedback are very positive. Students report that feedback from residency program interviews indicate this exceptional training separates them from other applicants.

Discussion and Conclusions: Longer-term educational experiences have the most impact. This program is no different. This rigorous, evidence-based medical education curriculum is leading medical students to scholarly discoveries to improve education, providing a unique skill set and the confidence to undertake projects with a medical education research focus.

Take-home messages: If we want long-term improvement and change in quality medical education, it is essential to develop educators who will engage in innovative research that will change paradigms and challenge the status quo. Students cannot conduct research at the same level as PhD candidates during a one-month research rotation. Medical schools must provide longitudinal training for students’ research activities.
Interprofessional Peer Teaching. A Pilot Study

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Stefan Dietsche, Alice Salomon University of Applied Sciences, Occupational and Physiotherapy Programme, Berlin, Germany
Henrike Hölzer*, Charité, University Medicine Berlin, Department for Curriculum Management and Simulated Patients Programme, Berlin, Germany

Background: Interprofessional education (IPE) is recommended to prepare future health care professionals for interprofessional collaborative practice. Nonetheless IPE is still rare in German Medical schools and faculties for health professions education. The purpose of this study is to explore how peer teaching supports interprofessional learning in health care education by a collaborative effort of three institutions.

Summary of Work: Two workshops were conducted with students from nursing, medicine, occupational therapy and physiotherapy programmes to conceptualize the general structure of the tutorials. A team of six students from four professions were trained as peer-teachers. Based on the results of the workshops the tutors developed four different tutorials. Those tutorials address the interprofessional learning domains roles and responsibilities, interprofessional communication, team and teamwork and practical skills. They have been implemented as extracurricular activities and evaluated by participant evaluation forms. To evaluate the process quality and to explore the interprofessional learning experience focus groups were performed in separate groups with tutors and tutees.

Summary of Results: The workshop topics correspond with international recommendations for IPE. The results indicate a positive learning atmosphere and high satisfaction with the tutorials. While more interprofessional tutorials are demanded, there are still obstacles to implement IPE tutorials into health professions curricula.

Discussion and Conclusions: The pilot study shows that peer teaching is very suitable for IPE, also on a voluntary basis. Prerequisites for success are close collaboration of the different programmes and enough resources to qualify the team of peer teachers from different educational institutions and professional cultures.

Take-home messages: Interprofessional peer teaching might be a promising innovation in IPE, more research is needed concerning its educational value and outcomes.

Inter-role conflicts of students as teacher, a first hands experience

Pascal Nohl-Deryk*, Ruhr-University Bochum, Department of Medical Psychology and Medical Sociology, Bochum, Germany

Background: ‘Students as a teacher’-concept follows the belief that medical students should learn how to teach. Being a fifth year medical student in the position to not only do peer-teaching, but designing and giving lectures on Medical Sociology to undergraduate students I made first hand experiences of the good and less good sites of being both: a teacher and a student.

Summary of Work: Preparing and giving lectures and providing exam questions as a fifth year to first and second years I faced several inter-role conflicts being a student and a teacher at the same time. A literature review was done to search for similar experiences from other students.

Summary of Results: The following points were found as key factors of inter-role conflicts:

- No separation – being a teacher (in lecture) and a student (after lecture) in the same room
- Professional distance – Being approached with ‘Sir’ or with First Name
- Not being ‘nice’, being asked if the exam will be easy

Discussion and Conclusions: I experienced all of the conflicts above and had to find solutions on my own. It is not possible to avoid inter-role conflicts as a teaching student. Therefore, we either need to train soon-to-be-students-as-teachers on dealing with such and/or to provide guidelines on a professional behavior of dealing with these inter-role conflicts. The literature review showed no sufficient data, I hope with this to provide a base for further research on this topic.

Take-home messages: It can benefit students and student teachers when giving students the opportunity to teach. But there is a need for a guideline for behavior of students as teacher.
#5O5 (26519)
Exploring medical student perceptions of student involvement in the review and development of novel curriculum materials for a Team Based Learning course


Background: Visser et al (1998) suggested that student “consumers,” should have a say in curriculum development. Fraser and Bosanquet (2006), describe curriculum as “a collaborative process of learning, with teacher and student acting as co-constructors of knowledge”.

Most institutions involve students in curriculum evaluation, however students rarely participate during design phase. During development of a new collaborative, international MBBS programme, we involved students in review and creation of material, with supervision. We subsequently explored students’ motivations and perceptions on their involvement.

Summary of Work: Six Year 2 undergraduate medical students previously involved, participated in a focus group conducted by 2 members of the research team. We asked about perceptions of utility of student contribution to curriculum development, motivations for volunteering, advantages and disadvantages of participation and barriers. Two researchers independently analysed transcripts using the Framework approach (Ritchie and Spencer 1994).

Summary of Results: Themes: 1. Motivations; 2. Suitability; 3. Barriers

Discussion and Conclusions: Students’ motivations varied; financial gain, educational benefit, career benefits, perception that views were valued. They highlighted relevance of stage of study citing logistical issues as the main barrier. Contributions could have been enhanced by prior training in delivering feedback. Students are underused in de-novo development of curricula. Student perspectives closer to those of intended learners and their knowledge of technological advances can enhance curricula.

Take-home messages: Fostering collaboration between students and faculty aids this process. We hope in future to explore views of more senior students and faculty in order to better support student-faculty collaboration in curriculum development tasks.

#5O6 (25875)
Peer-teachers propose changes to the curriculum

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Florencia Moll, Universidad Austral, Biomedical Education, Buenos Aires, Argentina
Angel Centeno, Universidad Austral, Biomedical Education, Buenos Aires, Argentina

Background: For the last 15 years approximately 500 students have participated in a yearlong peer teaching development program directed to giving them tools to start learning how to plan, design, evaluate educational activities and reflect upon them.

Summary of Work: For the last cohort, the assessment of the program included two activities: suggesting changes to the current teaching methods of the disciplines and the design of a new didactic proposal. Thirty two participants submitted plans that were analyzed by the authors and independently coded.

Summary of Results: Eighty percent suggested an increase on practical aspects of the disciplines, 50% on diminishing large class teaching and to improve the organization of contents in terms of better time dedication, 40% to promote an active students role. The proposals were to include clinical aspects even in basic disciplines, to use a variety of educational methods (including cases and problems), to offer studying methods, to increase the use of virtual learning and to make better use of the peer teacher as an interface between students and faculty.

Discussion and Conclusions: The elaboration of this proposal helped peer teachers generate an active space for reflection and interchange that promoted their active role. Peer teachers emphasized the need of practical learning, using multiple resources that promote active participation.

Take-home messages: Using the presentation of didactic proposals and change suggestions improved the commitment and interest of students in participating in the didactic planning of their discipline, taking in to account their critical and privileged vision of their discipline.
#5O7 (24290)
Peer Assisted Learning: Something To Feel Confident About

Suzanne Kershaw*, University of Manchester, Manchester Medical School, Manchester, UK
Amile Inusa, University of Manchester, Manchester Medical School, Manchester, UK
Daniel Kristiansen, University of Manchester, Manchester Medical School, Manchester, UK
Sabahat Ahmed, University of Manchester, Manchester Medical School, Manchester, UK
Nicky Barr, University Hospital South Manchester, Undergraduate Education, Manchester, UK
Lesley Wood, University Hospital South Manchester, Undergraduate Education, Manchester, UK

Background: Peer assisted learning (PAL) enables senior medical students to assist in the training and learning of junior medical students. Senior medical students from Manchester Medical School (MMS) developed a PAL scheme for students training at University Hospital South Manchester (UHSM). Senior medical students were trained as examiners and junior medical students acted as candidates in a series of mock OSCE examination stations.

Summary of Work: To examine whether participation in PALS reduced anxiety and improved confidence in OSCE performance for the medical students involved. Data was prospectively collected from two medical student year groups using questionnaires pre and post participation.

Summary of Results: Prior to participation in PALS, 95% of junior medical students acting as candidates felt anxious thinking about their forthcoming OSCE examinations, with 59% in the moderate to very anxious category. Importantly 45% of candidates were anxious about their perceived lack of confidence. Anxiety levels were reduced in 74% by the end of the experience and 96% felt better equipped in preparing for their examinations. This was a mutually beneficial process with 89% of examiners stating PALS had improved their own OSCE technique with 26% reporting reduced anxiety as a direct result of participation. Finally, 20% of examiners felt more confident going forward in their own academic milestones.

Discussion and Conclusions: Participation in PAL enhanced personal development and boosted confidence in two student cohorts.

Take-home messages: Based on these results, this scheme was rolled out in 3 other hospitals in the North West region.
#5P  Conference Workshop: Evaluating the Quality and Value of a Complex Educational Intervention in a Complex Clinical Environment: Impacts of a Morbidity, Mortality and Improvement Conference (28354)
Location: Dochart 2, SECC
Curtis A Olson*, University of Wisconsin, Wisconsin, USA
Jonathan M Ross*, Dartmouth Hitchcock, NH, USA
Lori L Bakken*, Dartmouth Hitchcock, NH, USA
Mary G. Turco*, Dartmouth Hitchcock, NH, USA
Lisa M Jackson*, Dartmouth, NH, USA

Background: Assessing the impact of educational programs is fundamental to evaluating their quality and value. Systematic reviews of studies of the effectiveness of continuing education methods have shown that there is no "magic bullet", no single educational method or combination of methods that are effective in all situations. The Department of Medicine's Morbidity, Mortality and Improvement (MM&I) Conference serves as the vehicle for analyzing the use of advanced evaluation approaches aimed at improving patient care at Dartmouth-Hitchcock Medical Center. We used logic analysis to develop a conceptual model to guide a three phase study using developmental approaches and sequential mixed methods to investigate the quality, processes linking the Department of Medicine's MM&I Conference at Dartmouth to sustainable practice change and improved patient outcomes.

Intended Outcomes: Participants in this sessions will gain insight into the use of logic analysis and developmental approaches to evaluation and their potential application to their own settings.

#5Q  Conference Workshop: The AMEE Fellowship – Promoting Scholarship and Community
Location: Castle I, Crowne Plaza
Olle ten Cate*, the Netherlands
Gary D. Rogers*, Australia
Steven Durning*, USA
Trevor Gibbs*, UK
John Dent*, UK
Tracey Thomson*, UK
Madalena Patricio, Portugal
Trudie Roberts*, UK
Dujeepa Samarasekera, Singapore
Francois Cilliers, South Africa
Angel Centeno, Argentina

Background: From April 1, 2015, AMEE, complying with its mission, has offered the opportunity for its members to apply for recognition as an Associate Fellow of the Association, and from October 1, 2015 for a Fellow. Benefits of the scheme include organisational recognition of scholarship and the right to use the related post-nominals (AFAMEE and FAMEE), which could serve to support career advancement in health professions education. This workshop is intended to inform early career AMEE members about the scheme and assist them with preparing an application for Associate Fellow status.

Intended Outcomes: The organizers hope to stimulate enthusiasm about becoming an Associate Fellow of AMEE among members. Participants should leave the workshop with a clear picture of the procedure. Those who meet the criteria should be able to apply for AFAMEE immediately, while those who do not yet meet the criteria should be able to create a plan to qualify within one or two years.

Structure: Background of scholarship in general will be explained AMEE’s intentions with this new opportunity will be highlighted Participants will be guided through a mock application procedure based on their existing credentials A questions and answer section will conclude the session

Who should attend: Those current or intending AMEE members who are planning a scholarly career in health professions education or are seeking recognition of their existing achievements.

Level of Workshop: Beginner to intermediate
#5R  Conference Workshop: iOSCE: An Exciting New Twist On An Old OSCE (24989)
Location: Castle II, Crowne Plaza

Che-Wei Lin*, Taipei Medical University, Center for Education in Medical Simulation, Taipei, Taiwan
S. Barry Issenberg, University of Miami, Michael S. Gordon Center for Research in Medical Education, Miami, USA,
En-Yuan Lin*, Taipei Medical University Hospital, Department of Education, Taipei, Taiwan
Jen-Chieh Wu*, Taipei Medical University Hospital, Education Department, Taipei, Taiwan
Wen-Chen Huang*, Taipei Medical University Wang-Fan Hospital, Department of Education, Taiwan

Background: Each simulation component has its own strength and limitation. In this workshop, we will discuss the concept of hybridizing four simulations stations to conduct a learning experience of critical thinking, interpersonal skills and technical skills to create a new type of OSCE – iOSCE. This workshop will be an interactive session giving the participants a chance to interact with a standardized patient, a virtual patient and an electronic patient in order to fully experience this type hybrid simulation.

Intended Outcomes: By the end of this workshop, participants will be able to
1. Recognize the strengths and limitations for each simulation modality
2. Identify the role of faculty to design scenarios according to learning objectives.
3. Practice the technique of integrating each simulation modality

Structure:
1. List the advantages and limitations of standardized patients, virtual patients and electronic patient simulators.
2. Present and share the Taipei Medical University solution to design the iOSCE by integrating simulation modalities
3. Develop a strategy to use hybrid simulations in competency teaching and training.
4. Identify and discuss the benefits of hybrid simulation in competency teaching.

Who Should Attend: Simulation Education Faculty, Curriculum Designer, and Competency Educator
Level: Intermediate

#5S  Conference Workshop: Young medical educators' workshop: Finding the right mentor in Medical Education (26516)
Location: Castle III, Crowne Plaza

Sören Huwendiek*, Institute of Medical Education, Department of Assessment and Evaluation, Bern, Switzerland
Stewart Mennin*, USA
Charlotte Ringsted*, Denmark
Zubair Amin*, Singapore
Monica van de Rijder*, Netherlands

Background: Finding the right mentor in medical education is challenging, especially if you are relatively new to the field. However, a mentor that is fit for purpose offers great potential. The workshop will explore strategies and pitfalls for successfully finding the best available mentor.

Intended Outcomes: At the end of the workshop participants will be able to: (1) identify practical strategies for successfully finding the right mentor in medical education; (2) give feedback on a proposed idea of a platform for matching mentees and mentors within AMEE; (3) establish an electronic network for continued dialogue and support within the online platform of AMEE (MedEdWorld).

Structure: After an introduction to mentorship in medical education and characteristics of effective mentors, participants will have the opportunity to develop their own concepts and questions and discuss them with other participants and facilitators. Senior mentors will give advice from their experience. Furthermore, a proposal of an online platform to help young medical educators find a mentor will be presented and discussed.

Who Should Attend: Young medical educators interested in finding the right mentor and in exchanging ideas with colleagues in a similar situation.
Level: Introductory
#5T Conference Workshop: Innovations and features for the next generation of medical education learning environments (25545)

**Location:** Gala 1, Clyde Auditorium

**Jonathan Kanda**, CO Architects, Los Angeles, USA  
**Scott Kelsey**, CO Architects, Los Angeles, USA

**Background:** The fundamentals of US healthcare delivery and healthcare environments are changing in response to the quest to improve patient and staff safety, advancing medical technologies, evidenced-based design research, and a desire to create sustainable environments. In response to these factors, a new wave of medical education buildings are being constructed across the United States. This interactive workshop will ‘tour’ participants through some of the most ambitious and innovative medical education facilities in the US, and will highlight what the country’s leading institutions consider to be the ‘cutting edge’ and ‘best practices’ in medical learning environments. The presenters will focus on program benchmarks, design innovations in classrooms, simulation, clinical skills, gross anatomy, libraries, and student life spaces. Participants will be surveyed at key intervals and are encouraged to ask questions that promote cross-cultural dialogue regarding ideas, trends, and opportunities that have universal application to medical educators and institutions around the world.

**Intended Outcomes:**
- Identify trends impacting medical education spaces.
- Compare space types metrics required to deliver contemporary medical curricula.
- Analyze innovative design features for collaborative classrooms, learning studios, simulation, clinical skills, gross anatomy, student life, and library/learning resource centers.

**Structure:**
1. Trends impacting medical education curricula and learning environments.
2. The new space metrics for medical education.
3. Virtual ‘tour’ through completed projects to new innovations for medical education spaces that support team-based learning, simulation, technology, and social learning. Survey responses from students using these facilities. Participants will be encouraged to share ideas from their respective countries/institutions.
4. Summary and Q&A. Participants will receive graphical information to take back to their respective institutions.

**Who Should Attend:** medical educators, students, administrators, directors of simulation centers,  
**Level:** Introductory

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#5U Conference Workshop: Transforming your program to be competency-based: An interactive workshop to explore strategies and solutions (24267)

**Location:** Gala 2, Clyde Auditorium

**Karen Schultz**, Queen’s University, Family Medicine, Kingston, Canada  
**Jane Griffiths**, Queen’s University, Family Medicine, Kingston, Canada

**Background:** Competency based medical education (CBME) intuitively makes sense and is widely embraced as a preferred approach to health care education. We have been transforming our Canadian Post Graduate Family Medicine program to be competency based for the last 5 years. Early outcomes are encouraging: more direct observations and performance documentation for our residents, identification of patterns of performance and developmental trajectory allowing for earlier identification of all outliers, with subsequent program modification, and upholding of program decisions when these have been appealed and scrutinized by third parties. Determining practical applications of CBME principles has been interesting and challenging. This workshop will focus on strategies and solutions for CBME implementation.

**Intended Outcomes:** Participants will leave with an organizational framework incorporating principles of CBME to use in furthering CBME implementation in their setting. They will have had an opportunity to discuss with colleagues different strategies and solutions to barriers that they can then bring back to their setting.

**Structure:** Following the introduction of a conceptual framework for the steps involved in CBME implementation and identification of the facilitators, gaps and pitfalls we faced in our implementation, participants will identify where their program is along this CBME implementation path. They will then regroup to work with participants at their same stage, discussing problems, solutions and pitfalls. The session will end with a large group discussion highlighting group wisdom around implementation successes and solutions to challenges.

**Who Should Attend:** Program and site directors, assessment and curriculum designers  
**Level:** Intermediate
**#5V Conference Workshop: What makes a medical school academic? A quality assurance initiative by AMSE** *(26276)*  
**Location:** Staffa, Crowne Plaza  

Peter Dieter*, TU Dresden. Carl Gustav Carus Faculty of Medicine, Institute of Physiological Chemistry, Dresden, Germany  
David Gordon, World Federation for Medical Education, Office of the President, Ferney-Voltaire, France  
Zdravko Lackovic, University of Zagreb, School of Medicine, PhD Program and Dept. Pharmacology, Zagreb, Croatia  
Sam Leinster, University of East Anglia, Norwich Medical School, Norwich, UK  
Harm Peters*, Charité, Universitätmedizin Berlin, Dieter Schefflner Centre for Medical Education and Educational Research, Berlin, Germany  

**Background:** In Europe, medical education has evolved in several different ways with respect to the national traditions and structures of higher education of its countries. There are increasing concerns on quality and outcomes of medical education related to upcoming new medical schools, especially those less firmly connected with a university faculty body. Internationally accepted standards for medical education have been set by the World Federation for Medical Education (WFME). The Association of Medical Schools in Europe (AMSE) is proposing a quality assurance initiative based on those standards recognizing an institution as academic medical school.  

**Intended Outcomes:** Participants will have the opportunity to work with others on exploring challenges and risks of academic medical education in Europe, to develop potential quality standards for academic medical schools and to contribute to quality assurance initiative by AMSE.  

**Structure:** This interactive workshop will start with a brief introduction to the actual WFME standard for medical education followed by small and large group discussion about their implementation in Europe. Various settings of medical schools and their academic affiliation will be presented. Small groups will formulate potential quality standards for academic medical schools (structure, process, outcomes) which will be presented and discussed by the whole group. Discussion will focus on the validity, applicability and measurability of these criteria and how they can add to the WFME standards for medical education.  

**Who Should Attend:** Everyone who is interested in the quality assurance of medical schools and medical education, deans, program or curriculum directors, accreditation body and educational policy makers.  

**Level:** Intermediate  

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**#5W Conference Workshop: Continuing Medical Education: Putting Theory into Practice for Curriculum Development** *(26336)*  
**Location:** Shuna, Crowne Plaza  

David C. Thomas*, Icahn School of Medicine at Mount Sinai, Medicine and Medical Education, New York, USA  
T.J. Jirasevijinda*, Weill Cornell Medical College, Pediatrics, New York, USA  
Reena Karani*, Icahn School of Medicine at Mount Sinai, Geriatrics and Medical Education, New York, USA  
Monica Lypson*, University of Michigan Medical School, Medicine, Ann Arbor, USA  

**Background:** Medical educators are frequently called upon to develop new continuing medical education curricula yet few have received any formal training in this area. In this contemporary environment of limited resources and dwindling faculty time, it is imperative that educators gain the knowledge and skills to design impactful educational experiences.  

**Intended Outcomes:** By the end of the session, participants will 1) become familiar with the fundamental theories of how practicing physicians learn, 2) gain practical skills in instructional design related to continuing education program development, 3) practice developing a model curriculum using the stepwise approach and 4) develop an outcomes framework for their curriculum related to actual clinical performance.  

**Structure:** We will use a variety of instructional methods including small group practice, facilitated discussions and large group presentation during this workshop. It is intended for educators at all levels and no prior experience is required.  

**Who Should Attend:** This interactive workshop is designed for an international audience of educators interested in developing their skills in curriculum design for continuing medical education/continuing professional development audiences.  

**Level:** Introductory
#5X Conference Workshop: Sustainable care is quality care!
Harnessing the sustainability agenda to enhance the teaching of quality improvement (QI) in healthcare. (26968)
Location: Jura, Crown Plaza

Trevor Thompson*, University of Bristol, Centre for Academic Primary Care, Bristol, UK
Sarah Walpole*, Hull York Medical School, Norwich Medical School, Hull, UK
Stefi Barna*, University of East Anglia, School of Primary Care, Norwich, UK
Charlie Kenward*, Severn Deanery, Centre for Academic Primary Care, Bristol, UK

Background: Quality has many dimensions, including effectiveness, equity of access and safety. In recent years the concept of sustainability has emerged as a quality domain, for instance in the quality strategies of the UK’s Royal Colleges. Sustainable healthcare conserves resources, minimises waste and protects future communities from local and global environmental harms.

A set of change methodologies called Quality Improvement (QI) have gathered momentum in recent years with the US “Institute for Health Improvement” a leader in the field. The immediacy, collegiality and effectiveness of QI has captured the enthusiasm of medical students and junior medical staff.

Intended Outcomes: Attend this workshop if you would like to:
a) Be introduced to the potential of QI methods in any educational setting
b) Discover the importance of sustainability as a curriculum learning outcome
c) Learn how sustainability can usefully feed into educational QI projects

Structure: We will offer a conceptual overview of QI and Sustainability - arguing for the utility of both. We will then present at least one Sustainability QI case study. After this we will ask participants to work up their own QI projects for presentation to the wider group. There will be a prize for the most coherent project.

Who Should Attend: * anyone interested in QI
* anyone interested in Sustainability
* educationalists
* students

Level: Intermediate

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#5Y Conference Workshop: Item analysis for the stat-a-phobic (27106)
Location: Barra, Crown Plaza

Margaret Dennett*, Vancouver Community College, School of Health Sciences, Vancouver, Canada
Dwight Harley*, University of Alberta, Faculty of Medicine & Dentistry, Edmonton, Canada
Ronald Damant*, University of Alberta, Department of Medicine, Division of Pulmonary Medicine, Edmonton, Canada

Background: Examination quality is directly related to the effectiveness of its items. Items that are too difficult, too easy, indiscriminate, susceptible to ‘test-wisness’ or items that suffer from some other technical flaws impact the validity of the information that the test is intended to provide. Classical item analysis, although sometimes intimidating, is a tool that can be used to identify ineffective items, help identify specific problems and greatly assist the item developer.

Intended Outcomes: At the conclusion of this workshop the attendees will be better able to:
• Describe the principles and operation of item analysis
• Discuss the need for item analysis
• Discuss the judgemental and empirical components of an item analysis.
• Discuss the four basic statistics used in an empirical item analysis
• Use the item analysis statistics to identify item deficiencies.
• Discuss the meaning of reliability and the factors affecting it.

Structure: The session begins with a description of what item analysis is, its purpose and why it is critical to fair assessment. The presenters will talk about the judgemental and the empirical components of item analysis. Basic flaws in item writing will be covered. The four main statistics used in item analysis will be developed in a non-mathematical and practical manner and the participants will be given an opportunity to identify problem items from a real data set. The concept of reliability will be introduced and developed in a pragmatic manner.

Who Should Attend: Anyone who is interesting in quality fair assessment.

Level: Introductory
Conference Workshop: Mobile Learning for Healthcare Educators

(23814)

Location: Orkney, Crowne Plaza

Chaoyan Dong*, National University of Singapore, Centre for Medical Education, Singapore
Zachary Walker, National Institute of Education, Singapore
Elise Lee, Ministry of Education, Singapore
Vaikunthan Rajaratnam*, Khoo Tech Puat Hospital Alexandra Health, Singapore

Background: A hands-on workshop teaches you to design a course using mobile phone as platforms. The facilitators are medical professionals and educators familiar with mobile technology.

Technical Requirements: Participants need to bring a laptop or a mobile device to the workshop. It is critical to have the most up-to-date browser on your laptop.

Intended Outcomes: At the end of this program, you will be able to:
• Identify opportunities for mobile learning in your workplace.
• Understand the functionalities of a mobile web and mobile app
• Create a basic mobile learning program and deploy it.

Structure:
Part 1. 15 minutes, Lecture & Group Discussions, Mobile learning
• Workplace-based learning
• Opportunities in mobile learning for health professions
• Instructional design
Part 2, 55 minutes, Group activity: Designing and developing mobile courses
• Digital presence
• Create OER – use Officemix
• Deploy & distribute OER
Part 3. 15 minutes, Lecture: Health Care App and Resources Shoot-Out
Part 4. 5 minutes Discussion Q&A, Wrap-Up, Audience Takeaways

Who Should Attend: If you are looking to find opportunities for mobile learning in your workplace OR Understand the functionalities of a mobile web and mobile app OR Create a basic mobile learning program and deploy it for your learners, then this is for you.

Level: Introductory
#5AA ePosters: Evaluation of the Teacher

Location: Morar, SECC

#5AA01 (25103)
Development of Teaching Evaluation by Electronic Form

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Background: New generation of medical students need the evaluation model for their age. This study aims to develop an electronic form in mobile phone to evaluate post-teaching.

Summary of Work: This is an action research governed on 48 5th year medical students during studying rehabilitation medicine at Maharat Nakhon Ratchasima Hospital Thailand. They were divided into 3 phases by 3 groups of student’s rotation. Phase I: The electronic form (5-points rating scales) was constructed and tested by the first group in June 2014, then it was improved. Phase II: The 2nd group answered the improved electronic form, followed by focus group and in-depth interviewing. Data were analyzed by descriptive statistics and content analysis. Phase III: The 3rd group will be studied by the same protocol in March 2015.

Summary of Results: Preliminary results of the 2nd group, average age of 22.88 ± 0.72 years old, showed on overall satisfaction a good level (4.06 ± 1.24). The highest score was the privacy (4.56 ± 0.89), the lowest score was the letter size (4.12 ± 0.96). The content analysis revealed that the 2nd group was satisfied with the electronic form because it was very convenient. However, there was room to improve this form especially the layout.

Discussion and Conclusions: Post-teaching electronic evaluation form applying via mobile phone has shown to be more convenient of getting students’ feedback and well secret-keeping. However, a good layout and notification technique need to be improved.

Take-home messages: Electronic form suited the new generation of medical students because of its convenience and rapid response of feedback.

#5AA02 (25747)
Performance assessment of Postgraduate Clinical Teachers: development and psychometric properties of MEDUC-PG14 questionnaire

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OPP Oslando Padilla, Pontificia Universidad Católica de Chile, Santiago, Chile

Background: Feedback is one of the most important tools to improve teaching in medical education. Our aim was to develop an instrument for performance assessment of clinical postgraduate teachers in medical specialties; Medicina Universidad Católica-Postgraduate-14-items (MEDUC-PG14).

Summary of Work: Mixed methodology was employed, with a qualitative methodology (interview/focus group) followed by quantitative methodology to arise consensus. After the instrument was generated, psychometrics tests were performed to assess the construct validity by factor analysis and reliability using Cronbach’s alpha.

Summary of Results: Interviews and focus groups were performed, including experts in medical education, teachers and residents of Postgraduate programs in Medicine, at the Pontificia Universidad Católica de Chile Medical School (PUCMS). From this information, 26 categories were obtained, of which 79 items were proposed. Subsequently, a panel of experts in medical education and postgraduate committee members of PUCMS assessed the degree of importance of each item. A definitive instrument with 14 items was achieved. 123 surveys were answered by residents from different programs of medical specialties. Construct validity was carried out. Factor analysis showed three domains present: 1. Teaching and evaluation, 2. Respectful behavior to patients & healthcare team, 3. Providing feedback. The global score was 4.46 ± 0.94 (89% maximum). Based on the results, one of the strengths of the teachers evaluated by their residents was “respectful behaviour” with 4.85 ± 0.42 (97% maximum) and there was room for improvement in aspects related to "providing feedback" with 4.09 ± 1.0 (81.8% maximum). MEDUC-PG14 is highly reliable with an overall Cronbach’s alpha coefficient 0.947.

Discussion and Conclusions: MEDUC-PG14 is a useful and reliable guide for teacher evaluation in programs of medical specialties. Also provides feedback to improve teaching quality of postgraduate clinical teachers and is the first instrument in this field in Latin America.

Take-home messages: MEDUC-PG14 is a validated instrument for assessment of clinical postgraduate teachers.
Implementation of a peer observation programme for problem based learning (PBL) facilitators

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Background: PBL has been part of the medical curriculum in the University of Glasgow for many years. Although peer observation was part of initial PBL training, it hadn’t been part of ongoing staff development. To encourage exchange of good practice and reduce variation in facilitation, a formal peer observation programme was introduced.

Summary of Work: Facilitators were randomly-paired to observe the practice of a peer, give and receive feedback and submit a short reflective piece. This study looked at reflective comments based on a set of 5 questions, with the overall aim to encourage good practice and ultimately lead to a better learning experience for students.

Summary of Results: Qualitative feedback showed that facilitators found the experience positive; providing reassurance and advice on how to improve performance. They were more reflective as a result of the process and found benefit both from observing and from being observed. They commented that the meetings and feedback were informal and non-confrontational, despite some prior anxieties.

Discussion and Conclusions: Facilitators valued the opportunity to observe a colleague and receive feedback on their performance. This enabled them to be more self-reflective, whilst reinforcing the importance of adhering to the PBL steps. It also stimulated more general discussion around facilitation. Results suggest it would be valuable to continue the process on a regular basis. Peer observation is an effective method for engaging facilitators in reflection of their teaching practice, providing feedback and encouraging scholarly discussion.

Take-home messages: Peer observation is useful in reinforcing good facilitation skills which may lead to a more consistent experience for students.

Quality of teaching performance: Teachers’ self-assessment in comparison to learners’ and observers’ views

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Ulrike Sonntag, Charité Universitätsmedizin Berlin, Department for Curriculum Management, Berlin, Germany

Background: Self-Assessment of teachers and its accuracy is an important aspect when evaluating the quality of teaching, because research has proven self-assessment to be a difficult task. In this study teaching performance is assessed by teachers, learners and observers and is checked against adherence to trained standards.

Summary of Work: 60 sessions of KIT (communication, interaction & teamwork) were observed by trained observers, using a recently developed checklist and rating the overall teaching performance. Additionally teachers and learners rated the teaching performance. Correlations (τb) and Wilcoxon signed-rank tests were used to compare the assessments of the three groups. Furthermore, it was tested if the results provided by the checklist correlated with the different global ratings.

Summary of Results: Global ratings of learners and teachers (τb = .097, p < .03), learners and observers (τb = .15, p < .001) and observers and teachers (τb = .25, p = .04) all showed significant positive correlations, but differed in central tendency. The extent to which teachers fulfilled checklist standards correlated significantly with the ratings of learners and observers (τb = .13 and .5, p < .001) but not with teachers’ self-assessment.

Discussion and Conclusions: Ratings of learners, observers and teachers point into the same direction, but differ significantly. Teachers are more critical in their self-evaluation than observers, learners are least critical. Teachers don’t seem to relate to trained standards when assessing their performance.

Take-home messages: Teachers’ self-assessments should be accompanied by views of learners and/or experts to obtain more accurate information. Moreover, teaching standards and their importance should be made clearer to teachers.
#5AA05 (27590)
Psychometric properties of a novel questionnaire assessing seminar teacher performance in undergraduate medical education

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Nicole von Steinbüchel, Universitätsmedizin Göttingen, Goettingen, Germany
Tobias Raupach, Universitätsmedizin Göttingen, Goettingen, Germany

Background: There is currently no concise evaluation instrument assessing seminar teacher performance in undergraduate medical education. The aim of the study was to develop a comprehensive but rather short questionnaire with good psychometric characteristics.

Summary of Work: Existing and new items (N=29) were combined to create an item pool covering all aspects of an established framework for evaluating medical educators. These were included in a pilot questionnaire version completed by 482 undergraduate students at two German medical schools. Cognitive debriefings and a Principal Component Analysis using Promax rotation were performed. The questionnaire was revised using feedback from students and Subject Matter Experts and piloted in another student cohort (N= 535). The original factor structure was verified by Confirmatory Factor Analysis.

Summary of Results: The final questionnaire contained 15 items and yielded two factors (Cronbach’s alpha 0.88 and 0.86, respectively). The two-factor model explained 60% of variance in the data.

Discussion and Conclusions: Future studies should address construct validity of the new tool by comparing it to existing questionnaires. Since items fit the Partial Credit Model – the questionnaire may be used for computerized adaptive testing paving the way for more efficient and accurate evaluation procedures.

Take-home messages: The tool has excellent psychometric properties and lends itself to innovative approaches to evaluation. This is the first report of a short questionnaire covering significant areas of seminar teacher performance in medical education.

#5AA06 (27317)
Learners providing feedback to preceptors using fieldnotes

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Sudha Koppula*, University of Alberta, Family Medicine, Edmonton, Canada

Background: Providing timely, regular feedback to learners from preceptors is known to be of benefit especially in clinical settings. Regular feedback from learners to teachers is less practiced but may be of some benefit. In addition to teachers receiving immediate feedback on their teaching practices and strategies, promotion of a culture of reciprocity relating to feedback may be of benefit to the learner-preceptor relationship. There may also be benefit in providing preceptors with feedback that may be incorporated into reflective exercises or teaching portfolios.

Summary of Work: Over one year, postgraduate learners provided feedback to preceptors with whom regular clinical work was undertaken. This feedback was documented on fieldnotes (an established method of formative feedback in the training program). The content and themes recorded on the fieldnotes were analyzed by means of qualitative textual analysis.

Summary of Results: Feedback received from learners to preceptors addressed key educational concepts including direct observation, teaching specific skills, and role-modelling. Learners appreciated the opportunity to provide immediate feedback about their learning needs during the clinical experience itself. Preceptors were interested in the feedback as they could tailor learning needs to their individual learners. Preceptors were interested in the potential such documented feedback could have for reflective purposes.

Discussion and Conclusions: Established formative feedback strategies can be used to provide feedback from learners to preceptors. Such a strategy has benefits for both learners and preceptors, encourages dialogue about the learning experience, and may enhance the learner-preceptor relationship.

Take-home messages: Learner feedback to preceptors using fieldnotes has potential for many aspects of the learning experience and learner-preceptor relationship.
The Construction of Multisource Assessment Framework for Clinical Medical Teachers – The Preliminary Data about the Assessment Priority of the Assessors from Different Sources

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Hsu-Min Tseng, Chang Gung University, Health Care Management, Taoyuan, Taiwan

Background: For constructing a multisource assessment framework for clinical medical teachers, we have to know the difference of assessment priority between assessors from different sources.

Summary of Work: We designed a questionnaire to find the suitable domains and aspects for assessing teachers. Five assessment domains including teaching ability, assessment capability, personality traits, interpersonal relationship and educational management, and 12-16 aspects of each domain were listed in the questionnaire. The participants were asked to give a score to each domain and aspect (from 1: strongly disagree to 4: strongly agree). The statistic methods were applied for analysing the results.

Summary of Results: Twenty-five clinical teachers, 69 residents, 53 PGY, 40 M7 students, 42 M4 students, and 29 nurses were enrolled. About assessment domains, all the assessment sources except nurses agreed that the "teaching ability" was most important. About aspects within "teaching ability", clinical teachers, PGYs and nurses gave the highest score to "teaching content", however, residents, M7 and M4 students gave it to "clinical reasoning". The nurses gave the highest score to the domain "educational management". About aspects within this domain, clinical teachers, nurses, residents, PGYs, and M7 students gave the highest score to "integrating teaching into clinical practice". M4 students gave it to "time control".

Discussion and Conclusions: About assessment of clinical teachers, assessors from different sources had both similar and different opinions about the assessment priority.

Take-home messages: This questionnaire survey helped us to find the similarity and difference of the assessing focuses between assessors from different sources. It assisted us to construct a well-designed multisource assessment for clinical medical teachers.
Why Surgeons Volunteer in Medical Education—Retention and Reinforcement of Faculty Motivation

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Background: This study aims at examining the underlying motives, the preference of incentives and the level of satisfaction and commitment of surgeons volunteering as faculty members for the AO Foundation, a network of more than 12,000 surgeons based in Switzerland. The ultimate goal is to find new ways for the AO to secure the succession of its key-faculty members.

Summary of Work: In a mixed-methods approach sixteen qualitative pre-study interviews were conducted, whose results were then used to design a quantitative online survey that was administered to all 4,661 registered faculty members of AO’s largest Clinical Division, AOTrauma. The 740 valid responses (16% response rate) were analyzed using the statistics tool SPSS.

Summary of Results: The results show that most volunteering faculty members are motivated by superior motives such as improving patient care, giving back the education they received and learning new skills. They report high levels of motivation, commitment and satisfaction in general with a majority being especially satisfied with the social aspects and learning opportunities their volunteering service provides. Some report the financial remuneration, the number of teaching- and faculty training opportunities should be increased. The incentives scores show that while performance feedback, training-, and leadership opportunities are important perks, financial compensation is the least preferred incentive.

Discussion and Conclusions: Considering these results, with the right strategy, AO should be able to secure the succession of its key-faculty members.

Take-home messages: In general a clearly obeyed faculty pathway, sufficient training and teaching opportunities as well as regular performance feedback seem to be key factors for the motivation of surgeons volunteering in medical education.

A Longitudinal Study of Teacher’s Attitude Toward Teaching, Thirteen Years Experience

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Background: Teaching mission of service hospital is often last priority to patient care due to increasing workloads. Besides, inappropriate preparation of teachers is a challenging problem leading to poor attitude of teaching. Hatyai Hospital, a service hospital had another teaching mission last thirteen years.

Summary of Work: A cross-sectional, longitudinal study using questionnaire was done four times. First period in 2001 before teaching, second period in 2003 one year after teaching. Third and fourth period were seven and twelve years in 2009 and 2014. A questionnaire was developed by Finucaine and colleagues (1995) including 14 items to measure attitude to teaching and attitude to teacher training using 1-7 scale from strongly disagree to strongly agree.

Summary of Results: Attitude toward teaching improved from first to fourth period especially in " I find teaching as satisfying as other activities " the score increase from 4.0 to 5.7. Medical teachers are gradually confident in their graduates as the score increase from 4.6 to 5.64. However, the attitude to teacher training decrease in all items. What the teachers need most now is not basic educational theory but evidence based medicine as they can use in teaching and clinical practice.

Discussion and Conclusions: Teacher’s attitude and training need are changing from time to time, every medical education center have to recognize and support the staffs to enhance quality of teaching.

Take-home messages: Both service and teaching can be done successfully by good attitude teachers and faculty development programme that serve their need and institution’s need.
Measuring the Impact of the Academy of Medical Educators at the Level of Individual Participants and Institutions

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Background: The Academy of Medical Educators at the Marshall University Joan C. Edwards School of Medicine (JCESOM) was established in 2004. The mission of the Academy of Medical Educators is to build excellence in teaching by supporting and nurturing preeminent medical educators, improving curriculum, and advancing educational scholarship. A study was undertaken to assess whether the academy has achieved its intended goals and purpose and to further assess how sustainable and meaningful the Academy was for the participants.

Summary of Work: Effectiveness of the Academy is measured by using the Kirkpatrick Evaluation Model. The applicability of the models is used to measure the impact of the Academy at both the individual and institutional levels. One year after their Academy experience, participants were asked to write self-reflections about the experience and its impact. These self-reflections were analyzed for various themes. Upon completion of the Academy requirements, the members were evaluated for their performance as a teacher, and their scholarly activity was monitored. The impact of the Academy's creation at the institution level was considered as well.

Summary of Results: Participants reacted favorably to the Academy as indicated by post-Academy evaluation surveys. Subsequently, they reported applying the knowledge/skills in their various teaching and learning pedagogies as well as their evaluation strategies. The impact of their learning is noted by increased implementation of educational interventions and innovation in the curriculum.

Discussion and Conclusions: After isolating the effects of the Academy it was found that the creation of the Academy has formalized the value the School of Medicine places on excellence in teaching. Through presentations and a published abstract book, it has provided a forum in which faculty can share their educational research. By creating the designation of Master Educator, the Academy provides meaningful recognition to faculty members who enhance their teaching skills.

Take-home messages: In summary, The Kirkpatrick model provides data to show how the Academy of Medical Educators has attained its goal of improving teaching effectiveness at one school of medicine. It indicates members of the Academy join a cross-departmental community of dedicated educators working together to strengthen their own teaching and to promote excellence in teaching throughout the school.

Medical students’ experiences of and perspectives on role models

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Background: Role models (RM) are known to be a strong educational strategy. However, students learn from RM both consciously and unconsciously, and there is RM with undesirable behavior as professionals.

Summary of Work: To analyze medical students’ RM, 115 6th-year medical students in 2013 and 2014, who had finished the undergraduate medical program, completed a questionnaire asking about whether they observed good RM (desirable RM) or those who made them feel ‘I should not behave like that’ (undesirable RM), in terms of relationship with patients, clinical expertise, humanity, lifestyle, teaching, and community contribution. We also asked about the frequency of certain clinical experiences and emotions concerning becoming a medical doctor.

Summary of Results: All and 93 students observed actions and behaviors of RM during formal clinical training and other opportunities, respectively, and 113 and 85 students observed desirable and undesirable RM, respectively. Two students only encountered undesirable RM. During formal training, students recognized desirable and undesirable RM in terms of relationship with patients, humanity, teaching, and community contribution. Frequent experiences of close clinical involvement increased experiences of RM. Students’ anxiety and pride were higher in those with RM experience.

Discussion and Conclusions: The majority of students had both desirable and undesirable RM. They encountered more undesirable RM in terms of relationship with patients, humanity, and teaching than clinical competency and community contribution. Students’ recognition as ‘undesirable’ may indicate that a gap exists between students’ values and each doctor’s behavior and professional standard.

Take-home messages: Students critically look at medical doctors’ attributes and behavior, including interpersonal skills and humanity.
Palestinian medical teachers’ attitudes toward modern teaching methods

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Background: Medical education in Palestine is provided by four medical schools. Online / E-learning methods of education have been proposed as cost-effective modalities in low income countries. The attitudes of medical teachers in these schools toward such modalities are yet to be explored.

Summary of Work: A self-administered 23-items questionnaire was circulated among medical teachers of one of the medical schools in West Bank.

Summary of Results: 35 participants with a M:F ratio of 8:1 were mostly PhD holders (86%). More than half of them had more than 10 years of teaching experience. Although the vast majority (89%) of respondents reported lack of educational resources, 51.4% of participants were positive about their working environment. Results showed 68.6% of participants were in favour of face-to-face teaching compared to E-learning or blinded learning.

Discussion and Conclusions: These results show a trend toward the use of traditional methods of teaching rather than E-learning. This might be related to the lack of adequate training and the well-established infrastructure. Our results are the first of its type to provide an overview of the use of medical education methods in Palestine. Providing the necessary infrastructure and training medical teachers on modern modalities of teaching can potentially help improving the standards of medical education in Palestine.

Take-home messages: Medical teachers in Palestine are still in favour of classical methods of teaching. This study provides some guidance for decision makers involved in upgrading medical education in the country.

Psychopathology and psychosocial health in Mexican medical residents

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Background: Physicians are vulnerable to psychopathology. Self-perception of it might contribute to the self-consciousness about the care they deserve. There is much resistance to this self-knowledge. We believe that the greater the psychosocial health, the greater their ability to adapt and overcome their psychopathology will be, thus both aspects should be studied at the same time.

Summary of Work: To identify Axis I psychopathology (DSM-IV) and psychosocial health report (RSPH) on medical professionals. RSPH was obtained from 70 graduate students at two public general hospitals in the state of Nuevo Leon by questionnaires of the Exposure to Violence, Family Functioning, General Health (GHQ-28) and Vital Events & Stress Rating (RVES). Psychopathology was explored by the Symptom Checklist-90-R (SCL-90-R).

Summary of Results: 33 were women and 37 men, with a mean age of 28.3 years. 111 out of 168 variables were correlations with significant value (p < 0.05). In the SCL-90-R inventory, it was found that the most common psychopathologies were obsessive-compulsive disease, depression, interpersonal sensitivity and hostility.

Discussion and Conclusions: Psychopathology related to stress and psychosocial health was reported by health professionals. The higher the level of psychosocial health (composed by family well-being, general health index and low self-reported violence), the lower the psychopathology and stress level in health professionals.

Take-home messages: More attention should be paid to the psychosocial health of medical professionals and its impact on their well-being and their performance as care providers.
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Marco Carvalho-Filho, School of Medical Sciences of Unicamp, Emergency Medicine, Campinas, Brazil

Background: Medical Students must develop the ability to critically evaluate recent articles in the academic medical literature. Therefore, the journal club (JC) is an essential, well-recognized, traditional teaching method. However, our experience has shown JC to be counterproductive, because students often fail to read the papers, leaving this task only for the one who prepares the presentation.

Summary of Work: We created a new kind of JC, based on the concepts of gamification and team-based learning. The activity consists of a competition between two undergraduate and internal medicine resident teams. Two medical articles are given each week, and each participant must prepare one question from each paper. Teams are assembled just before the competition begins. Senior doctors are the “referees”.

Summary of Results: We observed greater students’ interest on reading the papers and very good compliance with our JC. Most students considered our activity to be more effective and amusing than conventional JC.

Discussion and Conclusions: By means of TBL and gamification, undergraduates and residents practiced their memories, enhanced their communication skills and team work. We believe this kind of activity to be the future of JC in our department.

Take-home messages: Team-based learning and gamification may be good teaching tools enhance medical students’ adherence to journal club activities.

Improving Knowledge of Pediatric Nephrology in the 6th year medical students by using Team-Based Learning

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Background: TBL has been used in a variety of medical education setting. We used TBL in pediatric nephrology clinic for the 6th year medical students in Ratchaburi Hospital Thailand for improving their knowledge and enthusiasm.

Summary of Work: Individual students studied the objective of common pediatric nephrology diseases 2 weeks before class. In class, they completed an individual test to assure their knowledge. Groups of 3-students then re-take this exam and they got immediate feedback on their performance by the teacher. They got an assignment to review the history of the pediatric nephrology patient who had an appointment to pediatric nephrology clinic. When the students attended the clinic, they had to apply their knowledge to manage their patients under supervision of the teacher.

This method was first used in 2014. The difference between the score of individual and groups and post class questionnaires were analyzed.

Summary of Results: Average score of the individual was 53%(14%-91%) and average score of the groups was 68%(44%-91%). In all groups, the score of group was more than the score of individual. Post class questionnaire showed that all students appreciated the participation in group discussion and the application of their knowledge in pediatric nephrology clinic.

Discussion and Conclusions: Students benefit from TBL through problem-solving discussions in group and applications competent knowledge to manage the patients.

Take-home messages: TBL improve knowledge and enthusiasm of the students by their active participation.
Does the students’ assessment of TBL reflects active learning and final examination results?

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**Vera Tumova**, 2nd Faculty of Medicine, Institute of Biology and Medical Genetics, Prague, Czech Republic

**Marcela Klabanova**, Diana Lucina, Institute of Biology and Medical Genetics, Prague, Czech Republic

**Background:** We introduced TBL in 2010 and this approach became one of the most popular teaching method among students in Medical Biology and Embryology and Developmental Biology subjects, respectively. For assessment of TBL we use a feedback model based on written survey after subject examination. In this study, the goal was to identify changes in awareness and value of TBL, to motivate students to self-learn and to correlate the TBL assessment with the final exam scores. (Supported by IP 1110005 and Diana Lucina).

**Summary of Work:** One hundred and seventy two 2nd year medical students participated in TBL class of practical works (molecular genetics and human developmental biology) in 2014. After subject examination students completed a survey that can analyze group member’s opinion. We analyzed relationships between the students’ TBL assessment and individual exam results in final exam (score, number of attempts, mark in test of practical knowledge).

**Summary of Results:** The general TBL assessment, team work awareness and students’ motivation are closely related to individual exam scores ($p < 0.01$) in the final exam and in the test of practical knowledge. The TBL evaluation is less related to number of exam attempts ($p < 0.05$).

**Discussion and Conclusions:** Students’ exam success was closely related to positive assessment and awareness of TBL.

**Take-home messages:** Our feedback model allows us to verify usefulness of TBL, to identify its advantages and drawbacks and to improve our pedagogical attitude.

Changing behavior of antibiotic prescribing for URTIs: Effectiveness of team-based learning approach in Internship

**Kanokrot Kovjiriyapan**, Medical Education Center Phayao Hospital, Phayao, Thailand

**Background:** Clinical teaching should ideally improve a medical students’ knowledge and change their behavior in daily practice toward a best clinical practice. Interactive methods such as team-based learning and case-based learning can impart sustainable knowledge and lead to high satisfaction among participants, but there are fewer reports of its use with postgraduate doctors. We designed an interactive case-based seminar using team-based learning approach to evaluate whether it leads to a changing behavior of antibiotic prescribing for Upper respiratory tract infections (URTIs) of interns.

**Summary of Work:** 12 Interns rotated in 2013 learning “Antibiotic used in URTIs” in Team based learning (TBL) module. Antibiotic prescribing for URTIs of interns were collected from medical record before and after learning.

**Summary of Results:** Mean scores of antibiotic prescribing in pre-learning and post-learning were 10.15, 7.95% respectively ($p < 0.05$).

**Discussion and Conclusions:** Team-based learning can change medical practice toward appropriate antibiotic prescribing for URTIs.

**Take-home messages:** Team-based learning can be successfully introduced into a postgraduate training program.
A comparison of satisfaction towards team-based learning and problem-based learning approaches among third-year medical students at Suranaree University of Technology

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Taweesak Tongtaweew, Medicine, Family and Community, Nakhon Ratchasima, Thailand
Soraya Kaeawpitoon, Medicine, Pathology and Laboratory Medicine, Nakhon Ratchasima, Thailand
Sanong Suksaewang, Medicine, Pediatrics, Nakhon Ratchasima, Thailand
Naporn Uengarporn, Medicine, Surgery, Nakhon Ratchasima, Thailand
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**Background**: Team-based learning (TBL) and problem-based learning (PBL) have been widely exercised as effective methods to promote active learning in medical education. However, a small body of research has been regarding the application of both methods among Thai medical students. The aim of the study was to compare satisfaction towards these methods among third-year medical students at Suranaree University of Technology, Nakhon Ratchasima, Thailand.

**Summary of Work**: The study incorporated 60 third-year medical students who enrolled in a two-week course in Gastrointestinal System, which employed an integrated TBL and PBL approach. Student satisfaction towards these two learning methods was evaluated by questionnaires upon completion of the course. Data were analyzed using the two-sample t-test.

**Summary of Results**: Significant difference was found between student satisfaction towards TBL and PBL in the following categories: knowledge (understanding of learning content, application of pre-clinical knowledge, a variety of knowledge from instructors), self-development (confidence to search for medical information, confidence to solve unexpected problems, eagerness to learn), presentation skills (oral presentation, confidence to work as a team), as well as overall satisfaction (p < 0.05). However, the study revealed no significant difference of satisfaction scores in terms of the holistic view of patients (p=0.053).

**Discussion and Conclusions**: Our study revealed that the majority of the students were more satisfied with TBL than PBL.

**Take-home messages**: The study showed that TBL was more efficient than PBL in the students’ opinion.

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A cell biology Team-Based Learning day achieves high acceptability in a large class of first year medical students

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**Background**: Team Based Learning (TBL) is not commonly used in cell biology courses. We developed a TBL day for a large class of first year medical on molecular and cellular processes of mitosis and meiosis associated with human pathologies. We describe the acceptability of the activity by students.

**Summary of Work**: 130 students participated in this TBL activity. The learning objectives were related to cell cycle, mitosis and meiosis mechanisms, and their implications on chromosomopathies and cancer. The Individual Readiness Assignment (IRA) was developed by clinical and basic sciences faculty, (27 Items), all with clinical vignettes. The IRA was administered in an auditorium (60 min). Then students worked around the IRA in their teams (120 min). Finally, the class returned to the auditorium to discuss the learning issues (180 min). 24 hours later, students answered a custom-made survey to evaluate the impact of the TBL day.

**Summary of Results**: There were 89 responses (68% response rate). Students considered that the TBL day largely increased their knowledge on mitosis (83%), meiosis (86.5%), cell cycle (84.2%), relationships between chromosomopathies and meiosis (78.6%), cancer and cell signaling (74%) and characteristics of cancer cells (72%). A free text answer revealed that students appreciated the opportunity to contextualize problems within clinical relevant situations and the mediation by peer discussions, which are part of the Team processes, and the opportunity to search information autonomously.

**Discussion and Conclusions**: A large class of first year medical students developed positive perceptions of a TBL day on cell division and proliferation.

**Take-home messages**: A TBL day seems to achieve positive motivation outcomes in first year medical students.
The association between Team-based Learning (TBL) and Learning Management Systems (LMS) by Moodle®

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Background: TBL is an important active learning methodology that consolidates concepts, provides teamwork and requires decision making.

Summary of Work: We used the Moodle® to conduct the first three steps of TBL. The following steps were conducted in a traditional way. Finally, the student's perception of the method was evaluated using the Liker scale.

Summary of Results: In the first step the matters were made available in different media via Moodle®. In the second step (iRAT), randomized questions and answers, with time restriction and without feedback was fulfilled by the students in the computer lab. Also in the computer lab during the third step (tRAT), the same questionnaire was made available in adaptive mode, with immediate feedback, penalty setting and time limit. Assessment of the activity by the students got satisfaction rates between 94.37% and 96.25%.

Discussion and Conclusions: The randomization of the questions and answers during iRAT avoided cheat and the achievement of immediate report enabled the establishment of performance-based groups. Immediate feedback during the tRAT consolidated the main aspect of the methodology that is the interest in performing teamwork to take shared decision. Graphics generated in the Moodle® evidenced issues of greatest difficulty, helping to drive the fourth step in a more objective way. The combination of active learning methodologies and information and communication technology seems to constitute a need and an advance in the medical field.

Take-home messages: In cyberculture times the use of information technology enriches the teaching and learning process.

Problem-based Learning or Team-based Learning, What should the students choose?

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Background: Problem-Based Learning(PBL) and Team-Based Learning(TBL) are active learning methods. This report is aimed to compare the medical students’ opinions towards the two methods.

Summary of Work: In 2014, the fourth year medical students studying in pediatrics at the Buddhachinaraj Hospital have learned with the PBL and TBL. In the last week, they answered the closed-end questionnaire comparing their preference of the two methods. The data has been compared by the independent t-test.

Summary of Results: 48 (100%) medical students answered the questionnaire. The opinions towards TBL are very good include: the method is suitable for fourth year students; the method encourages them to analyze issues and find solutions; the content is arranged systematically with clear procedures; there is an emphasis and conclusion on the subject; knowledge from instructors; knowledge from friends in the team; satisfaction and the application/adaptation of the knowledge after classes. The opinions towards PBL is good and significantly statistical different. Moreover, there is less stress in TBL classes. Finally, 100% of the students prefer TBL.

Discussion and Conclusions: The medical students prefer TBL probably because of different procedures of the two. TBL is more systematic with clear process. There is a test for the readiness and accountability of the students as well as a good exchange of knowledge in the team. Importantly, there are immediate and regular feedbacks from the instructors. These factors help the students to have more knowledge in class and can apply it better after class. The active learning methods are important and necessary even though the students prefer TBL over PBL.

Take-home messages: There should be more use of TBL methods widely.
Medical Students’ Attitudes toward Team-Based Learning in Radiology

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Background: Team-based learning (TBL) has been applied to various courses in medical schools, and a void in the literature exists regarding the attitude of TBL in radiology. The objective of this study was to evaluate medical students’ attitudes toward TBL in radiology.

Summary of Work: One hundred seventy nine 5th year medical students in Buddhachinaraj Medical Education Center in elective course of radiology in academic year 2010-2013 were studied topic gastrointestinal radiology by TBL method. At the end of the course, they were surveyed for their attitudes toward team based learning in radiology by using 10 (five rating scale) questionnaire items. Data were analyzed for frequency, percentage, mean and standard deviation.

Summary of Results: The level of attitudes was very good (mean 4.21) for knowledge after study, teamwork, community skill, coordination, responsibility, instructor feedback and harmony. The level of attitudes was good (mean 3.41 - 4.20) for preparation and duration. The level of attitudes was acceptable (mean 3.15) for knowledge before study. Mean G-RAT scores was significantly higher than mean I-RAT scores (70.39 ± 9.84, 33.41 ± 15.57, p < 0.001).

Discussion and Conclusions: The level of attitudes was very good for knowledge after study, teamwork, community skill, coordination, responsibility, instructor feedback and harmony, because of the student have to had high responsibility, good coordination and discussion under supervise in TBL. The results reveal that medical students’ attitudes toward TBL in radiology are good to very good.

Take-home messages: TBL is one of the good choice study method in radiology.

Anatomy and additive manufacturing: Imaging methods and 3D printing for anatomy education

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Background: The combined challenges of the cost of maintaining bequest programs, storing human cadavers, and minimising exposure to formalin has led to major changes in the use of dissection-based teaching. Alternatives such as plastinated specimens have raised a plethora of ethical concerns about the acquisition and trading of human cadavers.

Summary of Work: We have developed methods for applying imaging and additive manufacturing to reproduce prossected human cadaver and other specimens that obviates many of the above issues. We have developed techniques to produce high resolution, full colour reproductions of prossections from medical imaging (CT/MRI) and surface scanning datasets.

Summary of Results: This approach of creating multiple reproducible anatomical replicas or 3D prints offers several advantages over other techniques including: (1) the ability to capture anatomy too complex for traditional physical molding and casting methods; (2) the rapid production of multiple identical copies; (3) ability to manipulation size and scale; and (4) false colouring to enhance structure visibility. 3D prints from surface scanned specimens have high concordance to the original, and accurately resolve the morphology of extremely small structures.

Discussion and Conclusions: Our ongoing development of 3D printing for anatomy education represents a significant advance impacting the range of resources available to universities, hospitals and other educational institutions. 3D printing avoids some of the financial, cultural and ethical issues associated with cadaver specimens either in an embalmed or plastinated form. 3D-printed anatomical specimens represent a significant educational advance.

Take-home messages: 3D printing can be used to manufacture accurate full colour reproductions of prossections and represent a major advance in anatomical education.
Importance of dissections in our anatomy curriculum – Is it about details or concepts?

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Background: Dissections are a part of the anatomy curriculum in the University of Helsinki. Because of the small number of cadavers and limited hours spent in the gross lab, we have made the dissection sessions highly structured. Students follow a detailed dissector-handout to proceed the dissection. Moreover, students alternate in different well defined roles during the session.

Summary of Work: 126 students replied to our questionnaire considering the dissection session they had just had. We asked which roles they played, which ones they found most important for their learning, and how they view learning in the lab.

Summary of Results: In average students felt that reflecting and discussing anatomical knowledge is as important as learning by doing in the dissection sessions. In general, students thought that active roles helped to learn and only 10% thought that just observing dissections helped to learn anatomy. Only 43% thought anatomy lab was helpful for memorizing details, whereas 94% thought it help them to understand the bigger picture.

Discussion and Conclusions: Dissections are integral part of medical students anatomy learning. Our study shows that students feel that even brief dissection sessions enhance their learning. They feel that the dissection process helps them build a comprehensive view of human body.

Take-home messages: Students may learn anatomy during the dissection by doing, observing and discussing. Especially dissections help students to understand anatomical concepts.

Understanding 2D anatomy learning- a reinforcement task based approach

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Background: Given reduced formal instruction time for many of the basic sciences within medical curricula, educators are searching for efficient instructional methods that ensure students have the necessary foundational knowledge.

Summary of Work: The objective of this study was to design a reinforcement learning task in which novice participants successfully learn to identify neuroanatomical structures in a time efficient manner. We predicted that provision of immediate feedback would activate reinforcement learning mechanisms within the brain thus enhancing knowledge acquisition such that performance accuracy (correct identification of neuroanatomical structures) improves from approximately 50% (guessing) to 90% by task completion.

Summary of Results: Behavioural learning curves show learning occurs over the course of a task (320 trials) including 16 trial blocks (20 trials/block). Participants (n = 10) consistently exceed 90% accuracy in block 13 (260 trials). The total task duration was approximately 30-35 minutes with all participants reaching proficiency by 25-30 minutes. Importantly, there was a significant increase in performance on a post knowledge test compared to a pre-test, M = 90.00% CI [81.57, 98.43], t(9) = 24.15, p < .001.

Discussion and Conclusions: Our results highlight the key role of reinforcement learning approaches to establishing foundational knowledge in the pre-clinical sciences, specifically anatomy. Progression of learning can be assessed through examination of learning curves. Future work will assess neurophysiological responses through measurement of event-related brain potentials using electroencephalography.

Take-home messages: Designing effective pre-class exercises that make use of reinforcement learning theory as a means to promote learning may be an effective method to build base knowledge prior to classroom interactions in anatomy education.
#5BB13 (26752)
Removing Cadaveric Dissection from a Medical Curriculum

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Background: For over half a millennia, cadaveric dissection has been instrumental in the teaching and learning of anatomy. However, a recent emerging trend demonstrates that many medical schools have abandoned this practical hands-on approach. A literature-based enquiry was therefore conducted to look at the possible impact of removing cadaveric dissection from a medical curriculum.

Summary of Work: By capturing the existing literature describing medical students’ and anatomists’ perceived benefits and drawbacks of cadaveric dissection, insights could be made into the possible impact of teaching and learning without dissection. Relevant papers were identified using a defined search strategy that encompassed six databases. Strict inclusion and exclusion criteria were implemented and papers were critically appraised. Thematic Analysis was used to synthesise and present the data.

Summary of Results: Twenty-three papers met the full inclusion criteria. Findings indicated the perceived benefits of dissection to be within the broad themes of Knowledge, Skills and Attitudes. Similarly the drawbacks of dissection fell within the themes of Emotional Reactions and Practical Reactions.

Discussion and Conclusions: Findings discuss the perceived merits and shortcomings of cadaveric dissection, and thus make inferences into what might be ‘lost’ if dissection were to be withdrawn. If this were to happen, steps must be taken to fill in the potential gaps in students’ anatomical knowledge and learnt skills in addition to the possible loss in their personal and professional development.

Take-home messages: With the reform in anatomy pedagogy, there is a possibility of cadaveric dissection being completely cut out of the undergraduate medical curriculum, and therefore, similarly suitable and sustainable alternatives must be sought.

#5BB14 (27415)
3D Head and Neck project: Development of a novel visualisation tool for education, training and research in human anatomy

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Background: The human head and neck anatomy includes core elements of respiratory, nervous and digestive systems making it the most vital zone of our body. However none of the existing visualisations realistically represent medically validated anatomy. This inspired the inception of 3D head and neck project. This presentation demonstrates the development and potential of the project in education, training and research.

Summary of Work: The 3D digital head and neck model is constructed using anatomical data acquired from 3D laser scans and radiography of human cadavers. It is then integrated within a bespoke visualisation platform to create a real-time interactive 3D digital model. Furthermore, haptic force feedback interaction is added for dental training purposes.

Summary of Results: Learners and teachers can interact with the fully annotated model in a real-time 3D environment allowing virtual dissections to be carried out layer by layer. Moreover, integration with haptic force feedback allows dental students to virtually administer local anaesthesia in a safe and repeatable environment.

Discussion and Conclusions: High resolution data capture and accurate modelling supported by specialist clinical inputs makes the 3D head and neck a highly reliable resource of anatomical knowledge, allowing intuitive and self-paced exploration with a level of details never met before. Real-time interactivity and haptic force feedback provides scope for training and research.

Take-home messages: This high-resolution (10µm) 3D head and neck model allows medical and dental professionals to intuitively explore the anatomy of the head and neck at their own pace and use it for education, training and research purposes.
Using local dependence of items to detect test-wiseness

**Background:** Every year the student-selection test HAM-Nat contains newly generated and old items from preceding years. Here we investigate how information leaks leading to preliminary knowledge of some old items (test-wiseness) in a small group of test takers can be detected.

**Summary of Work:** In a simulation study based on real data a subsample of test takers was given a high proportion of correct answers in a subset of items to mimic the effect of a leak in item secrecy.

**Summary of Results:** The corrupted items were not identified by coefficients of difficulty and discrimination, neither as defined in classical test theory nor in item response theory (IRT). However, an IRT-coefficient reflecting local dependence, the LD $\chi^2$ statistic, proved to be highly sensitive e.g. if 10% of the test takers knew 14% of the items.

**Discussion and Conclusions:** In IRT every correlation between two items must be caused by their common relations to the measure they are intended to reflect - any residual correlation is due to other influences such as test-wiseness in this case. The residual correlation between item pairs (local dependence) can be used to detect test-wiseness even if the proportion of test takers knowing the right answers in advance is small.

**Take-home messages:** Coefficients of local dependence (IRT model) are much more sensitive to detect test-wiseness than basic test parameters of IRT or classical test theory.

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True, false, abstain or guess anyway: The use of combining negative marking and no-negative marking as an evaluation tool in Oncology training

**Background:** Assessments by True-False-Abstain format with negative marking (NM) are associated with gender bias, and confounded by personality differences and anxiety. However, they reduce indiscriminate guessing and identify knowledge gaps. Combining both NM and non-negative marking (NNM) has not been evaluated as an assessment tool.

**Summary of Work:** The oncology senior residency interim evaluation comprised of twenty True-False questions with five stems carrying 1 mark each. Trainees were not informed of prior change of evaluation and asked to complete the questions firstly with NM, and subsequently the same questions with NNM. Errors and abstained questions in the NM section were singled out during feedback. Marks from NNM were recorded for formal assessment. All trainees were provided feedback individually.

**Summary of Results:** All ten trainees participated. The mean score was 32 (range 7-54) for NM questions and 67 (range 50-82) for NNM questions. Overall, 252 questions were abstained for the NM format. Of these, 137 (54%) were answered correctly under NNM. No trainees had differing answers for questions that were attempted for NM and NNM. Errors and abstained questions in the NM section were singled out during feedback. Marks from NNM were recorded for formal assessment. All trainees were provided feedback individually.

**Discussion and Conclusions:** Combining NM with NNM provides a comparative strategy, enabling identification of knowledge deficits clearly. A more accurate overall assessment of trainee knowledge and deficiencies can be achieved.

**Take-home messages:** Combining NM with NNM identifies knowledge deficit clearly, and provides better assessment.
Development and validation of an interactive game-based script concordance test (SCT) for assessing clinical reasoning in odontogenic pain

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Background: The script concordance test (SCT) is used in health professions education to assess a specific facet of clinical reasoning competence. The aim of this paper is to evaluate the educational effectiveness of interactive game-based script concordance test (SCT) for assessing clinical reasoning in odontogenic pain.

Summary of Work: Scenarios on odontogenic pain conditions commonly encountered in dental practice were created in accordance with guidelines for construction of SCTs. Seventeen clinicians contributed as a reference panel to set the test’s scoring grid and assessed the content validity. The SCT was designed into a gamified mobile application with the help of titanium appcelarator, which works both on android and ios platforms. The gamified version was tested on students of varying degrees of clinical experience. The difference in the mean scores between students from different semesters was compared using t-test. Feedback from students on educational benefits of the mobile application was obtained through a questionnaire.

Summary of Results: Fourteen SCT scenarios were completed, each with three questions and optimized scoring key. Feedback from students confirmed the content validity. The mean scores of test showed that clinical students fared better than that of preclinical. The difference in the mean scores between students from different semesters was compared using t-test. Feedback from students on educational benefits of the mobile application was obtained through a questionnaire.

Discussion and Conclusions: The students’ feedback indicated that the SCT was comprehensible and non-ambiguous. An SCT of fourteen scenarios with three questions each was successfully developed along with its face and content validity. Students perceived the gamified version of SCT as a positive and an enthralling experience.

Take-home messages: The students reported that the SCT was an interesting learning tool that tested their clinical reasoning.

Peer review to improve the quality of MCQ examinations

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Background: Medical Council of Thailand has issued that all medical students must pass the National Licensing Examination (NLE). In step 2 of the NLE is composed of 300-item Multiple choice questions (MCQs). All fifth-year medical students at Phramongkutklao College of Medicine must participate in our Comprehensive Examination (CE) for preparing them before NLE. CE was developed by Peer review. This study aim to assess the effectiveness of peer review on the quality of MCQs.

Summary of Work: All of the summative MCQs for the academic years 2009, 2010 and 2011 were retrieved from the database. These MCQs were developed by clinical staff. Peer review processes of 300-item MCQs were done every year. The qualities of MCQs were evaluated by comparing the examination data generated during 2009 to 2011 from the same blueprint. Statistical analysis and comparisons of overall examination performance were made by year. Item analysis was used to compare the proportion of mean difficulty, discrimination, variability and reliability.

Summary of Results: The impact of peer review resulted in an appropriate item difficulty (p=0.49, 0.43, 0.53 in 2009, 2010 and 2011 respectively) and reliability (rtt =0.86, 0.83, 0.81 in 2009, 2010 and 2011 respectively), decreased in the number of items with low discrimination (percents=23, 23, 21.3 in 2009, 2010 and 2011 respectively). The items with negative questions were decreased (percents=23, 23, 21.3 in 2009, 2010 and 2011 respectively).

Discussion and Conclusions: The trend of overall improvement in the quality of MCQ items continued in 2009 and 2011. Peer review has resulted in a sustained improvement of the quality of MCQ items within our examinations.

Take-home messages: Peer review is effective to improve the quality of MCQs.
#5CC05 (28012)
Development and evaluation of a Script Concordance Test (SCT) in Conservative Dentistry

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Background: In medicine, Script Concordance Testing has been established as an assessment tool for clinical reasoning skills for several years. However, until today no SCT exists in dentistry to our knowledge. The objective of this work was to develop and evaluate an SCT for conservative dentistry.

Summary of Work: An SCT with 138 items nested in 22 cases was developed based on learning objectives for conservative dentistry. The expert panel comprised of 13 senior dentists. An MCQ with 67 items was developed covering the same domain. SCT and MCQ were performed in three consecutive student cohorts on the same skill level (n=60) at the Center for Dental Medicine at the University Medical Center Freiburg. The sequence of SCT and MCQ was crossed to control for carry-over effects. Results for the SCT were calculated by four different scaling methods.

Summary of Results: Cronbach’s alpha of the SCT exceeded 0.83 for the all scoring method. The average students’ SCT results were more than two expert standard deviations smaller than average expert ratings. SCT and MCQ results were not significantly correlated.

Discussion and Conclusions: The new SCT has to be validated with student cohorts on different skill levels. Furthermore, it should be investigated if the underlying conceptual framework (script theory) developed in medicine is transferable directly to dentistry without changes. For the first time, an SCT with good psychometric characteristics was established in dentistry. It clearly differentiates between expert and learner reasoning skills.

Take-home messages: An SCT was established in dentistry for the first time.

#5CC06 (26799)
Credibility in digital exams

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Background: Almost all students bring their computer to class for note taking, on site research, active classroom participating etc. In order for exams to proceed as a legitimate continuation of, and in alignment with, the teaching students partake in, The University of Southern Denmark aims for exams to be conducted in contemporary and familiar settings, which is why students bring their own computer to the written exams.

Summary of Work: Written exams at the Faculty of Health Sciences at the University of Southern Denmark have been conducted digitally for three years.

Summary of Results: Working with digital exams and the simultaneous assuring of the credibility of exams, we have divided all written exams throughout the different programs into a few groups based on the method of assessment.

Discussion and Conclusions: In conducting the exams digitally, we need to assure that three criteria are met at the same time:
1. academic objectives are tested validly and reliably.
2. students have none or limited access to aids, according to the different regulations that apply to each exam.
3. selected software is fully functional on a variety of operating systems since the exams are conducted on the students’ own computers. This means that at one single exam as many different combinations of computers and operating systems as there are students participating in the exam may be present.

Take-home messages: In implementing digital exams, the selection of high quality software to support learning objectives and methods of assessment, has ensured that we continue to maintain both credibility and a contemporary setting for the written exams.
#5CC07 (27885)
Computer Based versus Traditional Pen and Paper Assessment: Students’ View

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Background: Medical education has passed through many developmental steps all over the world. Currently, computer based assessment is an important shift from the traditional methods such as paper and pen examinations. The aim of this study was to compare between Computer based and traditional pencil and paper assessment from the students point of view.

Summary of Work: A cross-sectional institutional based study, conducted at Khartoum, Sudan. Sample size was 106 final year medical students during pediatrics clerkship. Study tool was a pre-coded, pretested self administered questionnaire.

Summary of Results: Most of the students (59.4%) prefer traditional paper and pencil exam. Females prefer traditional paper and pen exam more than males P value 0.003. The main problems of computer based assessment from the student point of view were: Network failure (95.3%), hardware - software failure (83%) and electricity failure (81.1%).

Discussion and Conclusions: Only 40.6% prefer computer based assessment and this mainly because of their worries about network, software – hardware and electricity failure. Infra structures play a very important role in the successful of Computer based assessment method. These include fully equipped computer lab to prevent network, software – hardware and electricity failure.

Take-home messages:

#5CC08 (24864)
Objective structured written assessment (OSWA) in pediatric nephrology

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Background: Objective structured written assessment (OSWA) – is a formative written assessment in the format of OSCE. Learners rotate through a series of time-limited “task-on-tables” in a room with one teacher. Every student completes the same task in the same amount of time. The tasks are designed for students to write several words assessed through the use of structured forms. It is a useful tool for formative assessment clinical skills, that can later be analyzed without have to observe the process. Debriefing at the conclusion of the assessment is vital.

Summary of Work: We implemented OSWA in a Pediatric Nephrology course. Examples of the tasks: perform urine dipstick analysis, assess X-rays, make decisions about blood or urine tests results, prescribe medicines, estimate glomerular filtration rate and a variety of others. We used disease-based blueprints and real medical documents if possible. OSWA consists of 10 “task-on-tables” with a length of 6 minutes each.

Summary of Results: OSWA improved the results of the summative assessment. This assessment was conducted on the same day, after the OSWA debriefing, utilizing a personal response system. Control group – 35 students, score – 74 (63; 85), experimental group – 35 students, score – 81 (74; 89) (Me (25%;75%), p = 0.046. Discussions held in the focus groups revealed the students' positive attitude. OSWA generated a sense of competition and motivated.

Discussion and Conclusions: OSWA combines the advantages of a traditional written assessment and OSCE. We introduce it as a first step in preparing for OSCE.

Take-home messages: OSWA is a cheap, easy to organize formative written assessment in the format of OSCE.
Is spelling important in medical school assessment?

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Background: Medical training exposes the student to a multitude of clinical terminology that can be technically daunting to spell. Within the clinical environment the written word is often thought to be directly linked to clinical competencies. In the Swansea Graduate Entry Medicine programme all students, regardless of whether or not they have dyslexia, lose marks for the incorrect spelling of anatomical and clinical terms in their anatomy and written clinical assessments. The aim of this study was to evaluate the fairness and appropriateness of our marking practices.

Summary of Work: A questionnaire was distributed to clinical and academic members of staff. The questionnaire accompanied an outline of the marking guidelines for anatomy spotter and written clinical exams, which clearly states how spelling affects the marking.

Summary of Results: The results will demonstrate how our staff perceived these marking practices. They will also capture their thoughts on the importance of spelling and links to clinical competencies.

Discussion and Conclusions: The importance of these findings in relation to fairness to students, equality and diversity legislation and fitness to practice will be discussed.

Take-home messages: Assessment strategies need to be reviewed to ensure that they are current, and reflect the competencies that are required of students when they progress into the clinical environment. That said, marking practices should be fair and provide all students, regardless of disability, with the opportunity to play on a level playing field.

Setting up an Item Bank for the Hamburg Test of Natural Science Knowledge (HAM-Nat)

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Background: The Hamburg test of natural science knowledge (HAM-Nat) consists of 80 MC items from biology, chemistry, physics, and mathematics. Every year a new test is composed of newly generated and old items from proceeding years. Here we describe the design of a database for HAM-Nat items (item bank).

Summary of Work: The item bank is written in the language of a commercial database system (4D). It represents items with coefficients from each of their participations in consecutive versions of the HAM-Nat. These coefficients are difficulty and discrimination as defined in item response theory (IRT) and in classical test theory, response characteristics of distractors, and differential item functioning. Setting up an item bank requires a series of decisions in order to make the task manageable. The main issues are: number of dimensions, item model, item selection, method of analysis for differential item functioning (DIF), method of test equating.

Summary of Results: The simplifying decisions were: (1) only one dimension, (2) 2PL model of IRT, (3) no item selection, (4) sweep mode in DIF analysis, (5) simple mean transformation in equating. The soundness of these decisions is corroborated by an analysis of their effects compared with more complicated alternatives.

Discussion and Conclusions: Any item bank has to compromise between accuracy and simplicity. Here we demonstrate how such a compromise is arrived at by a systematic investigation of alternative pathways.

Take-home messages: Simplifications regarding dimensionality, item selection, and modelling methods are tolerable for the practical purposes of an item bank.
An IDEAL solution to producing reliable MCQ papers for a 2-week anaesthesia module

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**Background:** The Anaesthesia course for final year medicine students at Chinese University is a repeated (n=16) two week module for small groups of students (n=7-10). Assessment is done by MCQs. Since 2006 a MCQ management program called IDEAL, better known for its association with the IDEAL Consortium, has been used.

**Summary of Work:** Three 60-item MCQ papers rotated between student groups are used. A new set is prepared each academic year. Answer papers are optically marked. Each year student answers (5 choices per item) are collated and the anaesthesia database updated. IDEAL enables review of item performance: (a) level of difficulty and (b) discriminative power. Poor performing items are identified and revised using the management software. The difficulty levels of MCQs are used to standardize pass marks and facilitate setting papers of equal difficulty.

**Summary of Results:** The anaesthesia database today contains over 200 moderately difficult (level 60-70%) and discriminative (level +10-30%) items. In academic year 2013-2014 students' test scores were mean 40.4/60 (SD ±4.6) with pass at 30/60. Difference in average scores between the three exam papers was <1.0.

**Discussion and Conclusions:** Using the IDEAL database to manage our anaesthesia MCQs suited our course and administrative needs. The course content remained relatively constant facilitating item development. The syllabus required students to learn a number of new topics that were examined. The examination could be easily administered a non-medical person (secretary). Excellent and margin students were easily identified.

**Take-home messages:** The IDEAL program is excellent for developing reliable MCQ items and generating exam papers of known difficulty level.

The transitional outcome of changing from paper-based to electronic-based examination system

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**Background:** Each year, MCQ (Multiple Choice Question) on Paper-based Testing (PBT) is used approximately 12,500 times per six years of medical students. In 2014, Computer-based Testing System (CBT) was developed and used primarily by four departments. CBT was then evolved into Tablet-based Testing System (TBT) to serve MCQ examination needs of the whole faculty in 2015.

**Summary of Work:** In CBT, students select answers on desktop computers and are sent over a wired connection to a server. In TBT, students have interactive actions on Android tablets and answers are sent over a wireless connection. These systems were developed by the authors using Java and Android. Exam questions are read from a Word document and results exported into an Excel spreadsheet.

**Summary of Results:** Students' opinions of the CBT were generally positive, but the inability to annotate has been criticized. Department assistants commented that CBT while decreased human resources and paper requirements, the shortage of CBT rooms and the greater technical knowledge were the two most difficult constraints. TBT was mostly widely accepted by students while some complained about familiarizing with the tablet.

**Discussion and Conclusions:** Insufficient computer stations and inability to annotate were the two main reasons of developing TBT. With further development, TBT is expected to be cheaper, greener and more intuitive than PBT, possibly replacing it completely. Further follow-up on the effect of changing to TBT, cost effectiveness and system stability are planned.

**Take-home messages:** The key to success is an effective software development cycle to serve user needs.
The development of high quality Single Best Answer questions for a national undergraduate finals bank

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Background: Since 2003 members of UK Medical Schools have collaborated to establish a bank of shared MCQ style questions. Most UK schools now contribute to a scheme overseen by the Medical Schools Council Assessment Alliance (MSCAA). An ongoing challenge has been the quality assurance of the questions. Here, we describe a recent innovation to address this.

Summary of Work: Three-day item review workshops are run twice yearly, where attendees (drawn from across UK medical schools) review questions submitted by undergraduate assessment teams. A second smaller subgroup of experienced undergraduate assessment clinicians then refine these questions (through round table iterative discussions), before designating them as ‘Approved for Finals’. Each year, medical schools are provided with a selection of approved common content questions to incorporate within their finals examinations.

Summary of Results: Analysis of performance data has shown an improvement in the quality of ‘Approved’ questions over the past three years. In keeping with this, uptake of the common content questions across Schools has increased.

Discussion and Conclusions: Utilisation of assessment expertise from across UK Medical Schools, in an iterative process of question review/refinement, has contributed to improving previous quality assurance concerns. Despite the challenges of working across so many different institutions, we have shown it is possible to work collaboratively to produce a resource that the majority of UK Medical Schools are comfortable using within their finals exams.

Take-home messages: The quality assurance of questions is an iterative process that depends on repeated cycles of review. Collaborative working across Schools has enhanced confidence in and use of the national bank for UK finals examinations.

Do multiple true-false items beat the commonly used one-best-answers questions regarding to the Ottawa Criteria for Good Assessment? Results of a literature review

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Background: Multiple True-False-Items (MTF-Items) might offer some advantages compared to one-best-answer-questions (TypeA) as they allow more than one correct answer and may better represent clinical decisions. However, in medical education assessment MTF-Items are seldom used.

Summary of Work: With this literature review existing findings on MTF-items and on TypeA were compared along the Ottawa Criteria for Good Assessment, i.e. (1) reproducibility, (2) feasibility, (3) validity, (4) acceptance, (5) educational effect, (6) catalytic effects, and (7) equivalence. We conducted a literature research on ERIC and Google Scholar including papers from the years 1935 to 2014. We used the search terms “multiple true-false”, “true-false”, “true/false”, and “Kprim” combined with “exam”, “test”, and “assessment”.

Summary of Results: We included 29 out of 33 studies. Four of them were carried out in the medical field Compared to TypeA, MTF-Items are associated with (1) higher reproducibility (2) lower feasibility (3) similar validity (4) higher acceptance (5) higher educational effect (6) no studies on catalytic effects or (7) equivalence.

Discussion and Conclusions: While studies show overall good characteristics of MTF items according to the Ottawa criteria, this type of question seems to be rather seldom used. One reason might be the reported lower feasibility. Overall the literature base is still weak. Furthermore, only 14 % of literature is from the medical domain. Further studies to better understand the characteristics of MTF-items in the medical domain are warranted.

Take-home messages: Overall the literature base is weak and therefore further studies are needed. Existing studies show that: MTF-Items show higher reliability, acceptance and educational effect; MTF-Items are more difficult to produce
#5CC15 (28096)
Enhancing discrimination: the impact in students’ grades

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Background: Multiple choice examinations should discriminate students based on their knowledge. In order to have a good quality assessment, poor discriminating questions can be eliminated to improve the discriminating power of the examination.

Summary of Work: The objective of this work is to determine the effects of using a two-parameter Item Response Theory (IRT) model on ensuring the discriminative value of a physiology’s examination and to evaluate its influence in the approval rate, mean score and higher scores of the tests.

2nd year medical students were submitted to a final examination of physiology discipline. After taking the test, the students had access to it and freely contested all the questions they wanted. Then, the claims were analyzed and, if found appropriate, questions were eliminated or the key was changed. Afterwards, two-parameter IRT model was applied to each test. MCQs with factor loading lower than 0.2 were eliminated, and final scores readjusted. To compare differences before and after the elimination, paired sample t-test and McNemar test were used.

Summary of Results: The difficulty and discrimination parameters increased after the MCQs elimination. The student’s mean grade increased and the higher was the grade the higher was the difference after the elimination of the questions. The approval rates also increased after the elimination of poor discriminating questions.

Discussion and Conclusions: Two-parameter IRT model enhances the discriminative value of an examination. We demonstrated that the application of this model do not reduce approval rate, mean score and higher scores of the tests.

Take-home messages: Improving discrimination is not disadvantageous for students and rewards high-achieving students.

#5CC16 (27557)
Determination of Multiple Choice Questions (MCQ) Levels According to Bloom’s Taxonomy and Evaluation Quality

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Background: Skill is required for preparing multiple choice questions (MCQ). MCQs are often preferred due to ease of application and analysis, high content validity, and objectivity. We aimed to evaluate quality of MCQ that were used exams in Ataturk University Faculty of Medicine. Further, MCQs were classified according to the Bloom’s Taxonomy (BT). We compared quality of MCQ between those receiving a training course and not.

Summary of Work: We selected 945 questions from question bank and researched quality, difficulty and discrimination index. We classified them according to determining the level of BT one by one reading. We assessed difficulty and discrimination index according to the BT level. Data were analyzed using Chi-Square and one-way analysis of variance test. A two tailed p value <0.05 was considered statistically significant for all comparisons.

Summary of Results: The good quality questions rate was 44.1% (n=416). Greater number of questions were in level of knowledge and comprehension. According to BT levels there was no statistically significant difference in mean index of difficulty while there was difference in mean index of the discrimination (p=0.011). The difficulty level was found lower in those who have received a training course when compared to the group who have not received a course. Meanwhile there was no difference in questions of the discrimination index in these groups.

Discussion and Conclusions: Preparing MCQ should be encouraged at higher levels of BT. MCQ preparation should be more concentrated on in education in Training of trainers course.

Take-home messages: According to the BT, the discrimination index was found to be effective while difficulty index shown to be ineffective.
Implementing assessment and measurement methods to improve reliability of residency In Training Multiple Choice Question examination

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Background: In-Training Examination (ITE) is an assessment tool for program directors, and a self-assessment tool for residents. It correlates well with subsequent performance on the American Board of Internal Medicine certifying examinations.

Summary of Work: This study is in intended to measure the validity and reliability of the ITE of the pediatric residency program as a discriminator of real resident knowledge and clinical judgment.

Data were collected from the pediatric residency in- training Multiple Choice Questions Exam. Classical Test Theory was applied for assessment of the reliability. CITAS program was used to provide the item analysis statistics and then using the KR20 to estimate the internal consistency reliability of the test.

Summary of Results: The calculated reliability is 68%. Item analysis was conducted according to “Haladyna (2004)” classification. It identified 18 MCQs of level I, 13 of level II, 10 of level III, and 21 of level IV. Level IV MCQs included 11 questions with a difficulty index >0.91, reflecting its extreme difficulty, while 10 MCQs had a difficulty index of less than 0.24.

Discussion and Conclusions: The study demonstrates that our in-training MCQs examination has an acceptable reliability; if considered as a low stake examination.

Take-home messages: The application of the analysis process on subsequent examination will provide a pool of good discriminating items and will initiate a reliable question bank.

Technical flaws in the multiple choice questions in the access exam to medical specialties (“examen MIR”) in Spain (2009-2013)

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Background: The main factor that determines the selection of a medical specialty in Spain is the MIR exam. The aim of this study was to analyze the technical quality of the multiple-choice questions included in exam.

Summary of Work: All the questions included in the exams from 2009 to 2013 were analyzed. We studied the proportion of questions including clinical vignettes, the number of items related to an image and the presence of technical flaws in the questions. For the analysis of technical flaws, we adapted the National Board of Medical Examiners (NBME) guidelines. We grouped into issues related to testwiseness and issues related to irrelevant difficulties.

Summary of Results: The percentage of items based on clinical vignettes increased slightly and then remained stable at approximately 56-58%. The percentage of items based on an image increased progressively from 10% in 2009 to 15%. The percentage of items with at least one technical flaw varied between 68 and 72%. We observed a decrease in the percentage of items with flaws related to testwiseness. While most of these issues decreased dramatically or even disappeared (such as the imbalance in the correct option numbers), the presence of non-plausible options remained frequent. As opposed to the previous category, we observed no improvement in technical flaws related to irrelevant difficulties, especially regarding negative stem questions and “hinged” questions.

Discussion and Conclusions: The formal quality of the exam items has improved over the last years with regard to testwiseness. A more detailed revision of the items submitted, checking systematically for the presence of technical flaws, could easily improve the validity and discriminatory power of the exam, without increasing its difficulty.

Take-home messages: A detailed revision of the MIR exam could improve the validity and discriminatory power without increasing its difficulty.
#5DD Posters: Leadership and Management
Location: Hall 4, SECC

#5DD01 (27088)
What do junior doctors think about their mandatory management development programme?

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Background: Since 2009 a management development programme of 30 ETCS is mandatory for all physicians and dentists in specialty training at the University of Helsinki. We wanted to find out their thoughts on the usefulness of this programme.

Summary of Work: We used the numeric (Likert-scale 1-5, where 5 = totally agree) and written feedback (n = 134 junior doctors) on three two-day learning modules and analysed it with quantitative and qualitative content analysis.

Summary of Results: The topic of the module was found interesting by 77% (Likert values 4-5), and 68% said that it was of use for their work. There was some variance according to the learning module: 1) Leadership and organisation (useful by 69%), 2) Ethics, law and patient safety (useful by 81%), 3) Processes and resource management (useful by 54%). “The most important lesson for me was how much management and leadership is linked into "ordinary" doctor’s work.” “You can memorize the rules and regulations but more reflection and practice is needed for good people skills.”

Discussion and Conclusions: Evidence suggests that effective clinical leadership yields superior clinical outcomes. The leadership responsibilities may be unexpected for frontline junior doctors because their training does not focus too much on leadership. Mandatory management development programme addresses these shortcomings.

Take-home messages: The feedback is valuable for programme improvement, but decisions on its content have to be made with the overall aim in mind: better specialists. Including mandatory components is a way to reconstruct specialist training.

#5DD02 (26874)
Developing a project management skills workshop to improve the quality of student-led community involvement projects (CIPs)

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Natarajan Rajaraman, National University of Singapore, Saw Swee Hock School of Public Health, Singapore
Suganthi Narayanasamy, National University of Singapore, Saw Swee Hock School of Public Health, Singapore
Sri Chander Tikamdas Nebhr, National University of Singapore, Saw Swee Hock School of Public Health, Singapore
Keith Lim*, National University of Singapore, Yong Loo Lin School of Medicine, Singapore

Background: Project management skills are not part of formal curriculum for most medical schools. However, given the nature/interest of students, CIPs are a large part of student life. We thus initiated a program to educate students on how to conduct safe, meaningful and sustainable CIPs using skills such as the Theory of Change and the Logic Model.

Summary of Work: 2 pilot workshops were run in 2014/5 - one involved students well experienced in CIPs, the other novices. Through lectures and small group discussions around real-life situations, students were taught to use the logic model, conduct a needs analysis, perform risk and safety assessments, and implement monitoring and evaluation plans. They were asked to design and present new CIPs using pre-set scenarios to experienced faculty, and to implement changes in their existing CIPs. The effect of these workshops on project management skills knowledge and impact on existing CIPs were assessed via pre/post surveys.

Summary of Results: 45 students were assessed. All students felt the skills taught were practical and applicable to their CIPs. Students’ knowledge scores pre- and post- workshop significantly improved across all domains (p<0.001) regardless of prior CIP experience. Post workshops, 100% of students surveyed had implemented improvements to their existing CIPs to improve effectiveness, sustainability and safety.

Discussion and Conclusions: Creating awareness of project management skills and facilitating transfer of knowledge is possible through customized skills-training workshops utilizing a situation based learning approach.

Take-home messages: Acquisition of project management skills is crucial to the success of CIPs and should be considered taught in medical schools involved in CIP work.
Development of leadership and management skills through undertaking a service improvement project

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Background: In today’s ever-changing health care environment, doctors require leadership and management skills to enable them to provide direction for the generation of new pathways and guidelines. In recognition of this, we, as trainees, have designed and undertaken a quality improvement project to introduce routine outpatient management of Hyperemesis Gravidarum in our unit to aid our development of these skills.

Summary of Work: We developed a conceptual framework, approached our consultants and implemented the change through the standard trust pathways, with aim of developing a sustainable guideline. We looked at pregnant ladies diagnosed with Hyperemesis and their management. This information together with published work was used to provide support for our change.

Summary of Results: Following initial introduction we intend to develop a business case to ensure the service is sustainable. During the project we were able to develop our leadership skills through experiential learning, supported by a peer mentor.

Discussion and Conclusions: People and organisations who seek to promote more sustainable practices as ‘agents of change’ typically face considerable challenges. We tackled these challenges in a methodological way, initiating with gathering knowledge from some guidance and research work, formulating evidence based strategy and approaching and interacting with enthusiastic and experienced leaders to guide us and included inputs from target audience. This project was a big learning curve and inculcated motivation, assertion, systematic planning, persevering and accepting responsibility and many more qualities of a successful leader.

Take-home messages: Traditionally management and leadership roles are taken-up later in the career pathway. We believe our experience demonstrates how encouraging the development of leadership and management skills through undertaking service improvement projects early in the medical career pathway can have benefits for both, the individual and the organisation.

How do a cohort of final year medical students perceive compulsory MLM teaching? A pilot study

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J Matthews

Background: With the aim of providing excellent patient care, the GMC’s 2009 “Tomorrow’s Doctors” recommended the incorporation of effective medical leadership and management (MLM) into undergraduate education. However, medical student exposure to MLM remains highly variable between universities.

Summary of Work: The Birmingham Medical Leadership Society and the medical school arranged a compulsory lecture for a cohort of final year medical students. Two local hospital managers delivered the lecture. Attendees completed anonymous evaluation forms after the event to investigate attendee demographics, perceived usefulness of the event, knowledge gained, and relevance to attendees’ career motivations and ambitions.

Summary of Results: 146 attendees completed feedback forms. There was a 2:1 female to male ratio. Knowledge of MLM improved, with the modal answer progressing from 2 before, to 6 after the lecture, on a 0-10 scale. 47% of attendees rated MLM teaching as ‘extremely important’ or ‘important’. Of particular note, 59% of attendees said MLM should be first introduced during the clinical years of medical school.

Discussion and Conclusions: This teaching was generally well received with indications that it improved attendees’ knowledge and understanding. Feedback suggested no preferred mode for MLM learning but open questions suggested optional small-group sessions might be favourable. The importance of MLM was effectively communicated and the compulsory teaching was introduced at an appropriate stage for medical students.

Take-home messages: The majority of students indicated that MLM teaching should first be introduced during the clinical years of medical school. Authors recommend explicitly emphasising the relevance of MLM throughout student’s careers.
Development of a business placement scheme for veterinary students

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Background: The School of Veterinary Medicine and Science, University of Nottingham (SVMS) has an innovative curriculum which includes an emphasis on professional skills and employability. A core business skills element of this curriculum is compulsory for all students. This paper describes the development of an optional business placement scheme, delivering experiential learning in the workplace and further enhancing the employability of graduates.

Summary of Work: Two week placements have been developed in partnership with a veterinary marketing company. Students work alongside consultants visiting practices and producing a "fixer" report analysing business objectives, key performance targets and operational activity. They also participate in teamworking and leadership training.

Summary of Results: Placements have been very popular with students, and feedback from participants, including the veterinary practices involved, is extremely positive. Students also use the placements to engage in reflection around the ethics of business activity, which can be a challenging topic to discuss.

Discussion and Conclusions: It is crucial that learning opportunities for veterinary students include business skills, and these placements deliver teaching in an authentic and engaging environment. SVMS has worked closely with the university careers service throughout this project and it is now included within our employability partnership agreement. Future plans include expansion to other aspects of the industry together with inclusion as a credit bearing module in the voluntary Nottingham Advantage Award.

Take-home messages: Business placements provide a unique opportunity for veterinary students to enhance their employability and ensure they are fully equipped for the workplace.

"Look after the Pennies and Dollars will Look after Themselves" Memorial University's Financial Services Initiative for Undergraduate Medical Students

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Philip Kearley, Memorial University of Newfoundland, Office of Student Affairs, St. John's, Canada
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Kristin Harris-Walsh, Memorial University of Newfoundland, Office of The Dean, St. John's, Canada
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Warman Andrea, Memorial University of Newfoundland, Office of Student Affairs, St. John's, Canada

Background: Recognizing the unique financial challenges that undergraduate medical students face, Memorial University of Newfoundland’s Faculty of Medicine developed a model that integrates financial education within the new curriculum and provides enhanced supports throughout students’ medical education.

Summary of Work: A formal curriculum that includes instruction on financial aid, debt management and insurance is offered during Phase 1 of the new undergraduate program (first cohort class of 2018). At the end of Phase 4 students will be taught financial transition to residency. Throughout the four phases, individual consultations are provided with a dedicated financial services consultant.

Summary of Results: Results from Memorial’s 2014 Student Evaluation Questionnaire (SEQ) indicate that, for the class of 2018, 82-84% of students were satisfied with different aspects of Memorial’s financial services. These same services satisfied 78% of Phase 3 students, 72-74% of Clerkship Year 1 students, and 52-56% of Clerkship Year 2 students. Results from Memorial’s 2014 Canada Graduate Questionnaire (CGQ) indicate that 41.7% and 14.6% of the class of 2014 were satisfied or very satisfied with financial aid services and 36.7% and 12.2% with debt management counselling.

Discussion and Conclusions: Our data demonstrates that students in the new curriculum are benefiting from the enhanced approach to financial services through changes in our approach to financial services. We anticipate this will continue with future cohorts as the financial support services model is adjusted accordingly.

Take-home messages: Memorial’s curricular integration of financial support services alongside its enhanced financial counselling program is effective in assisting students as they navigate financial issues during their undergraduate and postgraduate medical training.
Triumvirate Leadership Programme for Primary Care

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Karen Storey, Health Education West Midlands, Primary Care, Birmingham, UK
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Background: General Practice is undergoing transformation in the UK in response to changing demands of patient population, public expectations, health budget and technology. Practices are exploring new models of integrated care. The workforce is changing with increased use of nurses and allied health professionals. GP federated groups and super-partnerships are increasing. Based on a ‘triumvirate model’ a leadership programme was developed to support GP practices in responding to the new NHS agenda.

Summary of Work: The aim of the programme was to provide a leadership approach adopted by three key roles within general practice; GP, Practice Nurse and Practice Manager. This triumvirate leadership approach was designed to allow the practices to optimise their success in these challenging times, build sustainability thus unlocking their potential.

Summary of Results: 72 participants from 24 West Midlands GP practices undertook a 9 month leadership programme. Participants met on a monthly basis forming 5 action learning sets. Themes included: Service Redesign, Business Development, Patient Experience, Improving Patient Access, Change Readiness, Leadership in Primary Care, Succession Planning and Programme/Project Methodology. The course ran from March 2015. We will present early outcomes and evaluation of the first 6 months.

Discussion and Conclusions: Leadership training is often based on individuals rather than based on learning with pairs or trios from the same organisation. We believe the triumvirate approach will encourage practice nurses to take on leadership roles within practices, and that changes implemented will be more sustainable.

Take-home messages: The triumvirate approach is a unique and useful model for education especially for quality improvement and leadership.

Leader in clinical education - a new concept in specialist training

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Background: There is a need to change clinical workplaces into better learning environments. In the prevailing clinical culture, education activities are often under hard press. As educators, clinical teachers usually have a non-structured approach.

Summary of Work: January 2014, a new specialist training programme “Leader in clinical education” was launched as a strategic initiative, focusing three areas: 1) Professional development and leadership, 2) Higher education and workplace learning in medicine 3) Systematic quality improvement in health care. The programme comprise one d/week during 2.5 year, including courses corresponding to 30 ECTS. Doctors in specialist training from all clinical disciplines were invited and eight were recruited.

Summary of Results: Participants’ reflective assessments display a better understanding and curiosity of learning processes in adult education. Better skills were reported in leadership issues, including self-awareness and group dynamics. A lower threshold to start change processes at the workplace was conveyed. Results from ongoing quality projects will also be presented. The programme fills a gap and represents a new pathway for doctors in specialist training. Moreover, it upgrades the value of education on a system level. An important factor was support from the the Region of Västra Götaland, compensating participants’ loss of income from prolonged specialist training.

Discussion and Conclusions: In a pilot ST-programme, a synergy was achieved from building up skills as a leader, educator and developer. The programme so far has been feasible.

Take-home messages: Preliminary results from a new ST-programme qualifying leaders in clinical education are promising.
Overestimating confidence in leadership and management skills among future surgical hopefuls - is there a need for a better assessment tool?

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Background: The need to develop leadership and management skills among medical students is recognised as an integral part of the curriculum and a quality that aspiring surgeons are required to demonstrate on post-graduate applications. This study compared the management/supervisory needs of a group of medical students aspiring to a career in plastic surgery with medical students who had not identified as future surgeons.

Summary of Work: A Hennessey-Hicks Training Needs Assessment questionnaire was administered to undergraduate medical students showing no preference for surgery (n=120) and compared with medical students (n=28) attending the Undergraduate Plastic Reconstructive and Aesthetic Surgery conference (UPRAS) who had all identified themselves as hopeful future plastic surgeons. The questionnaire is a validated tool used to expose disparity between individuals' ability to perform tasks which they perceive as important to their future career as doctors.

Summary of Results: Analysis of the results showed that the students with no preference for surgery perceived managerial/supervisory tasks to be of high importance while ranking their ability to perform them as low. Students attending UPRAS also ranked the management/supervisory tasks of high importance but ranked their current ability to perform these tasks as high.

Discussion and Conclusions: The needs analysis showed that medical students identify leadership/management tasks as being of high importance to their future careers, however, a cohort of medical students with an affinity for a career in plastic surgery perceive satisfactory performance in management and leadership skills.

Take-home messages: Leadership and management skills are important. A robust assessment tool is needed to ensure the perceived improvement in skills is accurately assessed.

Where does the yellow brick road lead? The journey of the Scottish Clinical Leadership Fellows

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Background: In 2009, at the 60th anniversary of the NHS, the Professionalism and Excellence group reviewed NHS Scotland’s working climate and practices. The development of leadership capabilities within NHS Scotland was identified as a key priority. From this review, the Scottish Clinical Leadership Fellows were born. Starting in 2014 and hosted by a variety of government and healthcare organisations, 10 trainee doctors have been employed in the programme.

Summary of Work: Fellows are embedded in these organisations and boards across NHS Scotland and carry out a variety of networking roles, attendance and input into committee and board meetings as well as work on projects based within their host organisations. We are part of the wider leadership development within NHS Scotland and are in a privileged position to maximise current enthusiasm for medical leadership within the NHS.

Summary of Results: Fellows have interacted within these organisations and boards across NHS Scotland and carry out a variety of networking roles, attendance and input into committee and board meetings as well as work on projects based within their host organisations. We are part of the wider leadership development within NHS Scotland and are in a privileged position to maximise current enthusiasm for medical leadership within the NHS.

Discussion and Conclusions: While much of the project work remains underway, the fellowship is in the process of developing further with increased recruitment and further development of programmes such as Paired Learning. The fellowship has been a valuable additional year to all the doctors involved and will continue to develop the value of medical and clinical leadership in the future of the NHS.

Take-home messages: Every medical professional demonstrates leadership; from small routine tasks to emergent situations. These skills can no longer be overlooked in today’s medical education.
Uniting Medical School Specialty Societies at a National Level

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Background: Medical schools have a number of medical specialties societies. They organise events ranging from lectures and practical skills teaching to fundraising for a charity. Our aim as the DermSoc UK committee was to bring dermatology societies across the UK together, to share their ideas and provide inspiration.

Summary of Work: Two National DermSoc Days were organized for DermSoc members and interested medical students, kindly supported by the British Association of Dermatologists.
• The first event included career based talks, a talk by British Skin Foundation (BSF), and a discussion session looking at existing DermSoc endeavours, ideas for future events and introduced a national fundraising drive during BSF’s Skin Cancer Week.
• The second event was dedicated to dermatology related medical electives and research experience, concluded with a talks looking at the interaction of dermatology with other specialties.

Summary of Results: Feedback forms were collected, and responses analysed as Excellent, Good, Fairly Good, and Poor. 16 attended the first event, out of the 7 feedback forms, 6 rated the program as excellent, and 1 as good. For the second day, there were 46 attendees, and 34 feedback forms. 20 rated the program as excellent, and 14 as good.

Discussion and Conclusions: - Students found both national days useful
- Idea sharing for societies was particularly commended
- National fundraising event raised £664.78

Take-home messages: National events to unite university societies can help maintain local activity and inspire new events.

A systematic review of the standards of clinical audit practice in UK hospitals

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Background: Participation in clinical audits is mandatory for healthcare professionals in the NHS to monitor and improve quality. Re-auditing is a key element for the completion of audit cycles and determines its success. This systematic review analysed published reports of clinical audit assessments in UK hospitals within the past two decades, to assess their overall quality and audit cycle completion rates, and to identify elements that facilitated the production of a successful audit.

Summary of Work: A literature search was conducted on EMBASE, MEDLINE, CINAHL, HMIC, TRIP database, Evidence Search, Cochrane Library and Google Scholar using keywords “audits”, “audit of audits”, “completion rate” and “hospitals” between 1994 and 2014. An additional handsearch was done for relevant papers. Only UK studies were included.

Summary of Results: Of the 1029 search results, 12 relevant publications were reviewed. 877 clinical audits were analysed. Only 147 audit projects (17%) have been completed with an audit cycle. 138 out of 283 audit projects (49%) led to implementation of action plan. Recommendations to improve clinical audit programmes include: audit training, careful project planning, involvement of the local audit department and senior staff, multidisciplinary approach, adequate handing over of projects, and periodical audit reviews.

Discussion and Conclusions: Low completion rate is a major concern for the effectiveness of clinical audits across NHS hospitals. Not only does this lead to valuable time and resources being wasted, the educational and core value of clinical audits are also jeopardised.

Take-home messages: Evaluation of local audit practice is highly recommended to improve audit monitoring and effectiveness.
Lessons learned: From conception to outcomes of the KELDAT-project

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Background: In October 2012 the Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine was established. Within a cooperation agreement among all German-speaking veterinary universities common goals were defined.

Summary of Work: To improve the quality of veterinary education a concept of objectives, subdivided to 7 work-packages, was developed. Some of the predefined key-aspects are: investigation of curricular alternatives, consultancy and trainings, cooperation in the field of teaching and quality management. Particularly the pooling of resources and expertise of the participating institutions was utilized to meet these objectives.

Summary of Results: Monthly online meetings of experts from all universities were arranged. Yearly didactic-symposia were conducted. A SWOT-analysis of curricular alternatives was performed. The Progress Test in Veterinary Medicine was implemented. More than 75 training-sessions of faculty staff with approximately 1500 participants were performed. Monthly online lectures with an average of 97.7 participants were held. 13 scientific studies in veterinary educational research were promoted. 3 prices for educational research were procured. The quality management system was successfully certified complying with the requirements of standard ISO 29990:2010.

Discussion and Conclusions: Different ways of working and teaching at the various faculties provide both enrichment and a hindering barrier. Even in spite of competition cooperation is possible. Although not all predefined milestones were met in their entirety, the overall achievements of the project are more than previously expected. The established network between veterinary universities leads by example and retains even after funding period.

Take-home messages: The foundation for further projects and incentives for contributions to educational research in veterinary medicine are set.

Developing sustainable medical education solutions in Africa through south-to-south collaborations

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Background: Stellenbosch University (SU) in South Africa, and University of Botswana (UB) forms part of the Medical Education Partnership Initiative (MEPI), a network of 13 medical schools in Africa funded by PEPFAR. MEPI aims to improve the retention of medical graduates in Africa through improving their quality and quantity, and has facilitated significant growth in medical education in Africa. South-to-south collaborations is a mechanism for building sustainability. This abstract describes the development of collaborations between SU and UB and shared best practices that enhances medical education in both countries.

Summary of Work: MEPI built on existing mutual agreements between the two universities, as well as a pre-existing project for the development of Family Medicine. Benchmarking visits were conducted to review existing collaborations and initiate new ones in areas supported through the MEPI program. Best practices, lessons learnt and established relationships between relevant departments were reviewed.

Summary of Results: The areas identified to enhance medical education in both universities included the implementation of eLearning to strengthen distributive learning; faculty development in teaching and learning; health systems research support for health care workers and supervisors in rural sites; and capacity building for medical education publication.

Discussion and Conclusions: The MEPI network has enabled the strengthening of south-to-south collaborations through the identification of locally relevant best practices using limited resources.

Take-home messages: South-to-south collaborations are critical for providing locally relevant and sustainable solutions to enhance medical education. A summative evaluation of collaborative activities will need to be conducted to determine the impact of such collaborations.
The Educational Supervision Agreement in Wales: a survey of supervisors

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Background: To promote high quality postgraduate education and training and support the General Medical Council’s implementation plan, the Wales Deanery has developed the Educational Supervision Agreement (EdSA). This is a three-way agreement between Educational Supervisors, Local Education Providers and the Deanery which clarifies roles, responsibilities and expectations for all. To date 1237 Agreements have been signed.

Summary of Work: Evaluation of pan-Wales EdSA roll-out (2013-2015) employed a mixed-methods approach: questionnaires (n=191); interviews (n=11) with Educational Supervisors, and discussion with key stakeholders (GMC, All-Wales Trainer Recognition Group, Clinical Directors). Questionnaire data are reported here. Numeric data were analysed in SPSS; open comments underwent thematic content analysis.

Summary of Results: Survey respondents represented 14% of signed Agreements to date. Respondents believed the Agreement: professionalises the Educational Supervisor role (85%, n=159 agree/strongly agree); increases the accountability of Educational Supervisors (69%; n=132) and Health Board (69%, n=131); provides leverage to negotiate SPA time (72%, n=142) and CPD activities (71%, n=131). Respondents were comfortable to demonstrate required CPD accreditation (69%, n=131). They wanted more feedback on their Educational Supervisor role (82%, n=153). Seventy per cent (n=133) wanted the Agreement to exercise greater control and sanction; one suggestion was that consultant colleagues should regularly cross-check “the accountability of programme directors and educational supervisors”.

Discussion and Conclusions: Our evidence suggests that respondents believe the EdSA agreement will professionalise and support their Educational Supervisor role. Respondents show an enthusiasm for the Agreement and the maintenance of high standards.

Take-home messages: The EdSA provides a way to support, recognise and professionalise the role.

Review of PSU Cases Resulting with a Dyslexia Assessment

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Background: The Wales Deanery quality assures postgraduate medical and dental training in Wales. The Performance Unit (PSU) was established in 2008 to provide remediation and support for doctors and dentists in training/residents with identified performance issues. Referrals are classified into five categories; performance, safety and quality, communication, maintaining trust and progression in training. From 2008 to 2015 PSU has supported 905 trainees with 77% of positive outcomes. Since 2013 there has been an increase of cases requiring Specific Learning Disability (SPLD) assessment and support.

Summary of Work: A review of overall cases of trainees/residents referred to PSU to explore support available with focus on cases that resulted in diagnosis of SPLD. The review scrutinises the referral criteria, the agreed interventions and the outcomes.

Summary of Results: The review has found an exponential growth in the number of trainees/residents from 0 in 2008 to 10 in 2014. A total of 18 trainees/residents whose training progress was affected by reasons related to SPLD were referred for Dyslexia assessment. Our data indicates that over 60% were able to address the issues identified and continue in training or achieve completion of training.

Discussion and Conclusions: Screening for SPLD enables the trainee to request adjustments for exam and increases their chances of passing. By proactively identifying and addressing the issues trainees are facing combined with the provision of individualised support for trainees identified with SPLD enables them to progress through exams, continue in programme, and attain a CCT.

Take-home messages: Appropriate assessments and adjustments for SPLD support positive progression in Postgraduate Medical and Dental Training.
#5DD17
Moving knowledge into action: A new knowledge translation initiative of AMEE

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Background: The production of systematic reviews (SRs) is a fundamental element of secondary research and forms the foundation for evidence informed medical practice and teaching. SRs on their own, are often not sufficient for informing decision-making and changing practice. Implementation strategies such as those used in healthcare that are aimed at moving evidence into clinical practice, are an essential component of the knowledge translation process. As the main goal of the BEME Collaboration is transmission from opinion based to evidence informed teaching we are responsible for all the phases of the knowledge translation process including application of identified evidence in practice, and last but not least, evaluation of implemented interventions and outcomes.

Summary of Work and Results: The initial phase of the project included identification of main themes of medical education and evaluation of BICCs' areas of expertise. The current phase is focused on identifying the available resources, evaluating and agreeing on the quality of existing evidence, developing the framework for the medical education knowledge translation process, working out the documentation and quality assurance structure and finally on developing the first recommendation documents.

Discussion and Conclusions: The knowledge translation process has well-developed definitions and theoretical and practical foundations derived from EBM. Drawing from KT research in healthcare but recognising the unique attributes and contexts of medical education, our new initiative will follow the appropriate high quality standards for synthesizing research evidence and exploring ways to move HPE into teaching and assessment practices. The outcomes of this initiative will consider the specific characteristics of research in medical education, and the specific needs of the target group being medical education teachers and students.

Take-home messages: This is the first report on the new AMEE initiative focused on supporting medical teachers and trainers in the use of evidence to inform their day-to-day educational decisions.

#5DD18 (27113)
Position and bearing of a systematic literature review assignment in the training program of physician assistants

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Background: In physician assistants (PA) training programs many efforts are made to acquire core competencies in medicine, including scholarly activities as represented in the CanMEDS. In the past few years designing and conducting original research of limited dimension directly connected with clinical experiences was a major component of scholarly activities. However, such an assignment by its complexity and laboriousness turned out be less feasible. We wonder about valuable alternatives.

Summary of Work: Experts in medical research, clinical medicine and/or medical education were interviewed individually and in groups on the goals, dimension and assessment of science education in PA programs.

Summary of Results: One agreed on the overriding significance of conducting evidence based medical practice by PAs. This requires a strong focus on skills in a systematic and appropriate search of literature as well as necessary skills to assess the value and applicability of literature. A systematic literature research might be an appropriate and feasible assessment of the Scholar role and could be a valuable alternative to conducting original research in PA programs.

Discussion and Conclusions: Systematic research of the medical literature on topics derived from theirs clinical experiences can be considered as an instrument to attain important educational goals with regard to a science based medical practice. At the same time it might be used as valuable tool for the assignment in the final part of PA programs.

Take-home messages: Offering scientific education which fits within an educational program and is connected with practice is an ongoing challenge. The performance of systematic literature research should have a central role in PA programs.
A qualitative pilot study to understand the impact of rising tuition fees for prospective medical students across Europe

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Background: The tuition rate of medical studies in Europe has been rapidly increasing for over a decade. Reasons for this include the recent financial crisis and subsequent changes to the government budget impacting directly on university funding. Tuition fee varies from as low as £300 per year in Bulgaria to more than £9,000 per year in the UK, with foreign international students paying fees more than five times higher than their local counterparts.

Summary of Work: Students from various European countries were interviewed and their responses analysed to supplement a literature search of peer-reviewed journal articles relating the subject matter.

Summary of Results: Studies suggest that students who currently pay higher fees feel that financial considerations would be a major influence on their choice of specialty compared to those who paid less a decade ago. Furthermore, students from low socioeconomic backgrounds are more likely to leave medical school in the first two years of enrollment in medical school owing to constraints.

Discussion and Conclusions: In countries such as the UK where tuition fees have sharply risen, students have migrated to different countries across Europe such as the Czech Republic. Growth in tuition fees has negatively affected students from poorer backgrounds which risks medicine becoming an elitist profession.

Take-home messages: We believe our research will provide further insight into the correlation of medical school tuition fee and higher education career pathways.
#5EE01 (25676)
Does a reflective portfolio-mentoring program foster quality assurance of the introductory phase at Tuebingen University?

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Background: The transition from school to studies challenges students. It is necessary to support beginners early while fitting into their new role as students. In 2013, the Faculty of Medicine in Tuebingen introduced a reflective portfolio combined to a senior mentoring program. Beginners reflected about their start at university. While analysing the texts, we focused on which problems first term-students identified, how they handle them and in which fields they need urgent support. Thus we aimed to foster quality assurance of the introductory phase.

Summary of Work: A random sample of anonymous portfolios (n=71) was selected out of 2 semester cohorts (n=171 each). Qualitative content analysis was made by 2 independent raters. Structured focus group interviews with mentors (n=12) and questionnaires with students (n=171, return 52.6 %) were conducted.

Summary of Results: Six main problem areas were identified: learning strategies (46.5%), work-life-balance (22.5%), taking personal responsibility (21.1%) and others. Only 7% of beginners claimed having no problems. In case of learning strategies 82% knew some solutions; 63% initiated new strategies. 75% reported remedies relating to better work-life-balance; however only 25% implemented them. In contrast, about 75% had no solutions in taking personal responsibility. Majority benefitted from their mentors. “Submerging” students (5%) were identified early and received well-directed, individual support.

Discussion and Conclusions: The portfolios revealed relevant problem areas of beginners as well as the level of finding solutions and the degree of realization. Tailored remediation measures were designed.

#5EE02 (27706)
Surviving the wards: Teaching Essential Medical On call Skills

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Background: There is increasing focus on preparing medical students for their role as foundation trainees. Much of the current training focuses on clinical emergencies, with little emphasis on management of generic day to day scenarios. We devised a set of tutorials to equip medical students with the skills to manage common ward scenarios as foundation trainees.

Summary of Work: Five role-play and didactic style teaching sessions were delivered to small groups of (6-10) medical students as 1 hour interactive case based tutorials over eight weeks. Following this, 2 simulation sessions consolidated learning outcomes and their practical application. Examples of topics covered included assessment and management of pyrexia, falls and end of life care. This intervention was assessed through pre and post tutorial questionnaires consisting of 12 scenario based questions and generic feedback.

Summary of Results: All students reported improved knowledge, confidence and felt better prepared for foundation training. The mean pre-tutorial questionnaire score was 6 (50%) while the preliminary post-tutorial score was 10 (85%).

Discussion and Conclusions: This module is a useful addition of formalised teaching to more informal practical ward experience; ensuring standards of practice are maintained. We plan to prospectively follow these students on starting foundation training to compare confidence and skill mix to those who have not undertaken our module. Our module has shown an improvement in students’ performance, knowledge and confidence in dealing with common ward scenarios.

Take-home messages: Empowering new doctors with confidence in their everyday clinical tasks supports development and could help standardise health-care delivery during foundation years.
#5EE03 (26984)
The Impact of University Preparatory Program (UPP) on Medical Students’ Performance: Evidence from Alfaisal University

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Background: The transition from high-school to college education can be challenging. Accordingly, preparatory programs have been devised by medical colleges to smooth such transition. In Saudi Arabia, the effectiveness of such programs is barely examined. At Alfaisal University—College of Medicine (Riyadh, Saudi Arabia), the University Preparatory Program (UPP) is a 1-year pre-medical program that provides 8 English courses and revisits medically important concepts in basic sciences. This study aims to assess the effectiveness of the UPP on medical students’ academic performance across 3 academic years.

Summary of Work: UPP-cumulative grade point average (UPP-cGPA) and college-cGPA scores were retrieved. Two-tailed t-test was used to compare the means of cGPA between UPP-graduates and directly admitted students (DAS). Pearson Correlation Coefficient (r) test was used to explore the relationship between UPP-cGPA and college-cGPA.

Summary of Results: UPP-graduates achieved higher mean college-cGPA than DAS in the first-year (3.85 vs. 3.37; p=0.0003). However, DAS achieved higher mean college-cGPA than UPP graduates in the second-year (3.64 vs. 3.05; p<0.0002) and third-year (3.29 vs. 2.97; p=0.0042). There was moderate-to-strong positive correlations between UPP-cGPA and college-cGPA scores in the first-year [r=0.48, p<0.0001], second-year [r=0.63, p<0.0001] and third-year [r=0.80, p<0.0002].

Discussion and Conclusions: UPP graduates had higher academic performance (college-cGPA) only in the first-year. In subsequent years, DAS had higher college-cGPA scores than UPP graduates. The strength of (r) correlation between UPP-cGPA and college-cGPA increased dramatically throughout academic years.

Take-home messages: The UPP at Alfaisal University—College of Medicine facilitates the transition from high-school to college education. However, it does not substantially improve academic performance (cGPA) when compared to the DAS counterparts.

#5EE04 (23941)
Ability of Self-Adjustment in Medical Students in Clinical Year

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Background: Clinical clerkship is one of the most important periods for most medical students. However, studies regarding the adjustment in this condition are relatively limited. We aim to explore the adjustment and associating factors of adjustment among medical students in the clinical years.

Summary of Work: In this cross-sectional survey, data regarding personal information and ability of adjustment were collected from 4th and 5th year medical students at Surin Clinical Medical Education center, Thailand using self-administered semi-structured questionnaire.

Summary of Results: Fifty four of 4th and 5th year medical students were included. Most of them had good level in overall adjustment, academic adjustment, personal and emotional adjustment and social adjustment (77.8%, 57.4%, 66.2%, 72.2%, respectively). Median time of adjustment was 4 weeks. The factor that associated with ability of adjustment was grade point average (GPAX) of the pre-clinical years (P=0.001).

Discussion and Conclusions: Most of medical students had good level in overall adjustment in clinical training. Students with higher GPAX of the pre-clinical years tended to have better ability of adjustment.

Take-home messages: Providing of some assistance to accommodate their adaptation in those with lower GPAX groups might be required.
#5EE05 (27778)
Transitioning from traditional sub-internship to an interdisciplinary learning opportunity

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**Background:** In recent years an increased emphasis has been placed on understanding the transition from medical school into residency. Simultaneously, medical schools are under increased pressure to ensure graduates have skills in team-based patient care and have exposure to a wide variety of care settings. Assessment strategies, too, are moving past competencies to Entrustable Professional Activities (EPAs) and milestone-based assessment. At the University of Minnesota, we used these opportunities to redesign our medicine sub-internship.

**Summary of Work:** Over 2 years, we held meetings with key stakeholders and determined that a new 4-week sub-internship should be designed to emphasize: a) students’ responsibility for patients b) advanced clinical reasoning, c) interprofessional communication, and d) teamwork. Existing partnerships between surgical and medical intensivists assisted in securing additional clinical venues.

**Summary of Results:** The new sub-internship will incorporate opportunities in surgical, neonatal, pediatric, and medical intensive care units, as well as inpatient general medicine, all based on common expectations and clinical focus in both an academic medical center and community hospitals. There will be an emphasis on new workplace-based assessment tools that will inform the EPAs with an initial focus on handoffs. The revised curriculum begins June 2015.

**Discussion and Conclusions:** Challenges included accommodating longitudinal integrated clerkships, addressing concerns regarding reduced specific training in internal medicine, increased pressure on clerkship capacity, and design of new assessment tools. Harnessing existing collaborations among specialties can open new educational opportunities. Curriculum changes provide opportunities to change assessment strategies.

**Take-home messages:** Focusing on preparation for internship may pinpoint areas for educational collaboration.

#5EE06 (25111)
Is undergraduate education preparing doctors for the practical demands of FY1?

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**Background:** Undergraduate education should prepare students for FY1 clinical duties including practical skills such as time management and prescribing.

**Summary of Work:** FY1 doctors were asked to rate their preparedness for the practicalities of their job using a Likert scale, within 3 months of starting work (year 1). This was repeated after an examined practical prescribing tutorial was introduced at FY1 induction (year 2).

**Summary of Results:** 28/42 (67%) FY1s year 1 and 22/42 (52%) year 2 completed the questionnaire. Only 57% and 55% of responders agreed that they understood what was expected of them and 46% and 59% agreed that they were able to prioritise their daily workload effectively. Only 39% and 55% of doctors agreed they felt confident prescribing antimicrobials, 28% and 30% anticoagulation and 14% and 5% insulin. There was no significant change in responses after additional induction training (Mann-Whitney U, p>0.05). Only 50% and 68% of doctors agreed they were confident to perform ABG but all who reported performing >20 procedures prior to FY1 were confident.

**Discussion and Conclusions:** This survey highlights the difficult challenge of preparing students for the practical demands of FY1, specifically prioritising work, prescribing and performing basic procedures. Unfortunately many new doctors currently do not feel confident performing their expected practical role. The results suggest that improved medical induction does not significantly increase FY1 confidence but high numbers of practical procedures prior to FY1 are important.

**Take-home messages:** Further exposure and focus on the practical demands of the FY1 role should be considered at an undergraduate level.
Wardcraft: Junior doctors equipping medical students with practical knowledge and skills to improve clinical confidence

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Background: The transition from student to junior doctor can be stressful. Specific clinical, administrative, organisational and procedural skills (such as decision-making, prioritisation and prescribing) have been identified as important components of this transition, but may be under-represented in undergraduate curricula. These skills, which we collectively term “wardcraft”, are performed regularly by junior doctors, making them well placed to deliver teaching in this area.

Summary of Work: Final-year students and junior doctors were surveyed to identify important but under-taught skills necessary for working effectively within the Foundation Programme. Following review of their input, we developed six seminars, each comprising a short, didactic lecture followed by junior doctor led small group case-based teaching, aimed at developing wardcraft. Example tasks included emergency management, simulating telephone referrals, writing prescriptions and interpreting clinical data.

Summary of Results: Key benefits identified by students included relevance to training, the opportunity to practise wardcraft and to receive advice from practising junior doctors. There was a significant increase in students’ subjective confidence measured on a 10-point Likert scale following each seminar (mean 7.73 vs. 5.09 (p<0.0001)). Junior doctor facilitators identified the sessions as a valuable teaching opportunity and reported improved confidence in teaching.

Discussion and Conclusions: Students’ confidence in wardcraft can be increased through structured, interactive seminars. Junior doctors are well-placed to deliver these seminars.

Take-home messages: Wardcraft is an important but neglected area in undergraduate teaching. Teaching focusing on wardcraft is effective at improving student confidence. Junior doctors are well suited to providing practical information to students. Furthermore, their involvement provides opportunities to develop future clinical educators.

Simulation training for final year medical students: Design features and effects improving self-efficacy

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Background: Junior doctors do not feel well prepared when they start postgraduate training. Increasing self-efficacy can improve clinical performance and patient care. Factors affecting self-efficacy are currently unknown. Final year medical students participated in a simulated night shift in an emergency room conducted by peer teachers. Self-efficacy and contributing factors were measured.

Summary of Work: The simulated night shift took place at the skills lab of Charité medical school in October 2013. Participants saw seven prototypic cases in groups of five with different roles (team leader, team member and observer). Simulated patients, high-fidelity simulation, multi-source feedback and vicarious learning were implemented during the simulation. Feeling of preparedness was measured at baseline, after each case and five days after the event. We also conducted an evaluation of each case.

Summary of Results: 30 students participated, 18 completed all surveys. Compared to the baseline value (Mean -0.34) feeling of preparedness increases significantly (Mean 0.66, Wilcoxon signed-rank test p=0.001, Cohen’s d=1.86) after the simulation. Confidence after simulation is independent of the role during simulation (ANOVA F(2,52)=0.123, p=0.884). Observers are able to estimate leader’s confidence independent of their own confidence (Pearson’s r=0.188, p=0.32) in contrast to team members (r=0.61, p<0.001).

Discussion and Conclusions: Simulation is an effective way to improve self-efficacy. Moreover groups can include observers as participants without lowering the effect of simulation. These results provide a convenient way for educators to both increase simulation efficiency and students self-efficacy. Different roles may be beneficial for multi-source feedback.

Take-home messages: Clinical performance and self-efficacy of prior insecure junior doctors may be increased by best-practise simulation training.
#5EE09 (27812)
Preparing for practice – Does the level of acute care experience matter?

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Background: New graduates are expected to ‘provide immediate care in medical emergencies’ (GMC2009) from their first day and accordingly should feel prepared to do so. Following the introduction of ‘student assistantships’ in 2011/12, aimed at increasing ‘hands-on’ experiences in the UK, this study explores levels of acute care experience (real-life and simulated) and its effect on preparedness.

Summary of Work: A questionnaire was completed by new Foundation Year One (F1) doctors (n=356, 93.1% response rate) on their first day of practice. Data on experience of specific acute care situations during undergraduate study, and overall number of real-life and simulated emergencies was collected and correlated to levels of preparedness.

Summary of Results: Participating in an acute care scenario has consistent benefits for preparedness over observing, although observing is of value for some conditions. However, opportunities to gain hands-on experience vary between conditions, with large numbers of new graduates never having seen anaphylaxis (67%), opiate overdose (48%) or DKA (33%). Repeated exposures to acute care situations, real-life (3+) or simulated (5+) is associated with significantly greater perceived preparedness.

Discussion and Conclusions: Despite student assistantships, ‘hands-on’ experience of real-life emergency situations is limited. As preparedness for acute care situations is associated with prior active participation and repeated exposures this highlights an on-going need to optimise experiential learning.

Take-home messages: Undergraduate active participation in acute care situations was associated with increased perceived preparedness and opportunities should be optimised. Increased preparedness observed by repeated exposures of either real-life or simulated acute care situations highlights the potential value of simulation as an adjunct where real-life experiences are limited.

#5EE10 (28127)
Exploring the Challenges Physicians Face at the Time of Transition to Practice

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Background: Transitioning to practice is unique phase of the physician lifecycle and a time when many new challenges are faced

Summary of Work: Interviews were conducted with new in practice physicians from across Canada to examine the experience of transition to practice and to discover some of the common elements within the challenges they faced at the time of transition to practice and what some of the underlying features were behind these challenges.

Summary of Results: Many physicians struggled with the logistical elements of setting up a practice as well as balancing their various roles as practicing physicians. Resident physicians are “protected” from several areas of a physician’s practice including some of the logistics of practice management, leadership roles, and the financial side of being a physician. This is due to the fact that both the practitioners and the trainees themselves do not feel that these elements are important in the medical expert learning they are required to master during training. Having a supportive environment including colleagues and mentors significantly helps the transitioning physicians face these challenges.

Discussion and Conclusions: There are several aspects of a medical practice that trainees are not exposed to during training. For this reason, the transitioning physicians are unprepared when they suddenly have to face challenges in these areas when they become practicing physicians.

Take-home messages: Physicians who are transitioning to practice face many challenges with regards to the logistics of real-life medical practice including elements of practice management and the financial side of medicine. These issues are a struggle because resident physicians are not well exposed to these elements during training as the culture of medicine makes these subjects somewhat unmentionable as the idealist view is that trainees should focus on the altruistic and medical-expert side of medicine rather than focusing on the logistical or financial side of medicine.
Medical students' feedback regarding their clinical learning environment in primary healthcare. Variations related to stages of their education

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**Background:** At our university, medical students spend 4-7 days in Primary healthcare (PHC) during nine out of eleven semesters. The aim of this study was to explore medical students’ perceptions of the clinical learning environment in PHC and how their perceptions vary at different stages of the education.

**Summary of Work:** Free text comments from course evaluations (using the Clinical Learning Environment and Supervision instrument) from spring 2014 were analysed. In total, 800 students (56%) from nine semesters agreed to participate in the study and 437 of these (54%) provided comments that were analysed using qualitative content analysis.

**Summary of Results:** Five main categories were found in medical students' feedback regarding their clinical learning environment: the relation to their supervisor, the atmosphere at the primary healthcare centre, the grade of trust and independence that they were given, how their placement was structured and the quality of the physical learning environment. The relationship to the supervisor was found to be continuously important throughout all stages of the medical students’ education while other aspects varied in importance throughout the education. The students’ need for trust and independence in patient work increased towards the end of the education.

**Discussion and Conclusions:** How medical students perceive their placements in PHC depends mainly on the quality of their relation to their supervisor but the focus changes for other aspects during the education, related to the students’ progress.

**Take-home messages:** The students’ perceptions of their clinical environment vary related to where they are in their development.

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, 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 2014/2015, 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 and 6th. Has an undergraduate administrator who distributed and collected the questionnaire. Comparisons between, students’ responses according to their studying years in the college and their gender were taken in consideration.

**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 male out of (150) representing 72.6 % and 95 female out of (130) representing 73%: the female students composite 48.5 % of the total responding students, while

**Discussion and Conclusions:** 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 student’s perceptions of the changes planned for the college of medicine King Abdulaziz University.
Development of the Brussels Clinical Evaluation

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Background: Following growing international interest in the educational environment of medical education combined with an actual need to reform the clinical education of undergraduate students at the Vrije Universiteit Brussel (VUB), the Brussels Clinical Evaluation (BruCe) project was set up in 2009.

Summary of Work: BruCe was developed in order to be able to investigate the educational environment during clinical rotations in the undergraduate Master phase of the 7 year medical training at the VUB. The choice was made to develop an explicitly student-based, practical enquiry, which combines an evaluation of both clinical teaching environment and teachers, that can be used within the variety of environments in which students do their clerkships.

Summary of Results: A development cycle was used, starting with literature review and focus group leading to BruCe 1.0. after which two pilot studies were conducted. A meta-enquiry and renewed literature review led to BruCe 2.0. with subsequent repeated meta-enquiry.

Discussion and Conclusions: BruCe 1.0., with 26 questions concerning the department and 5 questions concerning the evaluation of the teachers, was used from 2010 till 2011. The changes towards BruCe 2.0. were mainly concentrated on redundant, less relevant and/or less clearly formulated questions. BruCe 2.0 combines an evaluation of the clinical settings and teachers, to ensure a grounded base for educational changes within the clerkship program. Further meta-enquiries and statistical analyses on 3305 completed enquiries will have to be conducted to ensure the validity and reliability of the enquiry.

Take-home messages: Qualitative evaluation of enquiries allows fine-tuning in attendance of a sufficient number of data for quantitative analysis.

Is student satisfaction with learning environments related to medical schools’ number of admissions?

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Background: Experiences of clinical and nonclinical learning environments, as well as assessment and study environments influence student satisfaction with their medical schools. Student-tutor ratios (STR) may impact on their perception of clinical learning environments (CLE). The aim of this study was to analyze medical students’ satisfaction and STR in relation to medical schools’ number of admissions.

Summary of Work: A questionnaire was created, regarding learning, assessment and study environments in medical schools. 2037 portuguese medical students from eight schools participated in a cross-sectional study. Cronbach’s alpha (α) was calculated for internal consistency and principal component analysis (PCA) was conducted. Pearson correlations and multiple comparisons (ANOVA and Bonferroni tests) were analyzed.

Summary of Results: Assessment environments showed the highest satisfaction scores and CLE yielded the lowest scores. The national STR in clinical rotations was 7.53, with significant differences among medical schools. Schools with higher number of admissions showed the lowest scores of overall student satisfaction (r=-0.756;p<0.05) and student satisfaction decreased with progression in the medical course in schools with high admissions. High STR are strongly correlated with low levels of student satisfaction regarding CLE and inhibit the acquisition of competences.

Discussion and Conclusions: CLE show the lowest student satisfaction scores, which may expose the effect of high STR in clinical rotations. Depending on the number of admissions, significant differences between medical schools were found. Quality of teaching-learning strategies and articulation with hospitals might also be important variables.

Take-home messages: Medical schools with higher admissions might be more susceptible to lower scores of student satisfaction. High STR in clinical rotations might reduce the quality of CLE and inhibit the acquisition of competences.
Assessment of educational environment of surgical theater at Songklanakarind hospital in medical students’ perception

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Background: According to the gap between academics and practitioners, the educational environment might be the factor influence on the educational outcomes. The educational environment of surgical theater is the majority part of surgical education for medical students. Therefore, the relationship between the overall perception scores and the demographic determinants and GPA.

Summary of Work: Thai STEEM containing 40 questions, was used to assess the perceptions of medical students toward the learning environment in the surgical theater. The questions were given to 192 clinical students of Songklanakarind Hospital during June 2nd – July 7th, 2014. Non-parametric statistical analysis and the factor analysis were performed.

Summary of Results: Thai STEEM questionnaire (α = 0.890) was used as an assessment tool of educational environment of the surgical theater in Songklanakarind Hospital. The response rate was 62.5%. The overall STEEM median score was 132 which had statistically significant difference between genders while years and GPA had not. Factor analysis was suitable to performing correlation matrix (KMO=0.758). Ten components of the learning environment were found in this study (variance= 72.6%). Male rated the lower significantly score of the components of trainers’ personality and professionalism, reflection by trainers, and opportunity to prepare and practice than female.

Discussion and Conclusions: The medical students perceived that the educational environment is satisfactory where females rated higher than males. There are still gaps to improve in many aspects including supervision and teamwork, number of operating cases, opportunity to prepare and practice, and complexity of the operations.

Implementation of a new curriculum at the American University of Beirut Faculty of Medicine (AUBFM): effects on the learning environment and on student empathy

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Background: In 2013-2014, AUBFM implemented a new student-centered, integrated, medical curriculum, which emphasized not only the science and skills required, but also, the humane, moral, cultural, and social aspects of medicine and the personal development of students.

Summary of Work: Medical students following the old curriculum (Years 1, 2, 3, 4) and those following the new curriculum in 2013-2014 (Year 1), filled 2 questionnaires at the end of the academic year: the Jefferson Scale of Physician Empathy-Student version (JSPE-S) and the Dundee Ready Education Environment Measurement (DREEM).

Summary of Results: DREEM scores were comparable among the four classes under the old curriculum (score range: 98–105), but the Year 1 class of the new curriculum had significantly higher scores (score=124 vs 105; P<0.05). Similarly empathy scores were higher for Year 1 students under the new curriculum compared with their counterparts in the old curriculum (score=113 vs 97, P<0.05).

Discussion and Conclusions: The curricular innovations, which included fully integrated, organ-system based courses, new team-based methods of learning, sessions in medical humanities, patient shadowing, social medicine, a pass-fail grading system and mentoring in small groups, with emphasis on empathy, collaboration, competency and student autonomy, have delivered the desired goals set for the reform.

Take-home messages: This is the first study in the Arab World that looked at the effect of curricular restructuring on students’ perceptions of the learning environment and on their self-reported empathy. It shows that studied and well-planned curricular reform can improve the learning environment for students, and raise their empathy level.
The effect of an intercalated BSc in subsequent medical school performance depends on prior academic performance

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Background: Many institutions offer intercalated BScs for medical students, though their effect on subsequent performance is unclear. An analysis of the performance of students before and after undertaking an optional, one year, project-based BMedSc is reported.

Summary of Work: The class ranks (Rank) of students before and after undertaking a BMedSc after their 3rd or 4th year (YrPrior) were compared. The prior ranks of students were also classified (RankCat) as High (0-33.3 %ile), Mid (33.4-66.6 %ile) or Low (66.7-100 %ile). A repeated measures ANOVA was conducted with Rank as the repeated measure, and RankCat and YrPrior as between subjects' factors.

Summary of Results: The ranking of students improved (P<0.01) after undertaking a BMedSc (prior 48.0 %ile, after 42.5 %ile). RankCat had a highly significant (P<10-6) interaction with Rank as the repeated measure, and RankCat and YrPrior as between subjects' factors.

Discussion and Conclusions: Prior performance of a student has a marked effect on the performance in the medical course after undertaking a BMedSc. The reasons for these differences probably involve a complex interplay between the prior attributes of students, skills and attitudes acquired during the BMedSc and the demands of returning to medical studies. The selection and support of students should involve a consideration of the prior performance of students.

Take-home messages: Undertaking a BMedSc has an overall positive effect on subsequent performance, though the effects depend on the prior performance of the student.

Student Views and Experiences of Student Selected Components

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Background: Student Selected Components (SSCs) are modules selected by students within the undergraduate medical curriculum in UK medical schools. In 2009, the GMC required that a minimum of 10% of curricular time be available for student choice. SSCs at the University of Glasgow are 5 week dedicated blocks selected by students from a wide range of options and are undertaken in years 2, 3 and 4 of the curriculum.

Summary of Work: Students were asked to complete an online evaluation form at the end of their SSC module including free text comments. Two student focus groups were also asked for their views and experiences.

Summary of Results: In general students are very satisfied (Likert Scale) with the SSC programme. Almost all students enjoyed their SSC, found the subject matter more interesting than expected and would recommend it to a friend. The choice of SSC was determined by curiosity about the topic, thinking that it would be fun or considering it as a career choice. Suggestions for improvement included requests for more clinical teaching and less homework. Much of this was also reported by focus.

Discussion and Conclusions: SSCs were introduced in response to GMC recommendations to encourage students to expand their knowledge, skills and study subject areas of choice in greater depth. These findings suggest that students at the University of Glasgow fulfil these criteria.

Take-home messages: SSCs are positively evaluated by students and provide diverse opportunities to develop and expand learning. They also include potential implications for future career choice.
The rationales medical students used to determine their student-selected components

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Background: Student-selected components (SSCs) are the innovative educational strategy which has been promoted for more than 20 years. Since 2002, the Faculty of Medicine, Chulalongkorn University has added its SSCs to 34 credits: 18 credits in Year 1, 4 credits in Year 3 and 12 credits in Year 6. This research is to explain the rationale behind the study of SSCs for first-year and third-year medical students.

Summary of Work: The target population was 300 first-year students and 321 third-year students in 2014. An iterative approach to data collection was used. Qualitative inquiry was employed in the first stage to identify all possible reasons for SSCs selection. The outputs were grouped into 22 items under 5 categories and arranged into the questionnaire for Stage 2 data collection.

Summary of Results: First-year students tended to choose their SSCs based on opportunities to get good grades (22%), enjoyment in learning (14%) and their desires to try new subjects (13%). On the contrary, the reasons for Year 3 SSCs selection were diverse. The three most apparent reasons were: subject preference (17%), their desires to try new subjects (11%) and an attempt to make improvements (10%).

Discussion and Conclusions: Year 1 students viewed the SSCs differently from the curriculum planners. The SSCs should thus be reallocated to the later years of the curriculum when students can apply the SSCs to maximise their potential and shape their future.

Take-home messages: The curriculum: student’s perspective can be different from the planned curriculum. Curriculum monitoring is fundamental.

Electives for undergraduate medical education: a medical student’s perspective

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Background: Electives are a part of the medical curriculum which allows medical students to observe practices and gain experiences in different locations outside of the medical schools. It also provides opportunities for strengthening their knowledge and clinical skills.

Summary of Work: Introspective questionnaires were distributed to medical students who have graduated asking for their evaluation regarding electives they had done during their clinical years.

Summary of Results: The total numbers of respondents were at 72.7% of 128 medical student graduates of Srinakharinwirot University. Most of them (97%) have agreed that electives can provide extra higher-standard of medical competency in knowledge and extra-curriculum experiences. Enhancing clinical skills and self-directed learning competencies were selected by 95% of the responders while providing an effective time use for knowledge were at 94%. They indicated that places that are chosen for electives should not be limited to only other medical schools or healthcare workplaces (70.0%) here but should provide opportunities for overseas electives (64.0%). However, in regard to self-reflection in elective courses, only 30.0% of the graduate medical students have shown agreement. Electives have also been shown to affect the decision-making for choosing the students preferred working place for the future (97.0%). Further analysis has shown that their choice of a future career is congruent with their choosing of an elective in the fourth, fifth and sixth year for the medical students at the rates of 25.8%, 44.1% and 68.8%, respectively.

Discussion and Conclusions: The results indicate that medical students have an optimistic attitude toward electives while electives can provide better opportunities in enhancing their clinical skills.

Take-home messages: Electives have a role in the students’ clinical years in maximizing learning opportunities for medical students.
Enhancing dental electives through participatory research

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**Background:** Completion of an elective project at the University of Glasgow Dental School is a progression requirement and entails a period of self-directed and enquiry-led learning during year four. This study sought to uncover what students hoped to gain and would value from their elective experience. The outcomes would inform the redesign of the dental elective study programme and the associated quality assurance process.

**Summary of Work:** This qualitative study is situated in a constructionist epistemology and utilises a participatory research methodology. Three student co-researchers analysed data collected from their peers via electronic questionnaire and focus group meetings.

**Summary of Results:** The findings support maintaining autonomous, enquiry-led independent learning that the School presumed students wanted to experience during their electives, and also highlighted aspects of the elective which students particularly valued.

**Discussion and Conclusions:** This has allowed a deeper understanding of students’ perceptions of, and motivations for, particular elective projects, enabling the elective programme to respond to changing environments in education and global health. The conclusions are 14 recommendations to enhance our students’ elective experience, including levels of guidance tailored to students’ specific requirements and additional opportunities for wider dissemination of their studies.

**Take-home messages:** The widest possible range of elective projects should be supported. The independence and autonomy of the elective student should be protected. Institutional links with organisations both within and outwith the UK should be established.

Factors affecting medical students’ choice of elective attachment

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**Background:** Medical students are expected to go on an elective attachment in their final year. The aim for this in the curriculum is to expose the future doctor to different health systems so they can appreciate the weaknesses and strengths of the system they operate in.

**Summary of Work:** A retrospective electronic survey was carried out to determine what factors really influenced the students in choosing their destination.

**Summary of Results:** 101 students were surveyed. 61 responses were received, 58% Female and 42% male. Most influential factors were affordability, safety and reputation of destination as a holiday resort.

**Discussion and Conclusions:** Students are influenced more by economic and leisure factors rather than educational factors. A different approach may be needed to educate students on the real purpose of the elective attachment, or maybe to even short list destinations which they can choose from.

**Take-home messages:** The role of the elective attachment needs to be emphasised to medical students.
Preparing medical students for field experiences in low-resource settings: development and evaluation of a trigger video of medical students' experiences and large group discussion module

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Background: Medical students increasingly seek field experience in medically underserved settings. However, programs infrequently provide anticipatory guidance that meaningfully engages students in preparing for predictable challenges.

Summary of Work: Development and evaluation of a 30-minute trigger video and discussion guide for first-year medical students planning field experiences in low-resource settings, in international and domestic settings. The trigger tape features medical students describing unexpected dilemmas they experienced in their field experiences in projects intended to ameliorate health care disparities. Faculty-facilitated discussion followed each student-narrated dilemma. Intended learning outcomes focused on students' intent to identify strategies for dealing with defined challenges. Students also rated the relevance and impact of the session.

Summary of Results: Of the 93 participating students, most (over 90%) characterized themselves as “very likely” to: anticipate and plan strategies for dealing with potential risks to their personal safety, exposure to infectious diseases, and challenges to cross-cultural communication. Almost all (98%) of students characterized the session as helpful and would recommend it to other students. Students who disagreed characterized the session as “making them uncomfortable” or indicated the information could have been condensed into an e-mail summarizing key points.

Discussion and Conclusions: A focused, engaging educational intervention featuring medical students’ challenges in working in medically underserved populations can promote students’ preparation.

Take-home messages: A needs assessment for medical students planning field experiences in medically underserved settings informed an educational intervention that featured videotaped stories of medical students who faced unexpected dilemmas in their projects. The videotape triggers and faculty-guided discussions with subsequent students enhanced students' ability to anticipate and plan strategies for dealing with challenges.

An exploration of the provision of Global Health Education in Scottish medical schools

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Background: The UK General Medical Council’s document Tomorrow’s Doctors (2009) states that all students studying medicine in the UK should receive Global Health Education (GHE). This study aims to explore how this recommendation is being met in Scottish medical schools, through surveying students and staff members.

Summary of Work: An electronic survey was distributed via a student organisation, Medsin UK, to students and interested faculty members at all (n=5) Scottish medical schools. The survey included questions about the core curriculum, additional GHE opportunities and elective preparation. Senior students with an interest in GHE and staff members with a senior position or an interest in GHE were invited to participate. Staff and students from 4 universities responded. Qualitative framework analysis was conducted and data were independently coded by two individuals and compared to reach consensus on results.

Summary of Results: Respondents were from Glasgow (n=2), St Andrews (n=3), Aberdeen (n=1), and Dundee (n=1). All respondents reported that their institution delivered GHE, however there was considerable variation in the amount, methods and quality of content and delivery. GHE is evolving in all Scottish medical schools.

Discussion and Conclusions: There is not a standard approach to the content and delivery of GHE across Scottish medical schools. Importantly, elective practice are extremely diverse. This small survey highlights differences in staff and student perceptions of the provision of GHE.

Take-home messages: This survey demonstrates areas of good practice and those with room for improvement in the provision of GHE in Scotland. Knowledge sharing between Scottish universities may be on method of improving GHE provision.
International PBL curriculum partnerships: is it easy to copy and paste?

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Background: During international Tempus ePBLnet project, Karaganda State Medical University modernised its discipline-based curriculum into more student-motivating, competency-based PBL curriculum. It required translation into Russian and adaptation of 54 PBL cases to local healthcare culture, mapping them against the objectives and finding their place in the present curriculum.

Summary of Work: Due to administrative and legislative issues, it was easier to modify the existing curriculum instead of introducing the new one. In KSMU, the multidisciplinary team of 12 basic science teachers and 10 clinicians translated and adapted cases in collaboration with Astana Medical University. On average, each case required 4 weeks of work. The separate team mapped the cases against curriculum objectives and placed them into the program.

Summary of Results: Survey of curriculum and case adaptation teams discovered that social and community issues were much harder to integrate into the existing curriculum than pure basic science materials. The clinicians reviewing the cases called them artificial because of medical differences existing between Western and post-Soviet countries. Some cases did not match well the existing objectives and could not be included; other cases had to be moved from one year to another creating problems with unmatched complexity of learning objectives.

Discussion and Conclusions: Many complex issues arise in adapting curriculum from one institution to another; very careful measures are needed to overcome them. The teachers could feel lack of ownership of adapted cases and complain of their valuable time being taken away.

Take-home messages: Curriculum adaptation is a complex issue and close collaboration of all participating parties is required to overcome the barriers.

Health sciences programs curriculum structure analysis. A qualitative approach

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Background: Flexner revolutionized medical education during the twentieth century, emphasizing an educational system with a strong and solid scientific basis. Schön criticized this structure emphasizing that the curriculum has caused a sort of dualism in professional training, separating theory from practice.

Summary of Work: Qualitative study performed according to Grounded Theory guidelines, following Strauss & Corbin. 18 teachers from 6 Health Sciences programs were selected by maximum variation sampling method of Patton. Teachers were personally contacted and after informed consent procedure, data collection technique was semi-structured thematic interview. Interviews were conducted by 7 researchers. Analysis by open coding method was performed by 3 researchers. Data were analyzed with Atlas-ti software.

Summary of Results: Two stages were observed in the curricula, the first one focuses on the teaching of basic sciences and the second in clinical teaching. Basic sciences are not always related to discipline and graduate profile. At clinical stage, the teacher uses strategies that allow adapting theory to the characteristics of the clinical context that students will face in their professional practice, which also does not match the graduate profile.

Discussion and Conclusions: It is essential to ensure the contribution of basic sciences to the specific characteristics of each health sciences program. The clinician teacher’s role must effectively articulate the theory and practice in different clinical settings. It is necessary to design integrated curricular structures that allow ensuring an adequate association between theory and practice.

Take-home messages: It is necessary to analyze the curricular structure of Health Sciences programs considering the socio-cultural context of the educational institution.

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Designing of an Innovative Multidisciplinary Clinical Module on Endocrine and Endocrine Surgery for Medical Students in Al-Baha University

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Background: Al-Baha Faculty of Medicine is adopting an integrated system based curriculum. In the basic sciences phase, integration was a straightforward process while very challenging in the clinical phase. In order to develop a fully integrated system based clinical module, it was necessary to recall surgery, internal medicine and paediatrics from their ivory towers to be tailored in one common educational medium.

Summary of Work: To develop, implement and evaluate a module on: Endocrine and Endocrine Surgery (EES), a module committee was assembled including an internist, surgeon, paediatrician and community physician. Intended learning outcomes related to basic sciences as well as clinical sciences were formulated. Content selection and organization were performed depending on the ILOs. Varieties of teaching/learning and assessment strategies were adopted.

Summary of Results: These efforts resulted in construction of students' study guide. The contributing specialties were: internal medicine, paediatrics, surgery and community medicine. 20% of the content was allocated to basic sciences. The module was introduced for study by the fourth year students. Teaching/learning activities were as follow: Lectures: 28, Clinical presentation 1: 2, Seminars: 3, PBL sessions: 3, SDL sessions: 3, Skills' lab sessions: 3, day-long hospital-based clinical sessions: 8, basic sciences practical sessions: 1.

Discussion and Conclusions: Validity of integration in the clinical phase indicates loosening the borders between the related disciplines as the case of integration in basic sciences. EES module can be seen as a prototype of integration between clinical sciences. Through this module, medical and surgical problems of the Endocrine system in the different age groups are put together.

Take-home messages: The development of multidisciplinary integrated system-based modules in clinical medicine can be achievable.

Integration of Narrow Band Imaging gastroscopy and histology to teach human gastric pathology in patients with Helicobacter pylori associated gastritis for third year medical students

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Background: Gastroscopy is a standard diagnostic tool for upper gastrointestinal tract diseases especially Helicobacter pylori associated gastritis and used widely in clinical practice. Aim of our study, to evaluate effect of Integration of Narrow Band Imaging gastroscopy and histology to teach human gastric pathology in patients with Helicobacter pylori associated gastritis for third year medical students.

Summary of Work: A total 60 medical students were enrolled in the study from 15 July 2014 to 5 October 2014 at Institute of Medicine, Suranaree University of Technology, Nakhonrachasima, Thailand. We use correlation between gastric mucosal morphologic pattern by Narrow Band Imaging gastroscopy and severity of inflammation grading to teach pathological change of gastric mucosa after infected by Helicobacter pylori bacteria. End of the class, we evaluation of 60 returned questionnaires.

Summary of Results: Anonymous evaluation of 60 returned questionnaires (100% response rate) showed that more than 80% of respondents considered the session had stimulated and improved their understanding of Helicobacter pylori associated gastritis. When compared pre and post class, the result show that significant improve their understanding of gastric mucosa pathology after infected by Helicobacter pylori bacteria (p<0.01).

Discussion and Conclusions: Integration of Narrow Band Imaging gastroscopy and histology to teach Human gastric pathology in patients with Helicobacter pylori associated gastritis can improve understanding of Helicobacter pylori associated gastritis pathology for third year medical students.

Take-home messages: Type 1 and 2 represent normal or mild inflammation morphologies, type 3-5 represent moderate to severe inflammation morphologies.
### #5FF13 (27726)

**Three Years Experience in Correlated Basic Medical Science and Clinical Science Course**

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**Background:** Faculty of Medicine at Khon Kaen University, Khon Kaen, Thailand started a new curriculum for medical students since 2009. Discipline base curriculum was transformed to systematic base curriculum for preclinical year. However, problem base learning is the core learning process. Correlated basic medical science and clinical science course is performed to improve vertical correlation between basic medical science and clinical science and horizontal correlation between each system. The objective of this course is to integrate basic medical science and common clinical presentation by using the case scenarios and clinical setting. Therefore, most of the topics in this course are common symptomatology for medical students such as jaundice, diarrhea, chest pain, fever etc. Most of teaching staff in each topic consist of clinicians and basic science staff. Students have to study the assignment before each class and have pretest evaluation before class. Moreover, it is interactive learning during teaching by using voting. This course takes place in the 2nd semester of 3rd year of the medical course, which is the last preclinical year.

**Summary of Work:** Objective of this study was to evaluate the outcome of this course. This study summarized the course evaluation between 2012 and 2014 and analyzed the correlation between final grading of the students and National License Examination score.

**Summary of Results:** The result of course evaluation showed student satisfaction was higher than 90% in all topics. The students evaluated that this course was important to the profession and can apply to clinical year study. Moreover, final grading of the students significantly related to examination score of National License Examination (part basic medical science).

**Discussion and Conclusions:** Correlated basic medical science and clinical science course is important to preclinical year students to improve their clinical correlation.

### #5FF14 (27104)

**Evaluating outcomes of a horizontally integrated basic science curriculum**

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**Background:** Tehran University of Medical Sciences School of Medicine has launched a new revised undergraduate medical education curriculum from 2011. One of the key changes that were implemented was integration of basic science disciplines into ten interdisciplinary organ-based blocks. This study aimed to examine the outcomes of horizontally integrated blocks three years after it was commenced.

**Summary of Work:** Students reaction was elicited end of each block through questionnaire and group discussion. Basic science learning was assessed by comparing GPA, pass/fail rate and Basic Science Comprehensive Exam results over new and traditional curriculum. Eventually, students completed a survey regarding the application of basic science to the pre-clerkship three months after finishing basic science phase.

**Summary of Results:** About 70.2% of two cohorts of students agreed/completely agreed (five-point Likert scale) that integration improved their learning. Group discussion results showed that despite some concerns about content overloading and lack of sufficient coordination between teachers, students valued integration. The difference between the GPA, the failure rates and Comprehensive Exam results over the traditional and renewed curriculum were not significant. A total of 40.3% agreed that basic science blocks were useful for the pre-clerkship phase.

**Discussion and Conclusions:** Although students reaction toward horizontally integrated blocks was positive, none of the differences at learning level deemed statistically significant. Moreover, students were not very satisfied with the utilization of basic science in the upcoming phase. However, it may be very soon to judge about these findings.

**Take-home messages:** To make convincing judgment, curriculum outcomes should be monitored regularly and comprehensively.
#5FF15 (27705)
Vertical integration of head, neck and special senses with otolaryngology and ophthalmology in second year of undergraduate medical curriculum – perception and performance

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Background: At Alfaisal University, a spiral, system-based integrated curriculum with hybrid learning strategies is divided in three phases. A four-week head, neck and special senses (HNS) block was offered in both phase I and II, with horizontal integration. Phase II block also had vertical integration with clinical sciences like otolaryngology and ophthalmology. Phase III consisted of related clinical rotations. Recently, it was decided to merge various phase I and II blocks, including HNS, to be offered in phase I.

Summary of Work: A multidisciplinary team developed new vertically integrated block. At the end of the block feedback was obtained from students and faculty, through structured questionnaire. Students were assessed through the end of block examination.

Summary of Results: Out of 114 (67%) responding students, 78% agreed that the learning objectives of the block were clear. Seventy six percent agreed that weekly themes and schedule were matching with the learning objectives. Only 35% liked the idea of vertical integration at this level, 37% were confident that they had achieved clinical learning objectives effectively and 32% agreed that there was adequate time for self-learning; however, 54% agreed that it stimulated learning and 85% passed end of block examination successfully. Eighty-nine percent of the faculty members thought that vertical integration provided context to understand preclinical concepts, while 66% agreed that this vertical integration will improve performance in clinical years.

Discussion and Conclusions: Although, students were apprehensive of a vertically integrated HNS block, most of them achieved block objectives successfully. Take-home messages: Students’ apprehension about the vertical integration may be addressed through better communication.

#5FF16 (27681)
Analysis of Students’ Perceptions on Adopting an Integrated Curriculum

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Background: Conventionally, the traditional curriculum approach is implemented to teach medicine. It consists of separate preclinical and clinical studies. As medicine develops through the creation of a massive knowledge base, it became impractical for medical undergraduates to master all these sciences. Therefore, the integrated curriculum (IC) approach is being adopted worldwide. This study explores the students’ perspectives on IC, therefore, helps the development of completely IC.

Summary of Work: A cross sectional study was conducted. Data was collected via anonymous, online surveys administered to medical students of Alfaisal University. A Chi-square test followed by post-hoc correlation was used to determine association between demographics and the perception on IC.

Summary of Results: 249 students responded; out of which, ~58% claimed to know what curriculum integration is, however, only ~44% of them were able to identify the correct definition outlining all the major components of IC. Out of the ~44% who understood what is meant by a completely IC, ~83% perceives the IC to be effective, and ~61% believes the most important benefit is that it helps in knowledge retention and induces deeper understanding of concepts, ~44% also believes that an IC should be implemented in all years of medical school. Moreover, those with higher GPAs were more likely to have a correct perception of the IC (p<0.001).

Discussion and Conclusions: Only a minority of the students understands what IC is. Majority, of those who understand it correctly, perceive it to be effective and beneficial.

Take-home messages: More efforts need to be devoted to the development of effective complete trans-disciplinary integration models.
From Curriculum to Application to Practice: Building Evaluation Bridges in a Longitudinal Interprofessional Program

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Background: As the interprofessional teamwork skills application component of a longitudinal interprofessional curriculum, Clinical Transformations (CT) acts as a bridge between classroom conceptual learning and applications in clinical settings. In early years of the program, pilot data captured teams’ application of key principles of TeamSTEPPS. While results showed a gain in content knowledge and increase in the application of TeamSTEPPS in a simulated scenario, post-assessment and a second round of observational checklist results were positively skewed. Observation tools did not address specific teamwork tasks and processes either, resulting in pre and post assessment tools that did not provide meaningful data.

Summary of Work: To address these issues, the four assessment tools were benchmarked with instruments used locally and regionally and redesigned. Current tools include an individual conceptual quiz pre-entry to CT, real time observational checklists for team briefs, scenarios, and debriefs; immediate individual and team evaluations of performance post-CT experience; individual evaluation of knowledge retention and application of teamwork concepts; and evaluation of interprofessional skills in current clinical teams 6 months post CT.

Summary of Results: An aggregate of quantitative data is currently undergoing analysis but preliminary data shows above average and high performing teams constitute 58% of the sample. Pre and post assessment data also indicates that team members demonstrate an above average understanding of teamwork concepts and skills (90% f level).

Discussion and Conclusions: Qualitative data also demonstrate improved outcomes in learner ability to reflect on team performance, as well as expanded opportunities in peer-teaching and peer-learning through a learner-centered debrief process.

Take-home messages: Creating longitudinal skill based tools will be critical to understanding the efficacy and applicability of interprofessional curricula in clinical settings.

Implementing a longitudinal integrated clerkship for all third year students at an allopathic medical school - lessons learned

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Background: A longitudinal integrated clerkship (LIC) provides continuity of patient and preceptor experiences in core clinical disciplines. At The Commonwealth Medical College (TCMC) all third year medical students complete a yearlong LIC in six core disciplines (family medicine, internal medicine, pediatrics, psychiatry, surgery, and Ob/Gyn).

Summary of Work: Over three years 192 students completed our LIC spending one half-day per week with an ambulatory preceptor in each core discipline. Outcomes were assessed by OSCEs, NBME subject exams, USMLE Step 2 CK/CS, residency directors’ and alumni surveys and the AAMC graduation questionnaire (GQ).

Summary of Results: Test scores were comparable with national averages. A majority of residency director respondents reported that the performance of the 2013 graduating cohort was above peers in clinical competence, communication and team skills, clinical reasoning, and professionalism. Students expressed concern about the adequacy of inpatient experiences.

Discussion and Conclusions: The twelve-month LIC was extremely faculty intensive, proving unsustainable in a medically underserved region when class size reached 100. The need for enhanced inpatient experiences also disrupted continuity with patients and preceptors. TCMC is therefore modifying its third year to include a 6 month uninterrupted ambulatory LIC and 6 months of block rotations weighted to inpatient experience. Implementing a large scale LIC is feasible but challenging. The LIC offers benefits in desirable professional attributes among graduates.

Take-home messages: Identifying sufficient qualified preceptors is a major barrier to large scale LIC implementation. That and student concerns require flexibility, creativity, and tailored local solutions on the part of LIC leadership teams.
Foundations of Medical Knowledge: A Horizontally and Vertically Integrated Pre-clerkship Curriculum for Medical Students

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Background: Although many medical schools have transitioned from stand-alone discipline-based courses to interdisciplinary blocks, there often is little crosstalk among different elements of pre-clerkship curricula. Moreover, learning modalities used in science courses often do not transfer into a knowledge base that is readily retrievable in the clinical workplace.

Summary of Work: To overcome the above obstacles, Foundations of Medical Knowledge (FMK) was designed as a year-long pre-clerkship curriculum. FMK features horizontally integrated science blocks that transition seamlessly from one to another. Each block incorporates all of the basic sciences, including anatomy, but maintains a specific focus ranging from molecular science to organ systems. FMK features small group case-based sessions that are student-centered, teach sciences in a clinical context, and provide a safe setting that models workplace thought processes. FMK also uses lectures, flipped classrooms, team-based learning, and laboratories. Science blocks coordinate vertically with longitudinal instruction in physical diagnosis, ethics, metacognition, leadership/policy, and research. A unique component of FMK is a Continuity Clinical Experience that begins shortly after matriculation. Integration between science and longitudinal blocks is emphasized through competency-based assessment and interdisciplinary end-of-block examinations.

Discussion and Conclusions: Initial evidence indicates that students who have participated in FMK exhibit desired milestone behaviors that reflect the competency domains. Students are scientifically inquisitive, display strong reasoning skills and are able to effectively apply underlying scientific concepts to clinical scenarios. They also display strong professionalism and teamwork skills. Finally, FMK provides a positive model of inter-professional collegiality between clinical and science faculty.

Factors pertaining to anatomy teaching relate to confidence in future clinical competency amongst medical students: a call to review how anatomy is taught in UK medical schools

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Background: Anatomy is a criteria for ‘core’ medical competency in the UK. However, across UK medical schools, there is a trend towards reduced teaching time dedicated to anatomy.

Summary of Work: The aim of this study was to explore the impact of various factors pertaining to anatomy teaching on self-reported perception of future clinical competency. An online questionnaire was sent to all British medical schools and responses were recorded via a Likert scale. 912 medical students from 17 universities were recruited.

Summary of Results: 19.2% believe they do not receive sufficient teaching. The number of hours of anatomy teaching offered strongly correlates with perception of preparedness for clinical practise (r=0.89). Students taught by dissection were found to be more confident regarding future clinical competency than those taught by prossection (3.90±0.04 vs 3.66±0.05, p<0.0001), as were those taught in a traditional lecture format compared with problem-based learning styles (3.87±0.03 vs 3.39±0.23, p<0.01). Those students not provided with formal anatomy examinations (28% of responders) felt significantly less confident in their future clinical abilities compared to those who had been examined (3.48±0.06 vs 3.93±0.03, p<0.0001).

Discussion and Conclusions: The results indicate that an understanding of anatomy is an important factor in confidence with regard to clinical competency. Contemporary reductions in the time allotted to anatomy teaching are therefore resulting in students feeling less confident about clinical competency.

Take-home messages: We believe therefore, that anatomy is an important part of medical education and that medical schools should be encouraged to provide more teaching, particularly via dissection and lectures, with formal examinations.
Effectiveness of teaching of chest compressions in basic life support courses in a traditional medical curriculum

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Background: Every physician is expected to be proficient in resuscitation and basic life support (BLS). Therefore, most undergraduate curricula strongly emphasize training these skills. However, performance of post-graduate physicians usually does not meet guideline standards. We wanted to evaluate, whether there was already indication for limitation of skills during undergraduate education.

Summary of Work: In the traditional curriculum of Charité – Medical University Berlin resuscitation training was given at three time points (6th, 7th, and 10th semester; 24 hours in total). Directly after the 3rd training 128 medical students were examined. As the main outcome parameter we analyzed chest compression quality, which is by far the most important BLS intervention. Guideline targets (according to ILCOR 2010 guidelines) lie at 5.0-6.0 cm compression depth, 100-120 compressions per min, and minimal leaning between compressions (below 5 mm).

Students performed compression-only-CPR for 5 minutes on a manikin, performance was recorded via Laerdal SkillReporter.

Summary of Results: Mean compression depth was 38.8 [37.4-40.3 SD] mm. Average rate over 5 minutes was 120.4 [118.0-122.7 SD] bpm. Of 72'804 compressions only 40.3 % were within target rate and 13.6 % within target depth. Only 17.4 % of participants maintained a medium leaning depth lower than 5 mm.

Discussion and Conclusions: Chest compression quality did not meet guideline targets at the end of an undergraduate curriculum, despite three time points for resuscitation training. Decay of skills may already be attributed to insufficient teaching during the undergraduate phase.

Take-home messages: Innovative teaching methods should be considered if guideline adherent chest compression quality are aimed at in post-graduate physicians.
#5GG01 (25675)
A Combined Approach of Clinical Skills Training Utilizing Near-Peers, In-Campus Faculty and Clinicians: An Innovative Integrated Model

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Background: Different models of clinical skills courses have been previously suggested. Here we report an innovative approach adopted to train junior medical students in clinical skills in a multimodal fashion by near-peers, basic scientists with clinical background and senior clinicians.

Summary of Work: This quasi-experimental study was conducted at Alfaisal University College of Medicine at Riyadh using an electronic survey among Year-2 and 3 medical students, seeking their perception about the a) organization, b) delivery, c&d) self- and peer assessment in clinical skills courses.

Summary of Results: Total 298 students (91%) participated (164 Year-2; 134 Year-3). The questionnaire was valid and reliable (KMO 0.98; Barlett’s p <0.001; Cronbach’s α 0.93). Out of maximum 5, the average ratings for the course were 3.81, 3.72, 3.67 and 3.73 in organization, delivery, self-evaluation and peer assessment respectively, with no significant difference between both sub-groups. The in-campus sessions rated higher than hospital sessions (p <0.001). As tutors, interns were rated higher than clinicians (p <0.001).

Discussion and Conclusions: In this multimodal clinical skills course utilizing diverse tutors showed that, a) the students perceived in-campus sessions better than at hospitals, b) the students’ showed a positive attitude towards the organization, c) conducting such a complex and long course was feasible, d) the course was perceived successful by virtue of students’ self and peer evaluations and e) the students rated near-peer tutors significantly better than senior clinicians.

Take-home messages: Training clinical skills is essential in medicine. With limited resources, we conducted this course and found high satisfaction with the practical approach, organization and learning both quantitatively and qualitatively.

#5GG02 (25939)
Promoting self-awareness: Medical students’ experiences of a workshop focused on discussing challenging patients

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Background: In order to prepare medical students to provide patient-centered care we developed a Caring for Challenging Patients Workshop (CCPW) for clinical students at the University of California, San Francisco. In the CCPW students discuss patient interactions in which they felt frustrated or angry with the patient and discuss strategies for maintaining therapeutic relationships in these settings. The purpose of this study was to explore medical students perceptions of the benefits of the workshop.

Summary of Work: Thirty-eight medical students, divided into six groups, participated in the workshop over two six-week rotations. To qualitatively explore students’ experiences of the workshop, we conducted voluntary, semi-structured, one-on-one interviews. Interviews were transcribed, coded, and analyzed using modified grounded theory. Two independent reviewers coded all transcripts, and disagreement was resolved by consensus.

Summary of Results: Sixteen (42%) of participants agreed to participate in an interview. Students reported that the workshop helped them identify beneficial and enlightening strategies for caring for patients whom they consider challenging. The most commonly identified strategies were increased self-awareness and considering patient context as a means of generating empathy. Many students reported having used these techniques in subsequent patient interactions with positive results.

Discussion and Conclusions: Students’ accounts of post-workshop, improved self-awareness and empathy, as well as effects on subsequent patient interactions, suggest that workshops focused on challenging patients can have a positive outcome for patient-centered care. Both self-awareness and empathy are vital to the training of health professional students so that they can practice high-quality, patient-centered medicine.

Take-home messages: Discussing challenging patients provides an opportunity for medical students to develop self-awareness of feelings about and empathy for patients.
Presenting on the post take ward round: a tool every medical student needs

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Background: By the time medical students qualify, they are often ill-prepared to present and this is a significant source of stress and anxiety. Despite being an essential skill that a trainee uses throughout their career, very little formal undergraduate teaching is invested towards mastering this art.

Summary of Work: A cohort of 30 2nd year medical students participated in:
1. Completing forced-choice and open space questionnaires to identifying attitudes towards presenting.
2. Attending small group sessions over a fortnight where they presented, as they would on a ward round, followed by dedicated feedback and discussion sessions.
3. Completing post-intervention questionnaires to delineate whether this had a positive impact on their ward experience.

Summary of Results: The preliminary questionnaire showed that 95% of students had ‘seldom’ or ‘never’ presented a patient. 80% said that had therefore ‘seldom’ or ‘never’ discussed their histories. Results of the 2nd stage questionnaires revealed that 100% of students agreed that they felt more able and confident to present. Themes that emerged include, the confidence to now present in clinical situations and the enjoyed freedom to present and make mistakes at these teaching sessions.

Discussion and Conclusions: Students shy away from presenting as they are not equipped with the tools to do so. This in turn will limit their ability to discuss their patients, and therefore act as a barrier in gaining a more in depth clinical and social understanding of each case.

Take-home messages: Introducing a presentation skills teaching programme for students early in their training is both feasible and well-received by students and improves the firm experience.
A novel way to improve clerking, clinical examination and patient-centred care amongst medical students

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Background: It can be argued that clerking is the cornerstone of patient care within a hospital setting comprising of history taking, clinical examinations, investigations, diagnostics and clinical reasoning. Clerking a patient is an essential skill medical students are expected to master within their first year of clinical medicine. Traditionally, history taking, examination skills, and clinical reasoning (i.e. diagnostic, investigation and management skills) are taught as separate entities with students finding these skills difficult to integrate within clerking.

Summary of Work: We audited fourth year medical students’ clerkings in 2014 and 2015 looking at the percentage of students who completed the various headings within a clerking e.g. past medical history, drug history and abdominal examination. We then designed a clerking proforma for medical students. Sixth year medical students created a guide to clerking with model examples. Integrated lectures emphasising clerking were delivered by faculty at the medical students’ induction module.

Summary of Results: A significant improvement was noted in 2015[n=100;mean=80%;t(104)=7.3096;p<0.001] versus 2014(n=100;mean=45%). Medical students using clerking proformas with pre-populated headings performed the most comprehensive clerkings.

Discussion and Conclusions: Clerking across almost all domains improved. Most notably, more medical students were performing thorough systems reviews, enquiring about patient’s concerns, performing a greater number of examinations and formulating differential diagnoses with management plans. Many clerkings performed without the proforma were noted to follow the structure of the model examples.

Take-home messages: Clerking, including examination skills and clinical reasoning can be improved amongst medical students by faculty delivering an integrated emphasis on clerking, providing a framework to learn clerking and having medical students model best practice.

Making Sense out of Informal Learning at the Workplace

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Background: As part of practice and revalidation healthcare professionals are encouraged to learn from their working experiences, but time pressure complicates the immediate reflection. At the same time, support for collecting, remembering and organizing informal learning experiences, i.e. the process of sensemaking in informal learning, is not well understood. Without support, valuable informal learning experiences will be forgotten and not be elaborated and acted upon leading to a great loss for individual development.

Summary of Work: We have implemented the novel visual and action-based sensemaking interface Bits and Pieces (B&P) for healthcare professionals to support individual and collaborative informal learning at the workplace. Building on top of a multimedia collection service, B&P supports remembering of informal experiences from episodic memory and parallel sensemaking in semantic memory. The prototype, domain understanding and theory were iteratively developed in several design-based research studies that were conducted in the English healthcare system.

Summary of Results: Results reveal that B&P is perceived as useful and supportive for individual and collaborative informal sensemaking. Furthermore, we found initial evidence that deeper elaboration of experiences during collection facilitates remembering and that more shallow elaboration requires later re-evaluation of the collected experiences.

Discussion and Conclusions: Following the positive results from initial tests and the demand for support from professionals, we are now starting a pilot with GP Practice staff using B&P to support both individual and team-based informal learning at the workplace.

Take-home messages: B&P provides a visual approach to support sensemaking at work, helping healthcare professionals to improve practice and evidence informal learning which facilitates the professional life.
Dialogues with Prisoners as Transformative Learning Experiences in Teaching Humanities for Undergraduate Medical Students

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Background: The aim of this study is to examine whether dialogues with prisoners can change the perception of medical students towards prison and prisoners.

Summary of Work: The study was conducted in 2014 in 71 medical students who were asked to watch a video clip of Oprah Winfrey discussing deep listening with Thich Nhat Hanh and draw a two pictures to illustrate their perception about prisons and prisoners before and after having dialogues with a prisoner.

Summary of Results: A set of 71 pre and post-visit pictures (37 males and 34 females), almost aged 19-20 years old were analysed. Eleven pre-visit pictures (15.5%) were classified as positive perceptions compared to 24 (33.8%) pictures for the post-visits. The pre-visit and post-visit pictures could be categorized into four patterns: 6 students (8.5%) with “positive to positive”, 6 students (8.5%) with “positive to negative”, 18 students (25.4%) with “negative to positive” and 41 students (57.7%) with “negative to negative”. The findings indicated the trend of student perception of prison and prisoners tends to be towards the positive perception with statistically significant improvement (p-value=0.02) or with the odds ratio of 3.0(95%CI: 1.19-7.56)

Discussion and Conclusions: Direct experiences of students with deep listening skills and also self-reflections on the dilemma and sharing among the peers could be the key influences of this success in learning humanities. In addition, drawing pictures could be a tool for authentic assessment on learning in humanities.

Take-home messages: Dialogues with prisoners can transform the perception of medical students from negative to positive ones.

Patient Pathways in the Cardiff Curriculum - a healthcare quality improvement initiative

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Background: A patient pathway can be viewed as starting from their first contact in a primary care setting, their admission and treatment in hospital, and their subsequent discharge (safe or otherwise) back into the community. The literature suggests that students engaging in this type of longitudinal survey learn about “patient centredness and health care systems”.

Summary of Work: Students were recruited to participate in this pilot project and followed a patient from admission, through their hospital stay and then back out into the community. Meetings were held with a tutor to put encounters in context and develop solutions to problems. Students presented an academic piece of work detailing the Quality Improvement issues raised and referenced to current literature for assessment.

Summary of Results: The students engaged positively with the pilot and appeared to enjoy the experience. All managed to gain consent and follow a patient and were able to liaise with other health care workers in hospital and in the community. Students appreciated the patient centred nature of the project and appreciated the longitudinal follow up of patients. Some students encountered obstacles in accessing patients and health care workers after discharge from hospital and methods to overcome these were developed.

Discussion and Conclusions: Students gained an understanding of Quality Improvement as a central theme for healthcare provision to improve patient outcomes. They also learnt where problems in patient experiences occurred and the potential for systems to prevent or cause harm to patients.

Take-home messages: Students can learn the importance of Quality Improvement and the advantages to patients of safer healthcare systems in an interactive format alongside their clinical learning.
#5GG09 (27918)
Student-centred teaching clinics: improving the undergraduate outpatient experience

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Background: Outpatient clinics are an educationally rich but often underutilized learning environment. There are several limitations: time pressures, emphasis on service provision and lack of resources. The stresses on both teacher and learner can lead to ineffective learning with little student participation.

Summary of Work:
Students rotating through medical and surgical firms were given preliminary questionnaires to ascertain their educational experience of outpatient clinics. A weekly dedicated teaching clinic was established where students are supervised leading consultations, taking a history, completing an examination and then formulating a plan. Students are required to present each case followed by personal written and verbal feedback. Students completed a second questionnaire evaluating their experience with a focus on the learning environment, degree of participation and quantity and quality of feedback.

Summary of Results:
Over 90 students attended the dedicated teaching clinic. Preliminary questionnaires demonstrated that only 7% of students have actively participated in a clinic, and 82% did not receive useful feedback. Following the teaching clinic 100% agreed that they had had the opportunity to actively participate and 96% agreed that they received useful feedback. Furthermore 89% rated their overall experience of the teaching clinic as excellent.

Discussion and Conclusions:
Within the outpatient setting the demands of service and time pressures can lead to a sub-optimal learning environment. We have demonstrated that a dedicated teaching clinic leads to an improved student experience with increased student participation, quantity and quality of feedback.

Take-home messages: Dedicated teaching clinics offer a solution in reconciling student educational requirements and experiential learning, with the demands of service delivery.

#5GG10 (27920)
An Institutional Structure to Support the Continuum of Education in a Large Academic Medical Center

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Background: Educating clinicians for new models of healthcare delivery requires that the clinical learning environment engenders a breadth of competencies and provides opportunities to train in inter-professional settings. Academic medical centers must accordingly develop structures that assure the quality and appropriateness of educating students, graduate trainees, and practicing physicians. Unfortunately, most centers are fragmented, with organization siloed across the educational continuum and professional disciplines. Education is often not viewed as a strategic priority for clinical delivery systems.

Summary of Work:
UPMC (University of Pittsburgh Medical Center), an $11 B integrated academic financing and delivery system, is the major clinical affiliate of the University of Pittsburgh and the third largest GME program and one of the largest CPD programs in the U.S. We are implementing an educational service line to provide strategic direction and coordination for all education at UPMC, ranging from pre-professional and professional students, graduate trainees, and practicing health professionals.

Summary of Results:
This new structure is aligning the clinical teaching capacity at UPMC with strategic needs, developing tools to improve the quality and efficiency of teaching in the clinical setting, improving infrastructure for education, and supporting maintenance of competency for our clinical workforce.

Discussion and Conclusions:
The concept of a service line is innovative and very valuable in establishing health professional education as a key strategic component of a large academic medical center and advances collaboration across the continuum and disciplines.

Take-home messages: As health professional education rapidly changes to meet the needs of our delivery systems and the public, we must explore new strategic and administrative structures within academic medical centers to assure a competent workforce.
A Promotion Educational Project of Applying Evidence-Based Nursing in Clinical Care for Nursing Leaders in Taiwan

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Background: Evidence-based nursing (EBN) is an essential issue for improving quality of care. Enhancing the competence of EBN is the foundation of implementing evidence-based practice. This project aimed to understand the intention using of EBN and promotion strategies in nursing leaders. From the EBN education implementation to solve clinical problems and policy making for managers.

Summary of Work: Analysis of the willingness in EBN applying and barriers for nursing leaders. Adopt an actual observation method, questionnaire for leader's before applying. We collected totally 135 leaders from based on the survey results and literature review on January 2014. Statistical analysis of surveys on leader's applying willingness and they felt the willingness only 55.6%. The barriers including: less of the practice experience, lack of supporting from managers, and low Incentive rate and motivation. For this reason, We developed the strategies including: combining EBM center teaching resources, producing study cooperation research plan, Team Resource Management(TRM), and so on.

Summary of Results: After all the above strategies, the willingness of EBN applying been promoted from 55.6% to 86.2%(promote30.6%). In addition, there are good effectiveness on performance improvement based on Balanced Scorecard Model (BSC).

Discussion and Conclusions: After the practice, the project and the strategies are effect. It’s not only promotion of quality care, but also prevention of incident. Hope the results benefit the policy making in organizations in the future. In addition, to form a team resource management will be the most important responsibility for us. We hope to continue develop this project and follow the effect advanced.

Take-home messages: EBN is an essential issue for improving quality of care, and we can develop by EBM center teaching resources, producing study cooperation research plan, Team Resource Management(TRM), and so on.

Characteristics of workplace-based learning across higher health sciences education

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Background: Workplace-based learning is a traditional part of health sciences educations and we find a rich literature on some of the core features. However, a number of questions remain and we contribute by exploring the characteristics of the learning activities at workplaces and students’ and supervisors’ roles during clerkships across educations.

Summary of Work: We performed a short-term ethnographic study in medicine, nursing and sports science. Data was collected during nine days observing skills training and twelve days observing students at six different workplaces followed by in depth interviews with twelve students and nine supervisors. Data were analyzed narratively using Positioning Theory as frame.

Summary of Results: We constructed six typical narratives that illuminate four main themes: 1) having fun - being serious, 2) trying - mastering, 3) getting support - feeling independent, and 4) student - professional identity. The learning activities across the workplaces were characterized by seriousness and a shift to a more professional role.

Discussion and Conclusions: The likeness apart, we wonder about the considerable differences found across the three educations concerning supervisors' roles and expectations of students’ ability to master competences, as well as the differences in opportunities for independent learning activities at the workplaces. This might be rooted in the different traditions underpinning workplace-based learning.

Take-home messages: The shift to seriousness and balancing between the student role and a professional identity in clerkships probably has great significance for learning. To fully understand the learning activities and roles in workplace-based learning, we suggest that further comparison of workplace learning activities in higher health sciences educations could be worthwhile.
Organisational Factors Are Equally Important in Providing Adequate Learning Opportunities During Bedside Teaching Besides Effective Clinical Teacher

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Background: In clinical apprenticeship, bedside teaching is a complex interaction between medical students, healthcare team and patients. It provides the opportunity to assimilate medical knowledge, to inculcate professional behaviors and to attain clinical experience. Most bedside teachers are also busy clinicians, and carrying on with normal clinical workload and teach simultaneously will mean poor planning, clinicians appears in a rush to finish and encourage passivity amongst students. The aim of our study is to identify the organisational and administrative factors that medical students perceive to be important in affecting bedside learning.

Summary of Work: Final year medical students were asked to complete an anonymous questionnaire regarding perceptions of clinical tutors’ attributes and organisational factors on aspects of their bedside tutorials.

Summary of Results: To deliver high quality teaching and facilitate effective learning, ward rounds need to be planned with dedicated wards and allocation of tutors who appear to be interested and expect participation of students during ward rounds, fewer than 3 students per group and more time to clerk and get to know the patients before rounds. The unfavourable factors include ward rounds or bedside teaching that takes longer than 4 hours, ward rounds that are conducted in a hurried manner and disinterested tutors.

Discussion and Conclusions: Bedside teaching and real patient encounters cannot be replaced with classroom teaching and every effort needs to be made to encourage a positive learning experience.

Take-home messages: Organizational support in ensuring protected teaching time and faculty development in addition to effective clinical teacher will contribute greatly in producing outstanding clinicians.

Structuring of Clinical Posting in the Early Years of Undergraduate Clinical Training

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Background: Bedside clinics are among the most popular learning method in undergraduate medical teaching. This study analyses the student feedback after a structured clinical posting in surgery in the early clinical years.

Summary of Work: This study included 24 undergraduates in their second year who were posted in the department of surgery for six weeks. The entire clinical posting was structured to expose students to one of the six areas namely, abdomen, groin swellings, breast, neck swellings, vascular and subcutaneous swellings, each week. Students were grouped into five each attached to the same set of instructors for the entire posting. Each week included a formative assessment on the last day.

Summary of Results: All students felt that division into smaller groups made a difference to their training. This was attributed to better learning of physical examination skills, greater freedom to clarify doubts and a safer learning environment. 92% of students found structuring of content very helpful. 2 students had reservations in terms of limiting the breadth of their exposure and missing out on other clinical cases concurrently available on the ward. 87% of the students felt that assessment at the end of the posting was very helpful in identifying lacunae in their training.

Discussion and Conclusions: Group size as small as five ensures adequate one on one teaching. Structuring clinical postings is a surrogate for setting specific learning objectives in clinics and also ensures minimum competencies. Feedback during bedside clinics is perceived as important by students.

Take-home messages: Trainers should structure clinical postings to maximize their effectiveness at least in the early clinical years.
#5GG15 (24899)
An approach integrating teaching, learning and assessment for Competency-Based Medical Education

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Background: The medical education community has been challenged to produce a meaningful and feasible assessment tool that would not only assess the learner’s ability to perform simple tasks, but would also gauge the learner’s capability of integrating those tasks into patient-care activities since the competency-based medical education was introduced.

Summary of Work: We present a novel approach which empowers clinical teachers to integrate teaching, learning and assessment in real-world practice. This approach is guided by similarities between the components of the Experiential Learning Cycle (concrete experience, reflective observation, abstract conceptualization, and active experimentation) and the elements of the patient care process; for example, concrete experience includes the history and physical; initial assessment is analogous to reflective observation, differential, and hypothesis; final diagnosis reflects abstract conceptualization; management and follow-up are analogous to active experimentation. This teaching approach encourages clinical teachers to externalize their clinical thought processes, allowing the instructor to naturally incorporate clinical teaching into patient care activities. Just as importantly, this approach provides a practical link between teaching and the clinical assessment of the resident physician or student.

Summary of Results: This approach and its natural counterpart (clinical assessment) efficiently and effectively integrate the assessment with the often separate acts of teaching and learning.

Discussion and Conclusions: This approach gives a reliable assessment of a resident physician’s patient-care competency in addition to integrating teaching and learning.

Take-home messages: This process can be used to assess clinical competencies by enabling preceptor to assess the learner’s knowledge and abilities while providing teaching and feedback and engaging learners in the processes of learning and assessment.

#5GG16 (24917)
Adjusting in and out patient learning sequence of pediatric rotation for medical students

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Background: The 5th year medical students (MS) had learning experiences at general out patient department (OPD), and in patient department (IPD) including neonatal and general wards. Our previous study showed that factors associated with higher constructed response question (CRQ) scores were female, OPD service before the exam, and high grade point average (GPA). Then, we set MS with lower GPA to have OPD rotation before the exam in order to improve their CRQ scores.

Summary of Work: We divided 286 MS (M:F = 114:172) into 2 groups. The first group (n=138) with a median GPA of 3.02 studied at OPD and the second group (n=148) with a median GPA of 3.25 studied at IPD before the exam. We compared the CRQ scores between OPD and IPD groups.

Summary of Results: The mean CRQ scores of OPD and IPD groups were 60.1+8% and 63.6+7.1%, respectively (p=NS). In OPD group, there was no difference of mean CRQ score between MS with GPA < 3.0 and those with GPA > 3.0 (56.7+7.7% vs 63.5+6.8%, p=NS). In IPD group, MS with GPA < 3.0 had significantly lower mean CRQ scores compared to those with GPA > 3.0 (58.7+5.4% vs 65.1+6.9%, p = 0.04). There was no significant difference of mean CRQ scores between male and female.

Discussion and Conclusions: We may eliminate the difference of CRQ scores between OPD and IPD group after using GPA for grouping of MS.

Take-home messages: Adjusting learning sequence may help some MS improving their academic performance.
How can journal club enhance evidence-based clinical skill?

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Background: Journal club (JC) is commonly used in medical education. The effectiveness of JC in supporting evidence-based decision making is yet unclear. We examined students’ perceptions and what really happened in medical JC in order to understand how JC can better support evidence-based medicine (EBM).

Summary of Work: A quantitative and qualitative inquiry was done in clinical year medical students and interns rotating in Phichit hospital where JCs have been hold as academic credit for medical students and regularly run biweekly for the interns as a model for adult learning and training.

Summary of Results: Two-thirds of 43 students and 12 interns reported moderately improvement of evidence-based clinical skill. Choosing topic mostly (83%) depended on the adviser and 38% were related to patients’ problems. Advanced distribution of article was expected in 38% and 9% did that. Assigned host read and prepared the presentation followed by group discussion (96%). Clinical content was focused in 87% while 24% targeted on methodology. Critical appraisal was done in 50% depending on the objectives set with consultants.

Discussion and Conclusions: Current practice of JC shows less attention is paid on patients’ problems and critical appraisal. Adviser plays a crucial role on how the session will be conducted. Since critical appraisal is central element of EBM, JC may promote EBM by clear determination of its objective and encourage use of critical appraisal.

Take-home messages: Adviser can help students improve EBM skill through JC by facilitating them to set clear goal to answer clinical problems and do the critical appraisal.

Authentic paediatric video cases: which are optimal for teaching and learning?

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Background: Medical students and trainees often do not encounter clinical examples of key patients for learning. Interactive analysis of authentic patient video cases (PVCs) may counteract this problem. PVCs may be particularly helpful in demonstrating movements that are periodic, like many movement disorders, or paroxysmal, like epileptic seizures. We know little, however, about the most suitable selections of topics for PVCs.

Summary of Work: A group of clinical teachers identified 8 key conditions that medical students often did not encounter in real life during their paediatric clerkship. The PVCs were then used in interactive teaching workshops. By a questionnaire we gathered information to illustrate the proportion of medical students who encountered the conditions through PVCs only. In a next step, using a Delphi approach, a global panel of 40 clinical teachers will rate and comment on lists of potential topics for PVCs.

Summary of Results: Infantile spasms, meningococcal septicaemia and Duchenne muscular dystrophy topped the list of paediatric conditions seen on PVC only - and not in real life - by 87.5, 87.3 and 84.6% respectively.

Discussion and Conclusions: The majority encountered clinical examples of key conditions through PVCs only. Our study will generate lists of optimal selections of topics for PVCs.

Take-home messages: A large proportion of medical students do not meet key paediatric conditions in real life, and interactive analysis of PVCs may help alleviate this problem. We are now building a panel of experts to identify the optimal topics for PVCs.
Professional attitudes assessment in the context of clinical skills: how far does the professors' personality interfere?

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Background: Clinical skills assessment is a keypoint for great professional development of undergraduate students. Some strategies seek to minimize distortions and the bias of subjectivity in this context. However, significant difficulties are still encountered in an effective and formative assessment in this field.

Summary of Work: Thirty-seven professors from undergraduate courses on different health sciences areas attended a 20-hours-workshop about clinical skills assessment, in which their Junguian psychological types and their own difficulties on assessing students were investigated, by application of a personality test (QUATI), and semi structured questionnaires.

Summary of Results: Most participants (62.2%) were "introverted", against an "extroverted" minority (37.8%). The most commonly used psychological function was "feeling" (45.9%), while "thinking" (2.7%) was the less frequent. "Insecurity", "feeling of being unfair" and "inaccuracy" were strongly mentioned as present feelings during assessment process. In clinical context, the effective professional attitudes assessment was considered the biggest challenge for many participants. The greatest obstacles found were the "bias of students' and professors' subjectivity", "limited time for observation of students groups in professionals settings", "difficulties on quantifying the behavioral aspects" and "lack of clarity, precision and standardization of criteria".

Discussion and Conclusions: Assessment of professional attitudes seems to be an unclear and complex process. Difficulties on returning the focus of attention for students' particularities and establishing general and standardized criteria, may be related to prevalence of "introverted" attitude and "feeling" function among participants.

Take-home messages: Further studies that consider the professors' psychological types and their ways of perceiving and judging students are needed for enhancing assessment strategies and faculty development in this field.
Stress, Anxiety and Depression among Medical Students in a Multi-ethnic Setting

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Background: Contemporary literature suggest that medical education might adversely affect student’s mental health. Alfaisal University at Riyadh is a leading developing institution, where, there has been a concern regarding the mental well-being of the students. This study assesses the level of depression, anxiety and stress among students in relation to potential underlying reasons.

Summary of Work: All 575 medical students in five years participated anonymously by filling out DASS-21 questionnaire twice. Firstly, 2-3 weeks before a major examination (Pre-Exam), and secondly, during regular classes (Post-Exam). Correlation was sought regarding gender, year of scholarship, attendance of a pre-medical University Preparatory Program (UPP), housing and smoking. The subjective comments from students were also obtained.

Summary of Results: A total of 76.8% and 74.9% students participated in pre- and post-examination groups respectively. Majority were children of expatriate workers in Saudi Arabia and included Arabs, South Asians and North Americans. Prevalence of depression, anxiety and stress was high (43%, 63%, 41% respectively) which reduced (30%, 47%, 30% respectively) to some extent after examinations. Saudis and those who had attended UPP had higher DASS scores. Smoking and female gender could predict higher levels of ‘baseline’ depression, anxiety or stress.

Discussion and Conclusions: The students had high “baseline” level of depression, anxiety and stress and higher if an examination is near. Smoking and gender appears to predict high DASS-21 scores whereas study burden and hectic schedule were perceived major contributors.

Take-home messages: Hectic schedule, examination, smoking and being a female lead to high depression, anxiety or stress among medical students.
Measuring Mistreatment of Medical Students by Healthcare Professionals Using the Learning Environment for Professionalism (LEP) tool

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Background: Medical schools must ensure, through formal assessment, that their learning environment promotes the development of appropriate professional attributes in their medical students. Based on some higher than average rates of mistreatment reported on the Graduation Questionnaire (GQ), the uO MD program was deemed to be non compliant on the learning environment standard. The GQ data lacks the site-specificity required to provide targeted sanctions or remediation. The professionals most often accused of mistreatment were clinical faculty, residents and nurses. The LEP survey, a validated tool designed to assess (un)professional behaviours on clinical rotations was modified to gather feedback on these three groups.

Summary of Work: The students completed the online survey anonymously at the end of all clinical rotations over 12 months. Data compiled from 825 LEP surveys at one hospital site identified rotations with high rates of mistreatment were clinical faculty, residents and nurses. The LEP survey, a validated tool designed to assess (un)professional behaviours on clinical rotations was modified to gather feedback on these three groups.

Summary of Results: The professionals most often accused of mistreatment were clinical faculty, residents and nurses. The LEP survey, a validated tool designed to assess (un)professional behaviours on clinical rotations was modified to gather feedback on these three groups.

Discussion and Conclusions: A modified LEP can be used to identify specific rotations where the learning environment is unfavorable which in turn helps to identify rotations where there are high rates of student mistreatment. This is the first time the LEP has been used to assess professionalism of non-clinicians.

Take-home messages: Fear of reprisal often prevent students from formally identifying individual sources of mistreatment, thus greatly impairing a program’s ability to impose appropriate sanctions or remediation. The LEP survey is an effective way to identify specific sources of mistreatment while protecting student anonymity.
#5HH05 (27348)
Increased workload and perceived stress among preclinical students

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**Background**: Surveys allowing students to assess the quality of the preclinical part of medical education on a national level in Sweden are relatively new and are an important tool when working with student educational interests. For the first time, we are able to evaluate elements such as student satisfaction and study load at a national level. This tool allows us to identify trends that may over time provide insight into variables affecting education quality.

**Summary of Work**: We have constructed a survey for assessing the preclinical studies on a national level. We asked the students questions related to their medical education such as overall satisfaction, study load and economic situation. The survey was sent out to all the students at semester 6 at all the seven medical universities in Sweden in 2009, 2011 and 2013. Our frequency response has been close to 60%.

**Summary of Results**: In both 2011 and 2013, 80% of students were overall satisfied with their education. However, data from 2013 reveal a trend where students perceive an increased study load and spend more hours studying. Almost 80% of the medical students are stressed or extremely stressed by their education workload. Compared to 2011, more students (a 5% increase) responded that they were extremely stressed. Results from 2013 also show that students in big cities are less satisfied with their economic situations, and therefore tend to take on extra work to a greater extent than other students.

**Discussion and Conclusions**: Thus, although overall satisfaction is high, increased study load in combination with economic dissatisfaction causes increased stress amongst medical students. This trend indicates that the wellbeing of preclinical medical students may be at risk.

**Take-home messages**: The wellbeing of preclinical medical students may be at risk.

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#5HH06 (25061)
Is the Newborn Life Support course really that stressful? An observational study

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**Background**: Resuscitation courses are renowned for being stressful. This study aimed to determine whether there is a significant stress response to the newborn life support airway test (NLSAT) amongst different health care professionals.

**Summary of Work**: Stress levels of candidates on Newborn Life Support (NLS) courses, in the UK, were measured using salivary cortisol levels and validated anxiety questionnaires (State Trait Anxiety Inventory). 80 healthcare professionals (nurses, doctors and midwives) were recruited. Stress levels were measured at baseline (10am), immediately before and 20 minutes after starting the NLSAT. Demographic data including experience was collected.

**Summary of Results**: Cortisol measurements failed to detect any significant rise in stress levels. Significant stress levels were induced by the NLSAT when measuring anxiety scores; mean baseline score was 39.63 (SD 11.75), mean pre-NLSAT score was 48.38 (SD 12.89) and mean post-NLSAT score was 42.82 (SD 13.65). STAI scores rose significantly in all professionals from baseline to post-NLSAT (p<0.001) with greatest change detected for midwives (+11.82 (SD 7.64, p-value <0.001) compared to nurses (+8.86 (SD 12.1, p-value <0.001) and doctors (+7.96 (SD 2.9.69, p-value <0.001). Experience had no impact on stress levels. It was not possible to determine if stress levels impacted on performance due to the low re-sit rate (7.5%).

**Discussion and Conclusions**: Stress levels induced by the NLSAT are significant with variation amongst different healthcare professionals. Midwives and nurses are generally less familiar with assessment using simulation, potentially enhancing their stress levels. These findings have implications for the NLS and similar courses.

**Take-home messages**: Stress levels vary amongst different healthcare professionals performing the NLSAT.
#5HH07 (27324)
Sleep Duration and Academic Performance Among Undergraduate Medical Students in Saudi Arabia
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Shouq Kherallah, Alfaisal University, Medicine, Riyadh, Saudi Arabia
Jumanah Sarraj, Alfaisal University, Medicine, Riyadh, Saudi Arabia
Ahmad Abuzaid, Alfaisal University, Medicine, Riyadh, Saudi Arabia
Lama Alfakhri*, Alfaisal University, Medicine, Riyadh, Saudi Arabia

Background: Sleep deprivation has detrimental effects on medical students' examination performance. There is insufficient literature addressing sleeping habits of medical students in relation to their academic performance in Saudi Arabia. This study aims to assess the relationship between medical students' duration of sleep and academic performance.

Summary of Work: An online, anonymous, cross-sectional, self-reported survey was administered to second- and third-year students at Alfaisal University—College of Medicine, Riyadh, Saudi Arabia. The survey explored the students' duration of sleep (routine basis and one night before exam) as well as their cumulative grade point average (cGPA) scores. Quantitative statistical analysis was performed.

Summary of Results: Hundred and eighty students (n=180/278) responded to the survey (response rate: 65%). The mean±standard deviation (SD) of sleeping hours on routine basis and the night before exam was 7.8±2.1 and 4.3±1.2 (p<0.000, ANOVA test), respectively. No statistically significant gender differences were identified. On routine basis, 8.2%, 45.9% and 45.9% of students sleep <4 hours, 4-6 hours and >6 hours, respectively. The night before exam, 65.5%, 27.9% and 6.6% of students sleep <4 hours, 4-6 hours and >6 hours, respectively. Average cGPA of students sleeping <4 hours, 4-6 hours and >6 hours the night before exam are 3.55, 3.72 and 3.31 out of 4.0-scale (p<0.000, ANOVA test), respectively.

Discussion and Conclusions: Our results largely voiced other published literature. The night before exam, majority of medical students had reduced sleeping. Moreover, students who slept 4-6 hours had the best academic performance.
Take-home messages: Effective interventions that highlight and encourage healthy sleeping patterns are essential to improve medical students' academic performance.

#5HH08 (26898)
Psycho-social distress of first and third year students in an integrated, modular medical curriculum at the Charité Universitätsmedizin Berlin
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Tanja Hitzblech, Charité, Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum Projektsteuerung, Berlin, Germany
Silke Boehm, Charité, Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum Projektsteuerung, Berlin, Germany
Sylvie Tappert, Charité, Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum Projektsteuerung, Berlin, Germany
Harm Peters, Charité, Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum Projektsteuerung, Berlin, Germany

Background: The Charité - Universitätsmedizin Berlin introduced a new 6 years, integrated, outcome-orientated undergraduate medical program in 2010. Implementation of the new curriculum has been accompanied by significantly modified study conditions. This study focuses on the level of psycho-social distress students experience in the new curriculum.

Summary of Work: This study aims to examine psycho-social distress students experience in their first year and in their third year. A total of 165 students (25% response rate) were interviewed by an online questionnaire using 4 standardized self-assessment scales concerning distress, quality of life and self-reported health. The data are analyzed using descriptive statistic measures.

Summary of Results: Analysis shows that first year students experience more psycho-social distress than third year medical students in the new curriculum at the Charité. Based on their self-evaluation, female students feel more often psycho-social distressed than their male colleagues independent of the year of study. Students with a migration background report more often about psycho-social distress. 20% of first year students state the need of psychological counselling. 5% receive counselling sessions, whereas only 3% of the third year students wish counselling session, but 10% receive counselling.

Discussion and Conclusions: First year students experience more psycho-social distress than third year medical students. Apparently, students develop strategies to cope with the demands of their studies. Potentially, they learn to ask for help and to utilize supportive counselling.
Take-home messages: It is important to monitor psycho-social distress to offer adequate counselling services.
Stress Treatment for Medical Students: Implementation of an Online Platform at the University of Freiburg

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Background: At last year’s AMEE conference our team presented data describing study-related stress-levels and associated psychosomatic symptoms of medical students of the University of Freiburg. We also described plans for an online platform where medical students could anonymously seek help and exchange their experiences with fellow students and experts.

Summary of Work: The plans for an online platform were put into practice during 2014 and the platform finally launched in November 2014. Medical students of all semesters have access to it through the university’s learning management system and find information about common stress-related psychosomatic disorders, a range of self-help tools (such as meditation exercises), lists of contact points for professional help and an anonymous online-forum.

Summary of Results: In the initial phase after the platform’s launch, it was accessed by a considerable number of medical students. Platform sections like general information on psychosomatic-symptoms and self-help tools were accessed far more often than the online-forum during the first months after the platform’s launch.

Discussion and Conclusions: Although initial acceptance of the platform was relatively high, students showed a rather passive way of using our platform. While user statistics showed a clear demand for information on stress-related psychosomatic symptoms and its possible remedies, active engagement in the interactive online-forum was rare. We are currently advertising the platform intensively and trying to point out the assured anonymity of the platform and its interactive forum.

Take-home messages: Reluctance to discuss stress-related psychosomatic symptoms with peer medical students may not be solely based on anonymity concerns.

Effects of Buddhism mindfulness on stress among first-year internal medicine residents

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Background: Transitional period from undergraduate to postgraduate medical education is a stressful condition for individual physician with ambition for becoming a specialist. The objective of this study is to evaluate the effect of intervention to reduce stress among first-year internal medicine residents using brief mindfulness program in a Buddhism way.

Summary of Work: A one-day workshop on Buddhism mindfulness was offered to interested physicians during a preparedness course before entering into internal medicine training program of Siriraj Hospital in academic year 2014. Comparison between those with and without significant stress as defined by increment of raw score ≥3 or increment of stress level category using the Thai Stress Test (TST), was performed at baseline (M0) and 3 months after training (M3).

Summary of Results: At M0, there were 56 of 64 residents who gave informed consent for stress monitoring program, 32 were female, 20 were new-comer (finished undergraduate education from other medical schools), and 29 were in affiliated program. Among 18 residents voluntary enrolled to the workshop, 13 were female. At M3, 17 of 56 residents (30%) developed significant stress. No significant difference between the two groups in term of sex, new-comer status, being in affiliated program, and workshop non-participant, were observed (p = 1.000, 0.762, 0.773, and 0.213 respectively). Collection of longitudinal effects are now ongoing.

Discussion and Conclusions: Brief intervention with Buddhism mindfulness for first-year internal medicine residents, has no short-term effect on stress.

Take-home messages: Effective mindfulness development in postgraduate medical education is quite a difficult task.
#5HH11 (24213)
Improving autonomic balance in medical students

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Background: Autonomic function can be tested by heart rate variability study. Its imbalance can be occurred while body and mind have stress. Adjustment to stress or resilience is important factor for balancing. Heart rate variability was shown some stress in our medical students in fourth year medical students. Three year later their copings and adjustments to stress able to balancing their autonomic functions in their life styles. Arrangement in curriculums and recreation processes can make equality for harmonize between study and health in medical students.

Summary of Work: Finger probe in five minute was done by medical equipment (Medicore, SA-3000P). Participants are 24 fourth year medical students (first clinical study year) and eleven of them were done again in the next three years (final year of medical students).

Summary of Results: Comparison SRD (Successive R-R interval difference) was shown statistical significant between before and after three clinical study years (0.91 vs 1.01). (Z= 2.72, p <0.5).

Discussion and Conclusions: Our curriculum and practical module in clinical year medical study may improve their ability to coping with stress. Adjustment in our medical students may be in healthy way.

Take-home messages: Adjustment and coping to stress is important factor for medical study.

#5HH12 (24246)
Work Life Balance of medical students in Vachira Phuket Medical Education Center

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Background: Medical students in clinical practice years are usually under pressure. Inappropriate time management results in impaired quality of life, stress, and discontinuation of medical education. The purpose of this study is to evaluate quality of life of our medical students and identify imbalance of their life in order to provide them assistance promptly.

Summary of Work: All medical students in 4th to 6th year at Vachira Phuket medical education center were enrolled in a cross-sectional study. Each student completed questionnaire of time management in six aspects which consist of education, family relationship, social life, personal health, leisure activities and entertainment and religion activities. Data were presented with radar graph in each year group, and analyzed with ANOVA and LSD at a significance level of 0.05.

Summary of Results: The fifth year medical students had the highest average overall score in six aspects (61.26 percent; SD 8.89). The sixth year medical students had the lowest average overall score (55.24 percent; SD 11.08). The difference reach statistical significance (P=0.037). Analysis with LSD in each aspect found that sixth year medical students had significantly lower score in social life aspect than other years (50.33 percent; P=0.011) and in leisure activities than fifth year (38.17 percent; P=0.001).

Discussion and Conclusions: The fifth year medical students had better work life balance than other years. The sixth year medical students had worse quality of life in social life and leisure activities than other years in Vachira Phuket medical education center.

Take-home messages: The sixth year medical students should be encouraged social life and leisure activities for improvement their quality of life.
#5HH13 (24264)  
The Development of Teaching-Learning Model to Promote Attitude toward Exercise for Health Promotion of Medical Students  
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Phuangpetch Siriloetthananon, Songkhla Hospital, Rehabilitation, Songkhla, Thailand  

**Background:** Exercise is a primary implementation for health promotion, which plays an important role in healthcare. Self-experience in the benefits of exercise is the most practical approach to promote the attitude toward exercise.  

**Summary of Work:** We developed a teaching-learning model in the health promotion course to promote attitude toward exercise for health promotion of medical students. 23 medical students in the fourth year who enrolled in the Health Promotion course were assigned to implement their knowledge of exercise into daily life for 4 weeks, during which they recorded mode of exercise, duration, frequency, intensity and calculated energy expenditure in a logbook. Physical fitness of medical students was assessed before and after running an individual exercise program.  

**Summary of Results:** The majority of mode and intensity of exercise was moderate intensity of aerobic exercise. The frequency of exercise was 4.5±0.9 time per week. The energy expenditure was 2,265±430 in males and 1,178±430 Kcal/week in females. The reduction of body mass index and body fat were 86.9% and 100% respectively. The increased scores found in handgrip strength (78.3%), body flexibility (91.3%), lung capacity (69.6%) and cardiovascular fitness (95.6%). There was a statistically significant difference (p < 0.001) between pretest and posttest of attitude toward exercise.  

**Discussion and Conclusions:** Implementation of active learning of individual exercise in health promotion course lead to better physical fitness and promote attitude toward exercise for health promotion of medical students.  

**Take-home messages:** Active learning of exercise promotes attitude toward exercise for health promotion of medical students.

#5HH14 (25671)  
Comparative quality of life study of 1st vs 3rd year medical students in the Faculty of Medicine, Thammasat University  
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Paskorn Sritipsukho, Faculty of Medicine, Thammasat University, Pediatrics, Pathumthani, Thailand  

**Background:** Normally, the educational program for medical doctors in Thailand consists of basic sciences taking place in 1st year, and basic medical sciences/preclinical sciences which are set in 2nd and 3rd year. We wanted to examine differences in quality of life (QOL) between 1st and 3rd year medical students, due to the differences in academic content in the Faculty of Medicine, Thammasat University.  

**Summary of Work:** After the end of 1st and 3rd year, students were assigned to complete questionnaires, a Thai abbreviated version of World Health Organization Quality of Life (WHOQOL-BREF-THAI). This questionnaire (26 questions) includes four domains: physical health, psychological health, social relationships, the environment, and also overall QOL. The scores range from 1 (very poor/very dissatisfied) to 5 (very good/very satisfied); the QOL score was interpreted as “poor”, “fair”, and “good”.  

**Summary of Results:** From the data (79% response rate), scores of 1st vs 3rd year medical students in “good” levels for physical health, psychological health, social relationships, the environment, and overall QOL were: 51.83% vs 45.05% (p=0.173), 62.80% vs 48.65% (p=0.006), 53.33% vs 51.82% (p=0.278), 43.83% vs 51.38% (p=0.053), and 58.75% vs 54.63% (p=0.428), respectively.  

**Discussion and Conclusions:** Although the academic content was more challenging, the amount of third-year medical students in “good” QOL were similar to first-year students. This may be due to more extracurricular activities available to third-year students to relieve the academic stress.  

**Take-home messages:** Third-year medical students tended to have less satisfaction than first-year students, QOL of higher year students should be further investigated to understand this phenomenon.
Health promotion education and practice program for medical students: Medical students should be healthy

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Background: Health behavior is an important competence for a good doctor. Most medical students have inappropriate health behavior such as diet, exercise and stress management. Kalasin Medical Education Center (KMEC) has set up a health promotion curriculum since 2012 for improvement of health behavior in medical students.

Summary of Work: Closed-ended questionnaires were provided to 4th year medical students before and three months after health promotion education & practice program in 2013 academic year. A three day program for health promotion education & practice consisted of diet, exercise, meditation and stress management. They had a health check-up annually.

Summary of Results: Total numbers of 4th year medical students were 25, 36% were male. Medical students had good perception and attitude to exercise affecting health, mind and social well-being. They have improved inappropriate health behavior (diet: 72% & 80%, exercise: 44% & 48%, stress management: 40% & 60%). They have been more healthy (88% & 92%) and there were increase numbers of medical students who have normal body mass index (56% & 60%).

Discussion and Conclusions: Health promotion education & practice program is good for improvement of health behavior in medical students.

Take-home messages: Medical students should be healthy and be role models in health promotion.

A review of the efficacy of educational interventions aiming to promote wellbeing and reduce stress and burnout among doctors and/or medical students

Julie Ferguson*, NHS Education for Scotland, Medicine, Glasgow, UK
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Background: Stress and burnout are widely recognized as problems among both medical students and doctors. In light of this there has been a call for interventions aimed at promoting the wellbeing and reducing the incidence of stress and burnout in physicians. Although the need for interventions to reduce stress and burnout and improve wellbeing of doctors is clear, the best way to do it is not. Therefore, the overall aim of this review is to determine the effectiveness of interventions to reduce the incidence of stress and burnout and improve the wellbeing of physicians.

Summary of Work: Relevant electronic bibliographic databases have been searched for studies that aimed to assess the impact of interventions aiming to reduce stress, reduce the incidence of burnout or improve the wellbeing of doctors. Two reviewers independently selected and quality assessed the studies and abstracted data regarding study design, setting, intervention employed, outcomes identified and conclusions.

Summary of Results: Database searches yielded 3261 articles. Studies not meeting the inclusion criteria or the quality criteria (n=3240) were excluded. A total of 19 studies met the inclusion criteria and quality assessment criteria and have been data extracted. The data is currently being analysed and the full results will be reported in the poster.

Discussion and Conclusions: This poster will discuss the main findings of the review, focussing on identifying the aspects of the interventions that most positively influence wellbeing or stress/burnout levels.

Take-home messages: Potential implications for practice will be discussed and how the identified aspects can be incorporated into future interventions. Finally implications for future research will be considered.
Leisure-time physical activity and quality of life in medical students

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Itamar Santos, School of Medicine of University of Sao Paulo, Sao Paulo, Brazil
Patricia Tempski, School of Medicine of University of Sao Paulo, Sao Paulo, Brazil
Silmar Gannam, School of Medicine of University of Sao Paulo, Sao Paulo, Brazil
Paulo Silveira, School of Medicine of University of Sao Paulo, Sao Paulo, Brazil
Milton Martins, School of Medicine of University of Sao Paulo, Sao Paulo, Brazil

Background: Previous studies have shown a positive association between the intensity of leisure-time physical activity (PA) and quality of life (QoL). We evaluated the responses of a QoL questionnaire (WHOQOL-BREF) and PA in medical students.

Summary of Work: We studied 1,350 medical students of a random sample from 22 Brazilian medical schools (VERAS study). PA was classified as no PA, low, moderate or vigorous.

Summary of Results: There was a positive association between all domains of WHOQOL-BREF (physical, psychological, social relationships and environment) and the intensity of PA (p<0.05). Both male and female medical students with vigorous PA presented statistically significant more positive responses than students with no PA in 14/26 items of WHOQOL-BREF. The greater differences were in the questions “how much do you enjoy life”, “how satisfied are you with your sex life” and “how would you rate your quality of life” (p<0.001). For only males, the greater difference was “how satisfied are you with your access to health services?” (delta=23.6%, p<0.001) and for females was “to what extent do you feel your life to be meaningful?” (delta=10%, p=0.017).

Discussion and Conclusions: We observed a positive association between QoL and PA in 84.6% of items of WHOQOL-BREF for males and in 61.5% for females. Medical students that reported vigorous PA also have higher scores of QoL. There is a strong association between quality of life and the intensity of leisure-time physical activity in medical students.

Take-home messages: Medical schools must develop programs of physical activity to medical students.

A one year follow-up study on the effects of Simple Happiness class in medical students

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Pattharawin Pattharanitima, Thammasat University, Internal Medicine, Faculty of Medicine, Pathum thani, Thailand
Winitra Nuallaong, Thammasat University, Psychiatry, Faculty of Medicine, Pathum thani, Thailand

Background: Soft skills cannot be completely separated from professional development for medicine education. Happiness is a skill and an essential component of studying. This study was to assess the self development and happiness of medical students after attending the Simple Happiness class and one year follow-up.

Summary of Work: One hundred seventy-eight second-year medical students at the Thammasat University completed the Simple Happiness classes. Afterwards, the self-assessment was evaluated immediately (in 2013, response rate 92.7%) and one year later (in 2014, response rate 74%) using a 5 Likert-type scales questionnaire (Cronbach’s alpha 0.804). The findings were compared by Mann-Whitney tests.

Summary of Results: The effect of classes revealed the improvement of their life skill and self-development including 5 domains-happiness, goal-setting, inspirations, encouragement and sharing. All domains were graded at 4 or 5 by at least 80% of the respondents as well as 68% of students agreeing that the skill is practical in real life. Their skill was still performed at the one-year follow-up study. However, the average score of one year later was significantly decreased in all domains as compared to after class in 2013 (p<0.01). Therefore, the annual boost-up workshop may be suggested for students. The long-term follow up study will be further investigated.

Discussion and Conclusions: The findings in this study showed an agreement that the Simple Happiness class has an effect on their happiness and life skill after class and one year later. The soft skill and professional skill should be simultaneously developed in medical education.

Take-home messages: Happy medical education will change the world. Let’s start NOW.
Plenary: The Angry Risk Taker: Enhancing health professions education by understanding the relationship between emotions and cognitive processes
Location: Clyde Auditorium

Vicky R LeBlanc*, Wilson Centre; Faculty of Dentistry & Department of Medicine, University of Toronto & University Health Network, Toronto, Ontario, Canada

Healthcare practice and education are highly emotional endeavors. Individuals, at any given time, are in an emotional state. This is recognized by educators and researchers seeking to develop interventions aimed at improving wellness in medical trainees and at providing them with skills to deal with emotional interpersonal situations. We have however, largely ignored the role that emotions play on cognitive processes. Yet, our emotional state influences how we perceive the world around us, what we recall from it, as well as the decisions that we make. The purpose of this presentation is to provide an introduction to the broader field of emotions, with the goal of better understanding the integral relationship between emotions and cognitive processes. Rather than treating emotions as undesirable forces that wreak havoc on the rational being, the field of health professions education could be enriched by a greater understanding of how these emotions can shape cognitive processes in increasingly predictable ways.

Plenary: Engaging through stimulation: reframing education for a 21st century world
Location: Clyde Auditorium

Roger I. Kneebone*, Imperial College London, UK

This presentation frames engagement as a cornerstone of clinical education and simulation as a central means to achieve it. Drawing on his innovative and unorthodox approach to educational research, Roger weaves together insights from simulation, technology, the arts, performance and biomedical science to present a controversial and challenging view of clinical education. At its heart is the concept of reciprocal illumination – an exchange of equally (though different) expert perspectives, resulting in a change for all who take part. Roger sets out a blueprint for Engagement and Simulation Science as an emerging domain of scholarship with major untapped potential.
Session 7: Simultaneous Sessions
Tuesday 8 September 2015: 0830-1015

#7A Symposium: Researching Identities in Medical Education: Divergence and Convergence across Theoretical and Analytical Perspectives
Location: Clyde Auditorium

Lynn Monrouxe*, Chang Gung Medical Education Research Centre, Chang Gung Memorial Hospital, Linkou, Taiwan
Rola Ajjawi*, Centre for Medical Education, University of Dundee, UK
Esther Helmich*, Center for Evidence-Based Education, Academic Medical Center, University of Amsterdam, the Netherlands
Ken Mavor*, School of Psychology and Neuroscience, University of St Andrews, UK and ANU Medical School, Australian National University, Australia
Charlotte Rees*, Centre for Medical Education, University of Dundee, UK
Sally Warmington*, School of Population and Global Health, The University of Melbourne, Australia

Researching professional identities in medical education has become increasingly popular. However, the terms identity and identities mean subtly different things across theoretical perspectives and are approached using widely divergent methods. As a result, medical education identity researchers often talk around, rather than to, one another, resulting in a fragmented body of research with missed opportunities to advance knowledge and understanding of identities in medical education. This international symposium brings together ‘identities’ researchers in medical education from a variety of theoretical perspectives (e.g. social constructionist, self-complexity, social identity), drawing on data collected using a diversity of methods (e.g. videoed interactions, interviews, critical incidents, large scale surveys). Using examples, we will examine areas of divergence and convergence across theoretical/analytical perspectives with the aim of developing a synergistic understanding of what identity research is, why it is important and what it can contribute to the education of medical students, trainees and doctors.

Izzy Braithewaite*, University College London, UK
Hanna-Andrea Rother*, School of Public Health and Family Medicine, University of Cape Town, South Africa

How should a socially accountable medical school respond to the growing evidence on global environmental health threats? Climate change, declining biodiversity, chemical contamination and resource depletion threaten to undermine the health gains of the past 100 years, particularly for economically and geographically vulnerable people. The WHO, the World Organisation of Family Doctors and The Global Consensus for Social Accountability have called on medical schools to identify and respond to future health challenges and to recognise the importance of environmental determinants of health. This symposium will summarise the trajectory of evidence, action and curricular change in ways that do not increase the curricular load of medical education. It offers an overview of WHO guidance on climate and health with recommendations for medical education and looks at ways that students and educators can bring this about.

#7B Symposium: Social accountability: medical students as leaders for sustainable healthcare
Location: Hall 2, SECC

Stefi Barna*, Norwich Medical School, University of East Anglia, UK
Diarmid Campbell-Lleadrum*, WHO Europe
David Pencheon*, National Health Service Sustainable Development Unit, UK

This symposium addresses the changing expectations for clinicians in the workplace from learners to faculty and practitioners that now assess competency not only from an individual perspective but also in the workplace setting. As healthcare institutions become learning organizations, what are the strategies and approaches that CPD professionals, educators and clinicians can effectively utilize in integrating learning that aligns the needs and expectations of this new organization?
Cultural competence in health care education.

Systematic review of teachers’ perspectives

Simone de Graaf, VU University Medical Center, Dept of Medical Humanities, Amsterdam, Netherlands
Petra Verdonk*, VU University Medical Center, EMGO Institute for Health and Care Research, School of Medical Sciences, Dept of Medical Humanities, Amsterdam, Netherlands

Nisha Dogra, University of Leicester, Greenwood Institute of Child Health, Dept of Psychology, Leicester, UK
Gerda Croiset, VU University Medical Center, School of Medical Sciences, LEARN, Dept of Public Health, Amsterdam, Netherlands
Jeanine Suurmond, Academic Medical Centre / University of Amsterdam, Dept of Medical Humanities, Amsterdam, Netherlands

on behalf of the C2ME Erasmus LLP project consortium
(2013-2015) Verdonk, VU University Medical Center, EMGO Institute for Health and Care Research, School of Medical Sciences, Amsterdam, Netherlands

Introduction: To provide appropriate care for all patients, culturally competent healthcare professionals are needed. This in turn means that the educators of these healthcare professionals need to be appropriately skilled to teach cultural competence (CC). To ensure good quality teaching, better understanding of the skills needed is required. The aim of this study is to explore the current state of the cultural competency of healthcare educators.

Methods: A systematic review using three databases (ERIC, PubMed and PsycINFO) was performed. Within these databases search terms were used such as: teachers and/or educators, medical and/or nursing education, and CC or cultural diversity. Inclusion criteria were empirical studies written in English or in Dutch, articles about healthcare educators’ experience of CC, methods to teach CC to teachers, and evaluation of teach the teacher programmes. Eighteen qualitative and quantitative articles met the inclusion criteria. The quality was assessed based on established criteria for reporting studies. We performed a qualitative thematic content analysis of the articles and produced an analytic narrative in which data were related back to the research question.

Results: We categorized the findings according to the definition of CC by researchers and respondents, educators’ CC, and their perspective about teaching CC. No standard definition of CC was given by researchers and respondents. Definitions varied from a multidimensional approach of diversity to a more essentialist approach of ethnicity as a main determinant of culture. Teachers self-reported as CC but also doubted abilities and self-confidence in teaching CC such as how to prevent students from stereotyping patients, and how to deal with student diversity. Previous training is positively related to CC in educators but little is known about programmes completed. Teachers describe teaching CC as fragmented, and integration of CC across curricula as lacking. Perceived barriers are: teaching CC is not prioritized and lacks resources such as curricular time; educators’ uncertainty about central aims and philosophy of CC training; difficulties with teaching culturally diverse students; educators’ experiences of student resistance towards CC or even disrespect. Teachers themselves felt challenged by having to reflect on their own values. Different needs such as receiving support by faculty management were expressed. Teaching strategies used include teachers’ and students’ own experiences.

Discussion and Conclusions: Our findings showed that teachers although generally self-reported as competent, had doubts. CC training can support teachers to reflect on their own social identities including cultural background in several ways. First, CC training should include teacher reflexivity as well as how to stimulate student reflexivity. Second, CC training should include an intersectional approach towards diversity; a multidimensional approach helps to understand how identities and their intersections play a role in health and health care. Third, teachers need skills training such as facilitating small group discussions and dealing with diverse student groups. Fourth, institutional support for teaching CC and the structural integration of CC in healthcare education is warranted. Cultural diversity needs to be prioritized and implemented at institutional level in health care and medical education. Teachers need support and training to teach CC.

Toward a diversity-responsive medical curriculum

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Veerle Krajenbrink, VU medical center, Medical Humanities, Amsterdam, Netherlands
Saskia Peerdeman, VU medical center, Medical Humanities, Amsterdam, Netherlands
Gerda Croiset, VUmc School of Medical Sciences, Amsterdam, Netherlands
Petra Verdonk, VU medical center, Amsterdam, Netherlands

Introduction: Variations in health and care needs between different cultural groups have prompted medical schools to implement diversity topics into their curricula. Often, such efforts are focused at cultural aspects of diversity, which can lead to cultural essentialism and induce rather than resolve stereotypes. Therefore, a more complex conceptualization of diversity is needed. The intersectionality paradigm can provide a framework for diversity teaching in medical education [Powell Sears, 2012]. The framework assumes that individuals experience multiple interacting and mutually reinforcing social identities, according to for instance
gender, sexuality, social class, race and ethnicity. The intersection of identities creates unique and dynamic social locations, which occur within a context of sustained and reproduced power differences and relate to various forms of privilege and disadvantages [Hankivsky, 2014]. This study was aimed at using an intersectionality approach to evaluate the diversity-responsiveness of a medical curriculum.

**Methods:** We used a two-phase data collection and analysis protocol within a case study design. In phase one, we defined essential learning objectives through semi-structured interviews with school stakeholders and a literature search. In phase two, we screened the written curriculum for diversity content and compared it with the objectives defined in phase one.

**Results:** We identified essential learning objectives in three areas of medical education (medical knowledge and skills, patient-physician communication, and reflexivity), and grouped their content according to the social locations culture, sex & gender (including sexual orientation) and class and their intersections. We found that most diversity-related curriculum content pertained to medical knowledge and skills. While culture was addressed on different educational levels and throughout the curriculum, limited attention was paid to its role as a determinant of health and healthcare use. Sex & gender was addressed mostly on a biomedical level through reproductive health and urogynaecological issues. Sexual orientation was marginally addressed. ‘Class’ was addressed only in relation to socioeconomic differences in life expectancy. Intersections of culture, sex/gender and class remained unaddressed. For instance, the gendered topic ‘termination of pregnancy’, was addressed from a white, secular, middle-class perspective, and reproductive issues were largely addressed from a heterosexual perspective.

**Discussion and Conclusions:** Diversity-related curriculum content mostly referred to biomedical aspects of culture and sex. The curriculum’s diversity responsiveness could be improved by an operationalization of diversity that goes beyond biomedical traits of assumed homogeneous social groups. We therefore suggest that the medical school advances its diversity education in all areas of education and throughout all learning objectives by addressing both biomedical and sociocultural aspects of patients’ intersecting identities, and by taking into account the larger societal context that influences health outcomes of individuals and groups. Relevant issues involving class/socioeconomic status deserve more focus throughout the curriculum, as do issues related to sex/gender and sexual orientation. An intersectional approach to communication and reflexivity training, both considered elementary in the education of physicians, can enhance medical students’ critical thinking and self-awareness. To sustain the mainstreaming of diversity teaching, medical schools should aim to apply the intersectionality approach not only on a curricular level, but also on an institutional and compositional level.

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**#7D3 (23559)**

Louder than Words: Power and Conflict in Interprofessional Education Articles, 1954-2013

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**Introduction:** Interprofessional education (IPE) aspires to enable collaborative practice. Current IPE offerings, while rapidly proliferating, lack evidence of efficacy and theoretical grounding. Our research aimed to explore the historical emergence of the field of IPE and analyze the positioning of this academic field of inquiry. In particular, we sought to investigate to what extent power and conflict—elements central to interprofessional care—figure in the IPE literature.

**Methods:** We used a combination of deductive and inductive automated coding and manual coding to explore the contents of 2,191 articles in the IPE literature published between 1954 to 2013. Inductive coding focused on the presence and use of the sociological (rather than statistical) version of power: one about hierarchies and asymmetries between the professions. Articles found to centrally be about power were then analyzed using content analysis.

**Results:** IPE publications have grown exponentially in the past decade. Deductive coding of identified articles showed an emphasis on students, learning, programs and practice. Automated Inductive coding of titles and abstracts found a potential of 129 articles about power, but manual coding found only 6 articles that put power and conflict at the centre. Content analysis of these 6 articles revealed 2 that provided tentative explorations of power dynamics, 1 that skirted around this issue, and 3 that explicitly theorized and integrated power and conflict.

**Discussion and Conclusions:** The lack of attention to power and conflict in the IPE literature suggests that many educators do not foreground these issues. Educational programs are expected to transform individuals into effective collaborators, without heed to structural, organizational and institutional factors. In so doing, current constructions of IPE veil the problems that IPE attempts to solve.
Beliefs about workplace learning and organisation in postgraduate medical education – a qualitative case study of three paediatric departments

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Introduction: Several studies have examined how doctors learn in the workplace, but research is needed to shed light on how work organisation influences how junior doctors learn in the workplace and to help answer how learning opportunities in the workplace can be organised more explicitly. This knowledge is needed to help medical education planners face the challenges and tensions in organising specialist training in clinical departments.

This qualitative case study examines how doctors’ perceptions of learning are shaped by the daily work routine and the workplace organisation. We examine residents’ and faculty’s attitudes and beliefs regarding resident training, including their views on how contextual or organisational factors influence the organisation and planning of medical specialist training. We examine residents’ and faculty’s attitudes and beliefs regarding resident training, including their views on how contextual or organisational factors influence the organisation and planning of medical specialist training. Focus is on the daily activities of the residents and how they engage in learning during work. This is compared to the beliefs regarding educational planning of workplace learning of both residents and consultants responsible for medical education (CRE) in order to elucidate any hindering factors in the organisation of daily work in regard to the specialist training of residents.

Methods: The study consists of a short time ethnographic observational case study in three paediatric departments in Denmark combined with focus group interviews with 9 consultants responsible for medical education and 16 residents. Interviews were audio-recorded and transcribed. Observational field-notes and interview data was entered into NVivo 10 qualitative analysis software. Data was read iteratively and analysed using a data driven thematic analysis approach to identify major themes, which were further categorised and abstracted to answer the research question. To guide our theoretical understanding we used the concept of workplace affordances by Billett and the notions of “espoused theory” and “theories-in-use” by Argyris and Schon.

Results: Participants’ beliefs regarding workplace learning in medical training focus on patient care and apprenticeship between junior and senior doctors. Data suggest that beliefs regarding workplace learning and the organising of work are not always in congruence with what is practiced in the reality of everyday work. Views and beliefs regarding “training versus production” were found to be a potential conflict between residents, who see it as contradictory, and consultants who see production as conducive to learning. Continuity in tasks and in patient care is believed to be of importance but challenges the organising of the daily work routines. The learning culture and managers’ role in the department are essential contributions to creating a successful work organisation in regards to learning.

Discussion and Conclusions: This case study provides valuable insight into the factors influencing the learning process and the organisation of daily work, e.g. the availability of supervising specialists, continuity of patient care and the affordance and structuring of work in accordance with Billett’s workplace affordances theory. Managers and educational planners should inform residents more explicitly of their beliefs and assumptions on which they plan and structure daily work. This might help break down tensions created by viewing production and training as opposing each other, and help residents and faculty to engage and participate more focused in workplace training.

Who should teach rheumatology to medical students, a rheumatologist or an internist?

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Background: Rheumatology is listed as a special topic in the Thai medical competency assessment criteria of the 2012 national license examination. Lacking of rheumatologist in the affiliate medical centers may affect students’ performances in rheumatology.

Summary of Work: The study was performed as cross-sectional and non-randomized among 6th year medical students (n=109) at 5 affiliate medical education centers (MECs) and the Faculty of Medicine, Naresuan University Hospital (NUH), Thailand. Medical students in 2 large MECs and NUH were taught rheumatology by a rheumatologist while the internists did so in other 3 smaller MECs. Sixty items multiple choice questions (MCQs) which each item was defined as “should know” or “must know” was apply for summative assessment of students’ performances. A self-responded questionnaire was distributed for their perspective evaluation about learning rheumatology with internist and rheumatologist.

Summary of Results: There was a significant higher scores of the “should know” items (p=0.031) in the medical students who were taught by rheumatologist while the “must know” and total scores were not significantly different. However, most of medical students (83.2%) still need to learn rheumatology from rheumatologist with the expectation that rheumatologist provides more emphasize and focusing on clinical and practical points than the internist do.

Discussion and Conclusions: The result indicated that teaching rheumatology to medical student can be done by internist, but learning from rheumatologist can enhance students’ performance, clinical practice and self-confidence.

Take-home messages: It is better to learn rheumatology directly from Rheumatologist because it cover “should know” items.

Making a Case for Teaching to Teach

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The value of teaching our learners the basics of anatomy, pathology, and pharmacology has been long recognized but the value of medical education as a discipline has often been lost on those apportioning curriculum time in medical schools. This runs counter to the very name we call ourselves, doctor. This word, derived from the Latin docere, at its very essence means “to teach.” Somewhere along the way of building curricula to include everything from mitosis to neurons to functional MRI, we have forgotten the value of teaching our physicians to teach. This will not only improve their abilities to learn but also has the opportunity to improve their future patients’ outcomes. When novices have basic insights into the processes that govern their learning it enhances opportunities for self-reflection and encourages insights that may better streamline their own learning. Developing an appreciation of how to teach and thus how we learn would better prepare these physicians for their future development. Further by better recognizing the value of and capitalizing on patient education we may better engage our patients in their healthcare and promote their overall health. This brief presentation will discuss concrete ways to incorporate teaching to teach into almost any teaching encounter of developing physicians in hopes of inspiring future medical educators while also enhancing the care of the patients they will serve.
#7E3 (23371)
Developing and assessing readiness to implement technology in teaching

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Background: Implementing appropriate instructional technologies in teaching is particularly relevant for higher education. However, lecturers are often reluctant to implement such technologies in their classes. Previous studies suggest that lecturers need extensive support for successful implementation. We aimed to develop and assess readiness of lecturers to use online forums in academic classes by a multi-faceted Readiness Development & Assessment Methodology (RDAM).

Summary of Work: Online forums were incorporated along a yearly faculty development program for medical lecturers, between face-to-face meetings (intervention group). For a control group, the program was accompanied only by a regular website. The RDAM is based on quantitative and qualitative analyses of self-reports as well as authentic attitude assessment. The data collected from various sources: (i) pre- and post-program questionnaires; (ii) self-assessment of knowledge regarding technology-supported pedagogy; authentic attitude expressed in (iii) forum discourse and in (iv) reflection of participants on their forum activity; (v) reflection of participants who got firsthand experience in facilitating forums. We employed a mixed approach to qualitative analysis for identifying attitudes that emerged from forums and reflections, incorporating both the constructivist and interpretative methodologies.

Summary of Results: RDAM output exposed a complex picture of strengths and weaknesses lecturers experience in using online forums.

Discussion and Conclusions: The RDAM we offer includes in its core firsthand experience with learning by the chosen instructional technology and with teaching with it. As the 2nd level, in the case of online forums, we can use the actual forums discourse for assessing authentic attitude towards this tool. The 3rd level is self-assessment of knowledge about using the particular instructional technology, and the highest awareness level is the reflection on actual using the tool and teaching with it.

Take-home messages: The gained insights can inform policy makers, training designers, and researchers about the challenges lecturers face in incorporating instructional technologies in their teaching.

#7E4 (25459)
Agency and reflexivity in senior clinical academics

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Background: Running a medical school is a complex business, so it would be helpful if we could understand our colleagues’ motivation (or disinclination) to teach medical students.

Summary of Work: A series of fourteen semi-structured interviews were held with senior clinical colleagues aimed at uncovering the perceived barriers and enablers for being involved with teaching undergraduate medical students. The interviews were recorded, transcribed and coded inductively and abductively.

Summary of Results: As might be predicted, the main reasons for teaching were the students themselves and a desire to give them the best experience possible. The main barriers revolved around issues of clarity of expectation and a lack of recognition. The participants represented the full range of Archer’s types of reflexivity (Archer, M. S. (2012). The reflexive imperative in late modernity. Cambridge: Cambridge University Press.), and included a type of reflexivity hitherto undescribed – those who abrogated responsibility for an issue.

Discussion and Conclusions: When asked for suggestions to improve matters, or to enable colleagues to become more involved, the main hope was for individuals to be given more agency. This included the flexibility to be allowed to determine when they could engage with students, but also the freedom to be allowed to go "off-message" or away from the syllabus when opportunities presented themselves.

Take-home messages: We need to recognise the elements that prompt our colleagues to engage with students, and find ways to allow them elements of freedom and choice to engage in those things which they find most important or interesting.
Making explicit the implicit: clinical teachers' views of learning from role models

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Background: Medical students spend a significant proportion of their degree learning through exposure to clinical settings. There is an assumption that much of this learning results from role modelling. Whilst there is wide consensus on the attributes of positive doctor role models (e.g. Althouse et al, 1999) and evidence of the impact role models on specialty career choice (Basco & Reigart, 2001), there is little critical exploration of how clinical teachers think medical students learn from role models. What are the processes occurring in clinical settings that support learning from role models and what strategies do they apply to encourage learners to learn in this way? Our previous findings suggest that students' experiences of learning from role models are varied but that role modelling consciousness (Wright and Caresse, 2002) by clinical teachers is key.

Summary of Work: Clinical teachers were interviewed to explore their views on how medical students learn from them via role modelling and how they support students' learning via this method. Data from interviews was thematically analysed.

Summary of Results: Clinical teachers described strategies they consciously use when role modelling and reflected on the challenges of being role models and missed learning opportunities that could be maximised.

Discussion and Conclusions: Teaching by role modelling is a strategy that benefits from careful planning and evaluation like any other. Students could also be helped to recognise learning from role models as a skill that needs developing.

Take-home messages: Conclusions drawn from these interviews will enable recommendations to be made around how learning from role models could be more systematic and effective.

A study to explore the faculty professionalism

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Background: Physician faculty professionalism includes 4 domains (Clinical Skills, Teaching Skills, Modeling the Healer Role, Modeling the Professional Role). The modified professionalism assessment of clinical teachers (M-PACT: 20 items in 4 domains) was implemented in 2014 for the evaluation of clinical medical faculty members.

Summary of Work: Each fifth-year clerk was asked to anonymously evaluate their supervising faculty after each week clerkship rotation in pediatric department in Chang Gung Memorial Hospital.

Summary of Results: Total 381 M-PACT evaluations were completed on 54 faculty members from 79 students. An average of 7.1 (±SD 5.4, range 1 to 33) M-PACT forms were completed per faculty. Thirty-eight staffs (70.4%) received more than 4 assessments (≥ 5 times). Most faculty members were rated highly; however “can find the learning difficulties of students” was the least well-rated item and “teaching skill” was the least well-rated domain. The total mean global rating score (0-100) per form given by students was 94.9 (SD = 4.7) and ranged from 68 to 100, with a median rating score of 95. Respectful interaction with students appeared to be the most influential item in the global rating of faculty performance. The free-text comments was about 42.8% and the positive and negative comment length were positive and negative related with global rating. About 69% positive and 71% negative comments belonged to the domain of teaching skill and “was available and approachable” is the mostly appeared item in both positive and negative comments.

Discussion and Conclusions: The item “can find the learning difficulties of students” might be the important weakness of faculty professionalism and respectful interaction with students appeared to be the most influential item in the global rating of faculty performance. “The physician was available and approachable” is the most concern from the student’s free-text positive and negative comments.

Take-home messages: The teaching skill domain in faculty professionalism might need to be emphasized for faculty development including “can find the learning difficulties of students”, “respectful interaction with students” and “available and approachable”.
Scholarly contributions of pharmacist educators in family medicine in North America: A five-year review

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**Background**: Pharmacists’ roles in family medicine training programs are well established. Little data is known regarding their scholarly contributions. This project evaluates the scholarly contributions pharmacists in family medicine are making in North American literature and conferences and the impact on physician resident assessment via The Accreditation Council for Graduate Medical Education (ACGME) family medicine core competencies.

**Summary of Work**: A retrospective review of scholarly contributions by pharmacists was evaluated via publications in nine of the highest impact family medicine journals and presentations at four major family medicine conferences from January 1, 2010 – December 31, 2014. Data collected included geographic location, affiliation, credentials, type of collaboration and topic of each submission.

**Summary of Results**: There were 418 unique pharmacists who produced 676 unique scholarly works during the study period. Each pharmacist averaged 1.6 scholarly works with an average of 1.4 pharmacists per work. Publications have gradually increased from 2.5 to 4.4%, while presentations have remained more stagnant, fluctuating between 3.0 and 4.0% over the study period. The most common ACGME core competencies supported were medical knowledge (37.6%), patient care (27.2%) and systems-based practice (24.3%).

**Discussion and Conclusions**: Pharmacist involvement in scholarly works has increased, yet is a small subset of the scholarly works in family medicine. This work was limited by differences in reporting by publications and conference programs. Uniquely, this data identifies pharmacists as educators of systems-based practice as well as medical knowledge and patient care. Pharmacists have a growing role in scholarship with a broader focus than pharmacotherapy knowledge.

**Take-home messages**: Pharmacists are active in family medicine scholarship.
Developing and evaluating a feedback system using Feedback Postcards: A participatory action research study

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Background: Graduating students from University of Edinburgh medical school feel they receive insufficient feedback on clinical attachments, despite increased emphasis within programme guides and policies. Data from internal research refer to students receiving feedback and seldom raise the possibility of students proactively seeking feedback. However, feedback-seeking can improve motivation, engagement, learning and performance and supports integration into new learning environments.

Summary of Work: We have developed a system through participatory action research for students to proactively seek and record feedback in the clinical setting using Feedback Postcards. Qualitatively analysed data from students and staff are obtained through focus groups, interviews and questionnaires to guide changes and evaluate impact.

Summary of Results: Early results indicate students and staff are overwhelmingly positive. We have implemented or plan to implement changes to the Feedback Postcards, including redesigning to encourage more structured and balanced feedback, promoting reflection on feedback received and demonstrating progression through the year. We have also streamlined practical aspects such as distribution and time-saving measures and improved cost effectiveness. A collective approach to problem-solving enabled us to redesign this system to help identify and support students in difficulty and determine areas for staff training.

Discussion and Conclusions: This ongoing project is being successfully piloted in years 3 and 5 of a 5-year medical degree, enabling students and staff to feel empowered to take ownership and work together to design a feedback system that is satisfactory, usable and fit for purpose.

Take-home messages: Involvement of students and staff to participate in the design and encouraging ownership are key for successfully developing a feedback system.

Professionalism and communication: Anonymous versus self-identified feedback from medical students

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Background: Educational institutions, including medical schools, place an increasing emphasis on the importance of feedback from students for evaluating teaching and learning. However, this form of communication between students and educators is not considered usually in discussions surrounding developing professionalism in medical students, particularly in respect of student understanding of communicating in a professional manner.

Summary of Work: This paper presents a small-scale exploratory study to investigate differences between anonymous and self-identified written feedback from medical students about their perceptions of teaching and learning experiences. An approach that medical educators could use to identify and categorise unprofessional features of written feedback from medical students was developed.

Summary of Results: The results of the study showed distinct differences between features of feedback provided by students under the cloak of anonymity, compared to feedback where students chose to reveal their identity. Our analysis showed that within anonymous feedback there were more comments which contained only, or mainly, unprofessional communication features.

Discussion and Conclusions: The results should not mean that educational institutions no longer solicit anonymous feedback but, rather, use it to analyse and monitor feedback in terms of students’ developing professionalism. If unprofessional comments are prevalent these can be used as a learning opportunity. Cohort level feedback to the students regarding forms of professional and unprofessional written communication can be provided as part of students’ reflection on and learning about professional behaviour.

Take-home messages: Useful insights into medical students’ developing professionalism can be generated when medical educators investigate how students communicate in a written form. Such processes can be used to enhance the evolution of students’ understanding of their own professional behaviour.
#7F3 (24588)

The design, development and implementation of Healthcare Supervision Logbook: a novel Smartphone App to provide feedback on training, from both a trainer’s and a trainee’s perspective.

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**Background:** Feedback drives learning in medical education. More regular multisource feedback would improve appraisal for doctors-in-training. Trainers receive little feedback on supervision they provide to doctors-in-training. Barriers against providing feedback include time constraints and lack of clear mechanisms to do so.

**Summary of Work:** A literature review confirmed that a Smartphone App to provide feedback on medical training was a new concept. Different training environments were identified and feedback pro formas for each area developed for trainers and trainees. These were software engineered into a pre-existing logbook App (with permission) and pilot phases completed. Professional software engineering was subsequently undertaken: Healthcare Supervision Logbook (HSL) was introduced to clinical practice in obstetrics and gynaecology from January 2015.

**Summary of Results:** Trainers can use HSL for providing feedback about a trainee’s performance in a clinical session and trainees can use it for providing feedback about their perceived value of the educational content of a clinical session, including the educational and clinical supervision they have received. HSL also contains a specialty-specific logbook and a mechanism for collecting patient and colleague feedback. 40 doctors used the App from January 2015, before a wider role out across Sheffield Teaching Hospitals, UK.

**Discussion and Conclusions:** Healthcare Supervision Logbook allows trainers to provide daily feedback about a trainee’s performance which can be used to facilitate appraisal and highlight areas for development. Sessional feedback provided by trainees can be used similarly to identify patterns and improve the quality of training provided.

**Take-home messages:** Healthcare Supervision Logbook is a Smartphone App to provide feedback and aid appraisal, developed at Sheffield Teaching Hospitals, UK.

#7F4 (25863)

Improving residency training with the help of multisource feedback: Generation of a model of influencing factors

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**Background:** Feedback is considered to be one of the most important drivers of learning. One form of structured feedback used in medical settings is multisource feedback (MSF). This feedback technique provides the opportunity to gain a differentiated view on a doctor’s performance from several perspectives using a questionnaire and a facilitating conversation, in which learning goals are formulated. While many studies have been conducted on the validity, reliability and feasibility of the instrument, little is known about the impact of factors that might influence the effects of MSF on clinical performance.

**Summary of Work:** To study under which circumstances MSF is most effective, we performed a literature review on Google Scholar with focus on MSF and feedback in general. Main key-words were: MSF, multi-source-feedback, multi source feedback, and feedback each combined with influencing/hindering/facilitating factors, effective, effectiveness, doctors-in-training, and surgery.

**Summary of Results:** Based on the literature, we developed a preliminary model of facilitating factors. This model includes five main factors influencing MSF: questionnaire, doctor-in-training, group of raters, facilitating supervisor, and facilitating conversation.

**Discussion and Conclusions:** Especially the following points that might influence MSF have not yet been sufficiently studied: facilitating conversation with the supervisor, individual aspects of doctors-in-training, and the causal relations between influencing factors. Overall there are only very few studies focusing on the impact of MSF on actual and long-term performance. We developed a preliminary model of hindering and facilitating factors on MSF. Further studies are needed to better understand under which circumstances MSF is most effective.

**Take-home messages:** The preliminary model might help to guide further studies on how to implement MSF to use it at its full potential.
Assessment for learning – closing the feedback loop

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Background: It is clear that feedback plays a key role in the learning process, but there are many challenges to the provision of effective feedback. A common complaint from staff is that students do not use feedback and may not even collect their graded work. Recent research suggests that although the majority of students do pay attention to feedback, it is apparent that students may not be able to utilise feedback effectively, for example because the feedback has not been understood, or the student cannot see the relevance of the feedback to future work (feed-forward).

Summary of Work: We introduced short written reflections on feedback within our postgraduate MSc (MedSci) in Medical Genetics; and in the subsequent year we introduced a further change: withholding of grades to prevent the emotional response to the grade detracting focus from the feedback itself.

Summary of Results: We found the majority of students to be in favour of these changes, and several students indicated a change in their approach to using feedback. One interesting finding was that the group of students who wrote the most insightful reflections made the most significant improvements in grades, whilst the group of students who tended to reiterate feedback comments demonstrated less improvement.

Discussion and Conclusions: Grade improvement is apparent when students are required to formally reflect on feedback, and withholding of grades helps to focus students’ attention on the feedback.

Take-home messages: It is not enough to provide feedback; we must also ensure that strategies are in place in order that students are able to use feedback effectively.

Moving Feedback Forward: A focus group study exploring residents’ opinions on feedback

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Background: Performance-based feedback, an important element in the professional growth of clinical trainees, reinforces positive behaviors and identifies areas for improvement. Many residents report that their supervising faculty do not provide adequate feedback, and feedback provided is often vague and non-specific. We aimed to explore our resident opinions on feedback; examine the frequency and quality of feedback provided by department faculty; and obtain perspectives on effective and ineffective feedback strategies.

Summary of Work: Using focus group methodology, we explored resident perceptions of feedback in general and the state of feedback in our Department of Medicine. Three focus group discussions were held (December 2013 to January 2014), comprising 8-10 residents each and representing all postgraduate years. Sessions were audiotaped, transcribed, and analyzed using qualitative methods.

Summary of Results: Residents shared their insights on the benefits of feedback, challenges in giving and receiving feedback and best practices for effective feedback. Emergent themes included: (1) feedback is seen as synonymous with criticism (2) friendly departmental culture is a barrier to corrective feedback; (3) feedback is most effective with incorporation of resident goals; (4) feedback should lead to action plans; and (5) skills training could enhance the quality of faculty and peer feedback. Residents also described feedback techniques best avoided.

Discussion and Conclusions: Feedback incorporating trainee goals, emphasizing clinical performance and facilitating action plans is most likely to lead to validation of residents’ strengths and remediation of weaknesses.

Take-home messages: Specific skills development and emphasis on fostering a favorable learning environment will promote a culture conducive to giving and accepting feedback.
Fuss free formative feedback, using TurningPoint as an assessment tool

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Background: Students commonly report a lack of sufficient individual feedback and formative assessment to inform their learning. We aimed to assess TurningPoint technology to deliver personalised formative classroom assessment to medical students, identifying learner needs and promoting self-direction.

Summary of Work: We delivered weekly TurningPoint quizzes to undergraduate clinical medical students, based on objectives covered in their teaching, consisting of cases linking multiple choice questions. Learners were divided into groups, allowing discussion but independent voting. Cumulative responses appeared on screen, identifying correct answers, followed by discussion. Learners received immediate feedback and were able to compare their knowledge with their peers. After the quiz, learners received a personalised email with the correct answers, group performance, and their ranking versus their peers using quartiles. Learners in the lowest quartile overall were identified and referred voluntarily to their educational supervisors, and informed of topic areas with poorest performance.

Summary of Results: Sessions were rated an average of 9.3/10 for usefulness and relevance and 8.5/10 for influencing personal study. Qualitative evaluation praised “real time feedback” which “helped identify what you knew and what you needed to revise”. All learners passed the summative assessment, non-significantly better than the whole year (Local-mean 75.6%, Year-mean 75.0%, T-test: p=0.68). Formative quiz scores correlated significantly with summative results (Pearson-correlation n=40, R=0.4, p=0.012).

Discussion and Conclusions: Using TurningPoint, database formulae and a mail merge, we achieved regular personalised assessment and feedback, directed students learning. Set-up was resource intensive but subsequent use required little further resource.

Take-home messages: This is a valuable addition to learner feedback methods and is being piloted in more units.
#7G1 (24849)
Validation of a French version of the standardised patient satisfaction questionnaire (SPSQ).

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Background: The objective of this study is to validate a French version of a questionnaire aimed at evaluating interpersonal skills of medical students in the context of ambulatory consultations.

Summary of Work: A quantitative prospective study will be performed between February and March, 2015, during simulated consultations using professional actors as standardized patients (SPs). This study will be conducted with the whole classes of the 4th and 5th year medical students excepted repeaters. Each student enrolled in the study (n= 443) will conduct four consultations. Thus 1,772 consultations will be evaluated. To assess their interpersonal skills at the end of each consultation, SPs will complete the SPSQ questionnaire [1] translated into French - as well as the French version of the MAAS global [2] and the French version of the Hodges’ questionnaire [3], previously used by our team. Randomly selected French SPSQ questionnaires will also be rated by a medical teacher after watching the video recordings. The translation of the SPSQ questionnaire followed a strict process in three steps: translation into French by our team; translation of this new version into English by a bilingual person; adjustment of the French version in comparison to the two English versions by an English teacher. The validity of the French version of the SPSQ will be evaluated analyzing structure validity, consistency of responses, concurrent validity and discriminant validity; the reliability will be assessed by estimation of internal and inter-actors consistency and inter-raters reproducibility.

Summary of Results: Results, interpretation and conclusions will be available in June 2015.

#7G2 (24584)
Trauma-team simulation as a learning context

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Background: Trauma-team simulation might be a challenging learning context for junior anaesthetists. The aim of the work is to study the experiences of trauma-team members concerning high-fidelity simulation as series of learning encounters and their perceived benefits.

Summary of Work: Phenomenography was chosen as the research approach. Ten participants were recruited as a purposeful sample, aiming for variation. Semi structured interviews were used to collect data. The questions were constructed to prompt discussion about the participants’ perceptions about high-fidelity simulation as a learning context.

Summary of Results: Three main themes emerged from the analysis of interviews of four anaesthetists, three surgeons and three nurses: Emotions, Challenging team-work and Facilitating learning. Within each theme qualitative differences could be described, varying from less to more advanced conceptions of the trainees’ clinical actions. All participants felt excited prior to the simulation session (Emotions). The simple category answers displayed anxiety of being examined during simulation while the advanced category answers reflected positive excitement. All participants recognised problems in team work (Challenging team-work). The less complex category answers blamed the leader or the members of the team, while the advanced category described a team failing to cope with the situation. The participants felt that trauma-team simulations Facilitated their learning.

Discussion and Conclusions: The anxiety felt by the novices might hinder their learning in this complicated learning context while the experienced participants were eager to support them.

Take-home messages: To optimize the learning in the simulation, instructors should pay attention to the individual learning needs.
Time for reflection – the balance between repetition and feedback in resuscitation training

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Background: The simulation literature widely agrees that the reflective learning phase is equal to or perhaps of even greater importance than the actual simulated scenario to ensure learning. Nevertheless, advanced life support (ALS) tends to have many simulated scenarios followed by short feedback/debriefing sessions. The aim of this study was to compare the ability of two groups of novice learners to stay adherent to the ALS guidelines after they had received either 8 or 12 simulated resuscitation scenarios, both in 4 hours.

Summary of Work: This study was designed as a randomised control trial. Fifty-four 4th-year medical students with no prior advanced resuscitation training participated in an extracurricular one-day ALS course. Participants were either randomised to go through 8 scenarios (intervention group) or 12 scenarios (control group) in the 4 hours dedicated for simulation. The scenarios lasted approximately 15 minutes each which left 5 minutes for feedback for the control group and 15 minutes for feedback for the intervention group. Acquired knowledge and skills were assessed using the European Resuscitation Council’s Cardiac Arrest Simulation Test (CASTest) in retention tests conducted 1 and 12 weeks after the course.

Summary of Results: There was no statistically significant difference in the test scores between the intervention group and control group in the 1-week retention test (p=0.59) and 12-week retention test (p=0.46).

Discussion and Conclusions: This study suggests that a decrease in the number of repetitive ALS simulation scenarios does not decrease learning when the debriefing is equally prolonged to ensure sufficient time for reflection and abstract conceptualisation.

The Impact of Name Tags on Participants’ Situational Awareness During High Fidelity Simulation. A Prospective Randomized Controlled Simple Blinded Trial

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Background: Obtaining and maintaining the situational awareness of participants in a high fidelity (Hi-Fi) simulation is essential for a better learning experience. We investigated whether wearing name tags and place identification during Hi-Fi simulation leads to better residents’ situational awareness.

Summary of Work: 25 anesthesia residents unaware of the exact topic of the study ran six Hi-Fi simulation sessions. Two scenarios randomized in tags (intervention group) or no tags (control group) scenarios took place with the same participants. At the end of each scenario, each participant completed a 6-question survey (7-point Likert scale) in order to evaluate their situation awareness as well as their overall emotional engagement and commitment level. Later, a randomisation blinded auditor listened to the soundtrack (without the visual) of the videos in search of specific indicators related to participants poor situational awareness.

Summary of Results: The subjects’ assessment of their own situation awareness was not influenced by the intervention (name tags and formal indentification of scenarios’ location). The emotional implication and the subjects’ perceived realism leading to learning engagement was not modified by the intervention either. The intervention had no effect on the residents’ learning engagement. Number of indicators suggesting poor situation awareness was not statistically different between groups.

Discussion and Conclusions: Our study suggests that wearing name tags during Hi-Fi simulation scenarios does not improve trainees’ perception of their own situational awareness or commitment.

Take-home messages: The usefulness of name tags or formal participants identification should be discussed in terms of learners and scenarios characteristics as well as educational objectives.
#7G5 (28070)  
Shifting gears to drive standardized debriefing down new roads  

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**Background:** Simulated Patients (SPs) are being asked to debrief in increasingly diverse medical populations and ratios of learners to SP – everything from group encounters, whether face-to-face or via telehealth to interprofessional teams; to medical groups that might include physicians as well as their staff. Observing and engaging groups can be a vastly different experience than one-on-one encounters.  

**Summary of Work:** SPs trained to debrief and offer feedback one-on-one to medical trainees are being asked to generalize their perspectives to broader contexts. They are asked to make sense of the new interpersonal/interprofessional reactions, recalibrating their strategies for greater impact on larger audiences.  

**Summary of Results:** SPs report greater understanding of, and excitement about communication debriefing and expanding contexts. Because of the SP debriefing, professionals in many contexts report clearer understanding of effective communication.  

**Discussion and Conclusions:** SPs report greater understanding of, and excitement about communication debriefing and expanding contexts. Because of the SP debriefing, professionals in many contexts report clearer understanding of effective communication.  

**Take-home messages:** Changing gears to the benefit of both SPs and medical professionals is not only possible, but successful!
Psychological and physical effects on Standardized Patients: a qualitative study of their experiences during training and use at Aga Khan University

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**Background:** Standardized Patients (SPs) are essential part of medical and nursing education. Faculty of Health Sciences at Aga Khan University (AKU), Karachi Pakistan recruits and trains SPs for training and assessment of medical and nursing students. It is essential to identify the effect on SPs to enhance their commitment to the program.

**Summary of Work:** A total of 3 focus group discussions and 5 in depth interviews were conducted involving 25 of the 85 SPs. FGDs and interviews were audio-taped and transcribed followed by systematic analysis and independent coding by the principal and the co-investigator which were categorized and themes developed.

**Summary of Results:** Monetary incentives were the foremost reason to join the SP program followed by a sense of belongingness and contributing to training of competent nurses and doctors with increasing self esteem. This resulted in acceptance of logistics and tolerance towards unexpected behavior of students, discomfort during performance.

**Discussion and Conclusions:** SPs feel that they are doing service to humanity, are committed to the educational programs and contribute in improvement but want recognition and respect at institutional level. This would increase their commitment and long term association with the program. SPs are doing essential work but many on campus do not give them due respect. Areas identified for improvement included identity cards, provision of parking facilities, availability of medical assistance in case of an emergency and recognition at an institutional level with some incentive in the form of subsidized health care facility at the hospital.

**Take-home messages:** SPs should be encouraged and institutions take steps to make them feel valued and committed.
#7H Short Communications: Lectures and Small Groups

### #7H1 (25820)
#### Understanding seminar learning: which factors matter?

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**Background:** Many health professions curricula use seminars, interactive group formats in which about 25 students discuss questions relating to course themes. To get indications on how to optimise the seminar learning process for students, we investigated relations between factors that may be important for the seminar learning process and how these factors account for differences in students’ exam performance.

**Summary of Work:** Students completed a 57-item seminar evaluation questionnaire (USEME) right after seminar attendance. Eighty seminars of an undergraduate veterinary medicine curriculum (Years 1-3) were sampled, resulting in 988 questionnaires handed in. We performed principal factor analysis (PFA) to examine which items could be indicators of the same factor. Subsequently, we performed multilevel regression analysis (MRA) to explore to what extent these seminar factors along with students’ prior exam performance can explain students’ current exam performance.

**Summary of Results:** PFA revealed four factors: teacher performance, seminar content, preparation by students and the opportunity for interaction within seminars. MRA revealed that – additional to students’ prior exam performance – the opportunity for interaction within seminars explained some of the variation in current exam performance.

**Discussion and Conclusions:** The fact that preparation by students showed no statistically significant important relationships with the other factors and did not significantly contribute to students’ current exam performance is not in line with qualitative research on seminar learning and deserves further study.

**Take-home messages:** USEME provides a useful tool for studying the contribution of factors involved in seminar learning. Future research should focus on the connection between seminar learning and assessment.
The Collaborative Learning Development Exercise (CLeD-EX) tool: A Preliminary Investigation

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Background: Collaborative learning is a fundamental concept in medical education. Global regulatory bodies advocate a collaborative learning environment for medical students. Despite the expected benefits of collaborative learning we are yet to realize its full potential. This paper focuses on the development of a Collaborative Learning Development Exercise (CLeD-EX) tool to promote critical collaborative learning competencies relevant to junior medical students.

Summary of Work:
A comprehensive literature review and a qualitative study was conducted to understand specific individual competencies that are relevant to fostering collaborative learning environments. This was followed by a Delphi involving medical educators across Australia and New Zealand to prioritize collaborative learning competencies. Subsequently, these competencies were utilized to formulate the CLeD-EX tool. The CLeD-EX was trialled during small group learning activities for junior students in the Medicine program at UNSW Australia.

Summary of Results:
A total of 75 first and second year medical students completed the CLeD-EX forms. On average, forms were completed within five minutes. Data analysis is currently underway and preliminary findings indicate that the CLeD-EX tool assists students’ development of collaborative competencies. The validity, reliability, educational impact and an analysis of student and assessor feedback will be presented.

Discussion and Conclusions: The preliminary evaluation indicates that CLeD-EX is a user-friendly and effective instrument to develop collaborative learning competencies in medical students.

Take-home messages: To realize the full potential of small group learning we need to identify and develop students’ collaborative competencies. CLeD-EX is designed to promote these critical skills in junior medical students.

Assessment of First Year Medical Students’ Perception of Teaching and Learning through Team-Based Learning Sessions

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Background: Team-based learning (TBL) is an emerging learning strategy employed in medical education. The College of Medicine at Alfaisal University has adopted TBL as a new teaching and learning method for first year medical students. Thus, the authors sought to describe the TBL to assess students’ perception towards this learning modality.

Summary of Work: A five-point likert scale questionnaire was structured based on kirkpatrick’s theory assessing three major domains; reaction, learning and behavior. This survey was distributed amongst first year medical students (n=185). Confirmatory factor analysis (CFA) and cronbach alpha coefficient tests were used to assess the validity and the reliability of the construct, respectively. In addition, Wilcocksin, ManWhitney U Test and ANOVA were conducted. Qualitative results were analyzed using the directed content analysis.

Summary of Results: Around 185 respondents rated reaction, learning and behavior as 3.53+0.08, 3.59+0.08 and 3.57+0.08, respectively. CFA showed and adequate validity of the survey and Cronbach’s alpha revealed an acceptable internal uniformity (0.69). Excellent students rated highly in all major domains (vs. pass in reaction [p< 0.049], vs. average in behavior and learning [p<0.035 & p<0.031]) respectively. Students who were often involved in teamwork rated highly in both learning if compared to those who were rarely involved.

Discussion and Conclusions: Alfaisal first year medical student perceived TBL positively as a teaching and learning strategy, and prior involvement in teamwork and academic performance correlate with the students’ perception of TBL.

Take-home messages: Integration of TBL into the medical curriculum has a positive impact on students’ learning and should be encouraged more.
Putting prevention first: Implementation and evaluation of a novel teaching module on smoking cessation counselling in undergraduate medical education

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Background: Recent surveys have demonstrated that preventive medicine is not adequately covered in many undergraduate medical school curricula across Europe. Existing teaching modules on smoking cessation counselling are time-consuming, precluding their integration into undergraduate programmes.

Summary of Work: Based on a national needs assessment study, we designed a teaching module fostering competencies relevant to counselling smokers. The instructional formats used included a flipped classroom approach (students watched a podcast and provided questions that were discussed with a counselling expert in a subsequent live lecture), an introduction to guideline recommendations and a practical training session. Learning outcome was assessed in a written knowledge test and an OSCE.

Summary of Results: There were significant pre-post differences in the knowledge test (28.5 +/- 4.5 vs. 17.4 +/- 3.0 out of 39 points; p < 0.001; Cohen’s d = 2.9). Effect sizes were particularly large for knowledge of counselling techniques, side-effects of cessation medication and potential harms and benefits of e-cigarettes. In the OSCE, students scored 40.8 +/- 4.2 out of 50 points. Student evaluation of the module was overly positive.

Discussion and Conclusions: This short module using modern instructional formats succeeded in equipping medical students with the knowledge and skills required to help smokers quit. Work-based assessments are needed to confirm that the effects seen in this study translate into clinical practice. In addition, the impact on patient quit rates needs to be established.

Take-home messages: Nation-wide integration of the module into undergraduate curricula will greatly improve medical education with regard to preventive medicine.

Large or small group teaching; which is more effective in changing medical students’ attitudes toward disability?

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Background: Attitudes of healthcare professionals can be a barrier to disabled people accessing adequate healthcare. The study aims to compare the effect on medical students’ attitudes towards disability between two educational interventions, to help evaluate the relative benefits and costs.

Summary of Work: We used a comparative research methodology. First year students received a lecture about Augmentative and Alternative Communication (AAC). Second year students received a small group experiential workshop with volunteers who use AAC. The Multi dimensional Attitudinal Survey about disability (MAS) assesses emotion, cognitions, and behaviours towards disability. Each cohort were given a MAS to complete before and after the educational intervention. These were then analysed.

Summary of Results: Both the lecture and the workshop produced a significant benefit in attitudes towards disability (emotions, cognitions and behaviour). When compared to the lecture, the workshop had a small but significantly improvement for emotion and cognition but not behaviour. First years marked themselves significantly more positive in attitude than second years.

Discussion and Conclusions: Both interventions improved attitudes. While the workshop was slightly more effective, it required significant additional resource. However, the workshop may also have additional benefits that were not assessed in this study (eg improved communication skills). First years may genuinely have more positive attitudes or merely reporting themselves more positively. Furthermore reported attitudes may not equate to actual behaviour in a given situation.

Take-home messages: Large and small group teaching can both have a positive effect on medical student’s attitudes towards disability. If you have the resources, small group experiential teaching is more effective.
Staff and student perspectives on the use of lecture podcasts in a medical curriculum

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Background: The potential of lecture podcasts to enhance student learning and influence teaching has been documented in some contexts. The Faculty of Medicine and Health Sciences at Stellenbosch University, South Africa, has podcast 4200 lectures and tutorials in the MB,ChB programme. We wanted to understand why the podcasts were popular amongst the students, how the students used the podcasts, whether this influenced their learning, and how lecturers experienced its implementation.

Summary of Work: We used two surveys (students: 39% response; staff: 29% response); and six focus group interviews (n=38) with students from each of the six year groups in the programme. Interviews were subjected to thematic content analysis, and numerical data from the surveys was analysed in Excel.

Summary of Results: Students reported that podcasts provide a novel way to learn; complement classroom learning; provide ease of mind; and do not influence class attendance negatively. The latter contradicted lecturers’ concerns. The lecturers’ responses suggested that the presence of the podcasts has had little influence on their teaching practice.

Discussion and Conclusions: The way students use the podcasts fits the active learning double tenet of student activity and student engagement when using a particular instructional method. Students become more adventurous in their learning and adapt their approaches to learning.

Student claims suggest that podcasts have a role in enhancing student learning. What this might mean for teaching is, however, less clear at this stage.

Take-home messages: There is a need for faculty development to maximise the potential of this novel way of learning.
Introduction: The central mission of every medical school is education, however most teachers have not received formal teacher training. Hence faculty development (FD) with planned programmes to prepare faculty members for their role in teaching is integral to medical school life. The widespread investment in FD is predicated on the belief that it enhances the effectiveness of teaching but the evidence is limited. The aim of this study was to carry out an in-depth exploration of FD for educators in UK medical schools and evaluate its effectiveness. The realist framework with its principle of explanatory causation was chosen to find out what works for whom in FD in which context, and why.

Methods: A detailed literature review was carried out, informing the development of eight realist hypotheses in the form of contexts, mechanisms and outcomes (CMO) based on the researchers’ experience of and insight into FD. Contexts are the individual, interpersonal, institutional and infrastructural factors that influence programme efficiency. Mechanisms describe what it is about interventions that bring about change while outcomes are the consequences of the intervention. Data to support, modify, or challenge the hypotheses were collected in three phases. Phase I was a review and scoring of data of UK medical school FD webpages using a scoring index. Phase II was observation and informal interviews of two cohorts of educators attending a FD course followed by detailed interviews of 12 educators six months later. Phase III was interviews of FD coordinators and educators at eight medical schools. Quantitative and qualitative data were collected. Quantitative data were analysed by descriptive methods, slope diagrams, bi-axial constructs and Fisher’s exact test. Qualitative data were analysed by categorising and connecting strategies followed by summarising the relevant data under each hypothesis to check if the hypothesis was supported, modified or refuted.

Results: The literature review revealed a paucity of publications on FD in the UK, however 30 medical schools’ webpages showed data on FD activities. Data from all three phases supported four CMOs hypotheses which explain how the contexts of participatory approach/reflective practice, needs identification, supportive setting and standardization of medical teaching facilitated FD mechanisms of engagement, motivation, positive perception and professionalization respectively. These led to the outcomes of improved confidence, competence, credibility and career progression. Theory 1 Engagement: Participatory approach / reflective practice in FD + Engagement = Increased confidence in teaching Theory 2 Motivation: Needs assessment of educators / FD relevance + Motivation to learn = Improved competence Theory 3 Positive perception: FD in a supportive setting / access to programmes + Positive perception of the value of FD = Credibility as a teacher Theory 4 Professionalization: Demand to standardise teaching / accreditation + Professionalization of teaching = Career progression / improved recognition.

Discussion and Conclusions: Four realist theories of FD were identified (engagement, motivation, positive perception and professionalization) illuminating the effectiveness of FD both in the short and long term. We make recommendations to all FD stakeholders (educators, FD developers, universities and policy makers) and for future medical education researchers who choose the realist evaluation model.

educational interventions. We also 4) interviewed faculty at North American medical schools, identified as graduating students confident in their EBM abilities, to identify challenges students face when learning EBM and how institutions approached these challenges.

**Results:** Based on 1) 22 interviews, we identified six information needs, including refreshing, confirming, logistics, teaching, information generating and personal learning, which align with physicians’ varied roles. Our 2) web log study revealed twice as much use of UpToDate (110,336 visits), a topical review resource, as PubMed (47,244 visits). Of total journal articles viewed (81,851), 30% (24,529) were review articles and 12% (10,261) clinical trials. Our 3) literature review described educational settings, learner levels, teaching methods and EBM skills covered. No intervention addressed all EBM steps and due to lack of details reported we were unable to draw conclusions about the efficacy of interventions. Based on 4) 31 interviews with educators at 17 medical schools, we identified six student learning challenges, including sub-optimal role with educators at 17 medical schools, identified six student learning challenges, including sub-optimal role models, and five learning approaches to overcome these challenges, such as incorporation of clinical content and faculty development.

**Discussion and Conclusions:** Study 1) presents information needs, which can help structure educational approaches to support physicians’ clinical inquiry in their varied roles, including teacher and lifelong learner. Study 2) demonstrates heavy use of review resources for EBM. This suggests the traditional approach to EBM training, which generally focuses on critically analyzing individual studies, should expand to include appraisal of review resources to better synchronize training and practice. Both studies provide a glimpse into practices potentially observed by students, therefore contributing to their EBM learning experience. Study 3) demonstrates a need for training to comprehensively cover all EBM skills and more detailed reporting of EBM interventions to enable evaluation and replication. Student challenges and educational approaches identified in Study 4) provide a window into students’ experience of EBM training, which medical educators can use to design learner-informed EBM curricula. This PhD report provides knowledge of how EBM is practiced and taught and equips medical educators with suggestions, drawn from practice, for examining and modifying their EBM curricula.


**Understanding assessors’ behaviours in the context of performance-based assessments**
provide comments as a way of communicating negative or redundant information about a candidate’s performance.

**Discussion and Conclusions:** Assessors’ ratings, checklist options, and narrative comments provide valuable insights regarding how assessors think and make evaluative judgments about medical candidates’ competence. Further, these studies illustrate the different methods these assessors use to provide supporting information about medical candidates’ performances. Assessing medical competence depends upon knowing what assessors are doing as well as when they exhibit certain behaviours. Through the utilization of an assessor cognition approach, these studies illustrate the importance of exploring assessor variability in order to figure out how to better extract information from assessors.

**References:**

**#714 (23568)**
**Questioning the rater idiosyncrasy explanation for error variance**

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**Introduction:** Persistent concerns about rater variability in clinical performance ratings has provoked a new field of study in medical education that focuses on better understanding how physicians think while performing assessment tasks. In this doctoral program of research, the assumption that “error” variance can largely be attributed to raters making idiosyncratic judgments is challenged by drawing on research methods from the social cognition literature investigating variability in judgments when people are forming impressions of others.

**Methods:** A review of current perspectives on assessor cognition in medical education research plus a review of social categorization in impression formation research informed the design of three mixed-methods studies. These studies examined whether meaningful clusters (or meta-impressions) can be extracted across raters’ idiosyncratic impressions of a given clinical performance. The capacity of these different meta-impressions (for the same performance) to explain variance in Mini-CEX ratings was used as an indirect measure of their influence on assessors’ ratings.

**Results:** When multiple physicians observed and assessed the same resident, a limited number of meta-impressions were formed. The meta-impression with which each rater’s “idiosyncratic” impression was most closely associated explained substantial variance in the ratings. Different meta-impressions arose as different subgroups of physicians 1) emphasized different aspects of the performance as most salient, 2) disagreed on the interpretation of the same aspect of the performance and 3) drew different inferences about the reasons the resident performed as he/she did.

**Discussion and Conclusions:** Consistent with impression formation research, there appears to be more consensus than implied by the “idiosyncratic error” model of rater judgments. There were always multiple clusters of consensus for each performance. These clusters of consensus, or meta-impressions, often conflicted with each other in ways that would not be easily reconciled into a single point of view or summarized by a single numerical rating. Thus, rater variability may be less a matter of “idiosyncratic error” masking a single true signal, and more a matter of multiple legitimate (and sometimes conflicting) perspectives on the same performance. As such, solutions aimed at reducing idiosyncrasy may not decrease error variance in ratings and we may need to grapple with the challenge of incorporating meaningful diversity of opinion when trying to summarize individuals’ abilities. In conclusion, the pervasive variability seen in clinical performance ratings is not well explained by thinking of it being due to raters making “error-prone” assessment judgments that are simply idiosyncratic to each rater. Rather, the variability may represent multiple points of view that each contain a portion of the potentially relevant information about that resident and his/her performance. Novel assessment designs would be required to appropriately collect and analyze assessment judgments of this nature.

**References:**

**#715 (23602)**
**Cognition, culture, and credibility: deconstructing feedback in medical education**

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**Introduction:** Despite widespread endorsement of feedback as an essential facilitator of learning, there have been few explorations of how it becomes meaningful for learners. In reality, feedback is far from straightforward, and may fail to usefully impact learners. In this thesis, we explore feedback within and outside of medical education in order to understand why and how it succeeds or fails, with a view to informing real progress in its use.

**Methods:** Constructivist grounded theory methodology guided 5 linked studies. Purposive sampling drove recruitment of 99 individuals to
participate in interviews or focus groups. Constant comparative analysis to identify themes was conducted iteratively.

Study 1 explored the learning experiences physicians perceived as influential in their training, considering why those experiences had resonated. Study 2 tested the usefulness of regulatory focus theory in explaining learners’ responses to feedback. Study 3 compared the learning cultures of medicine and music to unveil medicine’s tacit assumptions about learning. Study 4 examined feedback in 3 learning cultures – medicine, music, teacher training – exploring how culture influences the handling of feedback. Study 5 studied individuals traveling between learning cultures, doctors trained in music and sports – to explore how individual and sociocultural influences on feedback interact.

**Results:** As they participate in clinical work, medical learners are shaped by a variety of learning cues. Feedback competes with other learning cues for learners’ attention, becoming influential only if it survives a judgement of its credibility. Regulatory focus theory provides insight into learners’ feedback responses, but there are challenges in applying regulatory focus theory to real feedback scenarios: regulatory focus may be mixed and may shift over time, and other factors (e.g., feedback’s credibility) may trump regulatory focus in driving learner responses. Medicine’s pedagogical approaches reflect cultural assumptions; medicine privileges learning by doing, guides its learners toward competence more than toward excellence, and values the clinical skill more than the instructional skill of its teachers. Credibility and constructiveness transcend culture as essential components of meaningful feedback, but each culture creates distinct definitions of credibility and constructiveness. Learning culture modulates feedback’s impact, creating the conditions for good feedback to occur and for learners to respond.

**Discussion and Conclusions:** Together, these studies offer a model for understanding feedback that incorporates both the individual learner and the learning culture as essential and inseparable elements. Individual variability in feedback response is inevitable, but learners can only hope to benefit if the learning culture makes meaningful feedback possible. Learning culture contributes more than just opportunity for meaningful feedback to occur; its inherent norms and values shape what counts as credible feedback and what demands learners’ attention. This thesis directs medical educators’ attention towards two historically marginalized influences on feedback, learner perceptions and learning culture – and offers concrete guidance for improving our status quo. Medicine’s learning culture is vulnerable in the very elements that matter most to feedback: routine learner observation, trusting longitudinal teacher-learner relationships, and authentic coaching. To become a feedback culture, medicine must remedy impediments to credible, constructive feedback, and commit to building the supports necessary for meaningful feedback to occur.

#7J Short Communications: International Dimensions 1
Location: Alsh 2, SECC

#7J1 (25847)
Similar and Different: What Works as International Medical Education

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Background: More than 2400 medical schools worldwide face similar challenges, have shared standards, struggle with communication technologies, and confront increased work force mobility. These conditions both promote cohesion among medical educators and generate rich local, regional variations and cultural differences that reveal innovative and useful strategies about what works in medical education under variable conditions.

Summary of Work: It becomes important to examine the variability and interdependence among these conditions to better understand medical education as an expression of the underlying assumptions and constraints at play. One hundred and ninety two authors from 34 countries shared short, focused case studies across selected themes in medical education.

Summary of Results: A rich collection of practice and theory in the form of an international handbook offers a comparative approach to medical education with a view of the adaptive responses of institutions and programs to variable conditions.

Discussion and Conclusions: Similarities and difference among these case studies yield insight into what works and, more importantly, the assumptions that form and inform what works and why.

Take-home messages: There is no single best approach to medical education. Inquiry about what works under the given conditions, i.e., is fit for function is a wide open arena for research in medical education.

#7J2 (24717)
An exploration of crossborder medical curriculum partnerships: balancing curriculum equivalence and local adaptation

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Background: Worldwide, medical schools have entered into crossborder curriculum partnerships (CCPs) to provide equivalent curricula and learning experiences to groups of geographically separated students. Paradoxically, this process also involves adaptation of curricula to suit local contexts. This study has focused on challenges faced by medical crossborder curriculum programme directors and strategies they employed to overcome these.

Summary of Work: We conducted a qualitative study on six CCPs using document analysis and semi-structured interviews with 13 programme directors from 12 medical schools. Interview transcripts were coded iteratively, followed by cross-case analysis.

Summary of Results: The challenges faced by CCP programme directors are fourfold, springing from differences in health care systems, legislation and political interference, teaching and learning environments, and partnership. Deliberate strategies, such as intensifying interactions between partners in all academic echelons, can help to overcome these. Partnerships vary in their setup and collaboration strategy.

Discussion and Conclusions: Partnerships with more solid integration of academic operations appear robust in terms of ownership and provide, besides financial, also academic advantages to both institutions. However, more research is needed on the long-term effects on quality of graduates and impact on the host health care system.

Take-home messages: The paradox of a crossborder medical curriculum partnership is that the curricula of both partners can at the same time be equivalent as well as locally adapted.
Preliminary psychometric properties of a novel test designed to assess application of medical knowledge in European countries

Background: The European Board of Medical Assessors (EBMA) has developed the European Knowledge Test (EKT), a voluntary written exam created to support medical students and graduates in Europe by optimal measurement of application of medical knowledge. Students develop insight into their learning needs through an interactive online feedback tool. EKT is not a licensing exam, although the difficulty is set at the level expected of a recently graduated physician. This study describes the preliminary findings of the first EKT pilots in terms of validity and reliability.

Summary of Work: Medical students from six European countries participated. The EKT was composed of 200 scenario-based items. Different analytical methods were applied: classical test theory, Rasch model analysis and measurement alignment. Assumptions such as unidimensionality and local independence were met.

Summary of Results: Cronbach’s alpha coefficient was 0.90. Conditional reliability estimates based on the Rasch model had similar values (mean = 0.89; standard deviation = 0.01). A high degree of validity of the EKT is suggested by the low amount of parameter drift across the two pilot phases, the low number of non-invariant items across groups, as well as the high number of items with positive discrimination and adequate fit to the Rasch model.

Discussion and Conclusions: Preliminary results indicate that EKT can be a useful assessment tool for European medical students and schools.

Take-home messages: The inclusion of students from more schools and countries will enable a more representative reference group and further exploration of the psychometric properties and the educational utility of the EKT.
An Investigation of Pacing on the International Foundations of Medicine® (IFOM®) Clinical Science Examination for Examinees Testing in Multiple Languages

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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 administered in multiple languages under standardized conditions.

Summary of Work: This study investigated item latency and item performance data for a form of the IFOM CSE that was administered in International English, Spanish, and Portuguese. Analyses were conducted by item administration sequence separately for each language. Word counts and number of omitted items were also examined.

Summary of Results: Results were similar for the different language groups and suggest that examinees had some pacing issues during the first section that resulted in reduced item latencies and lower performance for items administered at the end of the section. Item latency and performance was much more consistent for the second section for all language groups.

Discussion and Conclusions: Examinees were impacted by pacing issues during the first section, regardless of language. Pacing improved for the second section as examinees became more familiar with the format and timing of the examination.

Take-home messages: Given the pacing issues on the first section and improvement in pacing on the second section, it is recommended that medical schools provide students with practice opportunities prior to taking IFOM CSE using assessments that emulate the format and timing of standardized assessments like IFOM CSE.

Global Medical Education: Towards the Free and Safe Movement of Physicians

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Background: Nearly 200 resource-strapped country regulatory bodies attempt to assess the quality of medical education of over 2,400 schools worldwide, as well as personal fitness to practice, working toward the ultimate goal of protecting the public, while promoting the global movement of well-trained doctors.

Summary of Work: With over 12,000 graduates, St. George’s University School of Medicine (SGUSOM) has witnessed a variety of approaches by different jurisdictions during institutional reviews. Inquiries made include curriculum content, curriculum structure, hours/weeks/duration or location of the course, number of credits, and clinical training hours/hospital/assessments.

Summary of Results: SGUSOM graduates have practiced in over 50 countries, and continue to seek registration in these as well as other countries. SGU has documented the methods used by many medical regulatory bodies in disparate systems that stress the resources of the regulatory body, the medical school, and the physician seeking licensure that do not, in this process, adequately assess the medical education program.

Discussion and Conclusions: Does this attention to random minutiae properly assess the competency of institutions to provide quality medical education, and ultimately achieve the goal in protecting the public?

Take-home messages: A validated accreditation model is proposed, which would allow for regulatory bodies to recognize/accept “foreign” medical schools meeting standards deemed appropriate by the accrediting body. After meeting this baseline international standard, graduates of such schools would seek to satisfy the examination and other licensure requirements in that jurisdiction. This approach would relieve resources needed for institutional review, while still allowing jurisdictions to protect the public, as well as facilitate the much-needed global movement of well-trained physicians.
Equal, global, local: discourses in Taiwan's international medical graduate debate

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Background: With the globalisation of medicine, the role of international medical graduates (IMGs) has expanded. Nonetheless, the experiences of native-born IMGs remain under-researched. In Taiwan, public controversy has unfolded around IMGs educated in Poland, calling into question the meanings of equality in policy and medicine.

Summary of Work: The authors performed a critical discourse analysis of how stakeholders in the IMG debate use equality in their arguments, assembling an archive from online interactions, government reports and news articles. Coding focused on stakeholders’ uses of equality to generate broader discourses.

Summary of Results: International and domestic Taiwanese students conceived of equality differently, referencing both ‘equality of opportunity’ and ‘equality of outcome’ within localisation and globalisation frameworks, respectively. The dominance of localisation discourse is reflected in hostile online rhetoric towards Poland-educated IMGs.

Discussion and Conclusions: Rhetorical disagreements over equality in medical education trace shifting state policies, from earlier attempts to remove barriers for IMGs to the present-day push to regulate IMGs for acculturation and quality assurance. As comparisons with Canada and the USA illustrate, complex patterns of global physician migration pose challenges for global and local medical education.

Take-home messages: Future research could investigate the discursive formation and evidential basis of policies regulating international medical education.
#7K  Short Communications: Needs Analysis and Evaluation in CPD

**#7K1 (26702)**
What are the CPD needs of GPs in areas of high deprivation?

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**Background:** Addressing health inequalities is a priority for both UK and Scottish governments and, although a call to action has been made for all health professionals in the UK to work actively to tackle inequalities, little is known about what educational needs GPs have in meeting this challenge.

**Summary of Work:** This presentation will describe the results of a focus group discussion between ‘Deep End General Practitioners’ in Glasgow, which was facilitated to better understand these educational needs and to inform subsequent action.

**Summary of Results:** A list of 16 themes emerged from the discussion, which were then prioritised into an agreed list of shared learning needs by use of a modified nominal group technique exercise. Four broad areas of learning need were agreed.

**Discussion and Conclusions:** It is anticipated that the results will be of use to those who are involved in supporting primary care learning for those working in deprived communities in the UK, and more widely. More specifically, these results will inform the module production schedule for the practice-based small group learning programme and ensure that there is an opportunity for at least some of these learning needs to be addressed.

**Take-home messages:** GPs working in areas of high deprivation have CPD needs that relate to the impact on the GPs themselves of working in these environments as well as the healthcare needs of the populations that they serve.

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#7K2 (25861)
Introducing systematic continuous professional development for GPs

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**Background:** Denmark has a voluntary individually planned CPD programme based on approved public funded CPD activities. This CPD programme is to be supplemented with a systematic and centrally planned programme. In this process we conducted a nationwide multidimensional mutual learning needs analysis.

**Summary of Work:** In order to design an effective and feasible systematic CPD supplementary to the present individually planned CPD programme we performed a three-step multidimensional learning needs analysis. The Danish family medicine curriculum is used as reference in all the analyses.

Step one: 20 practice-based small learning groups for GPs and a group appointed by the Public Health Care Contractors have been asked to identify learning needs for Danish GPs.

Step two: A validation process performed by GP researchers at the universities and a special appointed GP group, which focused on narrative person-centred medicine.

Step three: The data from step one and two are merged into a description of topics feasible for CPD.

**Summary of Results:** We identified topics within 5 domains of family medicine perceived as relevant. Examples will be presented.

**Discussion and Conclusions:** This approach allowed us to identify topics where the GPs, the contactors and the researchers agreed on learning needs, addressing the “wants vs. needs” discussion in CPD. Next step will be so see whether new CPD activities based on this multidimensional analysis will result in improved medical care delivered by general practice.

**Take-home messages:** A multidimensional mutual learning needs analysis was able to detect a number of topics feasible for systematic CPD activities for GPs.
Take-home messages:

The recommended standard steps in developing a TPB questionnaire were followed and the dimensionality of the questionnaire was checked using an exploratory and confirmatory factor analysis. Then we performed a structural equation modeling to explore the causal relationship among variables.

Summary of Results: The statistical measures for goodness of fit were in acceptable range (KMO = 0.819 and Bartlett’s Test of Sphericity p < 0.01). We limited the factors to 4 (the constructs in TPB) and all 4 factors had Eigen values above one, and the total variance was explained at 52.97%. Perceived behavioral control and Attitudes had the highest variance explained at 0.44. Also there was a good correlation between intention and real behavior in this study.

Discussion and Conclusions: The theory of planned behavior can explain underlying factors for using eCME by GPs and measured intention by this questionnaire could be a good proxy of real behavior (electronic version of CME usage). But still we cannot predict real behavior well.

Take-home messages: CME has some special aspects in relation to the TPB framework that should be considered when working with this model.
An explorative study unraveling motivational profiles of Pharmacists regarding continuous education

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Presenter: Cora Visser*, VUmc School of Medical Sciences, Amsterdam, Netherlands

Background: Continuous Education (CE) is important to support healthcare professionals in maintaining and developing their knowledge and competencies. Although lack of motivation is known to be one of the most important barriers among pharmacists for participation in CE, nothing is known about the quality or the quantity of motivation. Self-determination Theory (SDT), which describes autonomous motivation as generating from within an individual and controlled motivation as generating from external factors, was used as a framework for this study.

Summary of Work: The scores of 425 pharmacists on the Academic Motivation Scale were subjected to K-means cluster analysis in order to create motivational profiles.

Summary of Results: Four motivational profiles were found: (1) a good quality (GQl; with high autonomous motivation), (2) a high quantity (HQt), (3) a poor quality (PQl; with high controlled motivation) and (4) a low quantity (LQt). Female pharmacists, “pharmacists-working-in-a-hospital-pharmacy”, “pharmacists-working-more-than-10-years” and “pharmacists-not-in-training” were highly represented in the GQl profile, while “pharmacists-working-in-a-community-pharmacy”, “pharmacists-working-less-than-10-years” and “pharmacists-in-training” were highly represented in the HQt profile. The distribution of male pharmacists was not very different between the four profiles. The highest percentage of “pharmacy-owners” was shown in the LQt profile and the highest percentage of the “non-owners” was shown in the GQl profile.

Discussion and Conclusions: Pharmacists exhibit different motivational profiles which are associated with their background characteristics like gender, ownership of business, practice setting and current training. Motivational profiles could have implications in the development of CE courses for pharmacists.

Take-home messages: Based on SDT, pharmacists can be categorised into different motivational profiles, good quality, high quantity, poor quality and low quantity.
#7L Short Communications: Virtual Patients and Simulation

Location: Boisdale 2, SECC

#7L1 (27932)

Are students learning what educators intend them to learn? A mixed-methods comparative analysis of lessons reported on student case logs from live vs. online (CLIPP) cases

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Background: Experiential learning is essential in undergraduate medical education. Learning from real patients provides authenticity; however, ensuring a diverse caseload is not always feasible at all clinical sites. Students at our institution are required to complete a case log during pediatric rotation. They satisfy this requirement with either live patient encounters or online cases (CLIPP). While online cases are standardized in content and stated objectives, it is unclear if 1) students actually learn lessons stated in the objectives; 2) lessons from live encounters and online cases align.

Summary of Work: In addition to submitting case log, students were asked to respond to this prompt: “List 3 things you learn from this case.” Investigators extracted responses from the 2010-2012 academic years and examined them for degree of overlap with stated objectives for corresponding online cases. For lessons that did not match the stated objectives, investigators perform thematic analysis to identify emerging themes.

Summary of Results: Of the 191 students completing the rotation during the study period, a mean of 154 (80.6%) responded to the prompt. Students logging online cases reported lessons that overlap the stated case objectives by 87.5%; whereas those logging live encounters reported overlap by 33.3%. Ongoing qualitative analysis of lessons from live encounters not matched to corresponding case objectives identified the following preliminary themes: professional responsibilities, approach to learning, communication, psychosocial dimensions, and system-based issues.

Discussion and Conclusions: Lessons students reported to have learned from live patient encounters match only one-third of those stated in corresponding online cases. Many of the non-overlapped themes were related to psychosocial aspects of care and students’ personal growth/professional development. Theses findings can potentially help educators improve the design of online cases to maximize educational impact.

#7L2 (25739)

A scenario based Virtual Patient program to support pharmacist education

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Background: In Scotland, substance misuse services are provided by community pharmacies. Suitable practitioners’ education is essential. Virtual patient (VP) technology is a novel educational approach.

Summary of Work: Scenario based VP programs for Injecting Equipment Provision (IEP) and Opiate Substitution Therapy (OST) services were developed and evaluated.

106 pre-registration pharmacists participated and undertook knowledge tests and perceived confidence assessments before (pre) and immediately after (post) (n = 106, 100%). Assessments were repeated at six months (n = 46, 43.4%).

Summary of Results: Perceived confidence increased statistically significantly in all domains. There was an improvement between pre and post scores for IEP (Z = 5.78, P < 0.001) and OST (Z = 5.93, p< 0.001) and for pre and 6 months test scores for IEP (Z = 2.62, p < 0.0167) and OST (Z = 4.75, p < 0.001). There was a decrease between post test and 6 months test scores (IEP, Z = 5.50, p < 0.001: OST, Z = 5.76, p < 0.001).

Discussion and Conclusions: VP programs increase pre-registration pharmacists’ knowledge immediately after using and at six months. There was a gradual loss of clinical knowledge over time while confidence in the cultural change was sustained. The VPs were successful at increasing knowledge and improving confidence and empathy in a challenging patient group. This method could be developed for other patient groups.

Take-home messages: VP programs can be used effectively to train professions with regard to patient safety, especially with vulnerable patient groups.
Use of a serious game for teaching diabetes in PHC

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Background: Medical education has been in transition from a traditional model of education for methodologies fitted in virtual platforms. The use of serious games has been an important tool in the teaching-learning process of medical students for presenting content in an engaging and enjoyable way.

Summary of Work: The purpose of this study was to develop a serious game for education in diabetes management at Primary Health Care. The game was developed in Unity platform and will be available to medicine undergraduates in WEB platform. A virtual city was developed in the third dimension (Muiraquitã) to set the game. The game was developed using clinical cases with fictional characters of the city, the tree model of decision is used to deliver the content. Undergraduates will make anamnese, physical exam, additional examination, diagnosis and management of Diabetes patient. A score will be assigned according to the choices made during the simulation of care.

Summary of Results: The development of a serious game proved to be an alternative approach to diabetes education in PHC. The creation of a virtual city provided the context of clinical cases in Primary Health Care setting.

Discussion and Conclusions: The serious game provided interactivity between content and student, becoming a promising methodology for diabetes education in primary health care. A randomized clinical trial should be performed to analyze the effectiveness of serious game in learning process of medical students.

Take-home messages: This will be the first work that develops a serious game for Primary Health Care doctors.

Various approaches to case-based learning across the educational network MEFANET

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Background: MEFANET (MEdical FAculties NETwork) is a medical education network composed from 11 medical faculties and 4 faculties focused on health care and biomedical sciences in the Czech Republic and Slovakia. The present-day MEFANET organizes its own annual conference, publishes a scientific journal and collaborates with other bodies throughout Europe.

Summary of Work: Since 09/2014, an Erasmus+ project entitled CROESUS has been started and linked to MEFANET, concentrating on the value of clinical decision-making through innovative scenario-based learning tools. During 10-11/2014, teaching styles inside MEFANET were surveyed to examine instances of existing case-based learning (CBL) and to capture information relating to educational settings.

Summary of Results: Besides the most interesting findings from the survey, the contribution will present 4 different MEFANET’s efforts in creating advanced teaching and learning tools based on simulations: (i) AKUTNE.CZ interactive algorithms and SEPSIS-Q education scenarios are focused on the management of a wide range of acute patients and situations; (ii) PEDKAZ is a database of linear clinical cases in paediatrics following the principles of evidence-based medicine; (iii) E KAZUISTIKY are virtual cases delivering branched learning objects focused on optimal diagnostic procedures; (iv) HUMMOD-GOLEM, is focused on integrative physiology modelling.

Discussion and Conclusions: Simulation-based medical education should not be perceived only from the perspective of emerging technologies. The educators inside MEFANET do not know much about the systems supporting CBL, although they have to create their own cases, and agree that CBL-like activities are needed.

Take-home messages: MEFANET provides an open access to many virtual cases, see http://games.mefanet.cz.
Implementation strategies for integrating a Virtual Medical Center into education and care algorithms for United States Veterans

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Background: The Veterans Health Administration, the largest integrated health system in the world, has launched a collaborative Virtual Medical Center (VMC) and learning environment. Capabilities include virtual clinics with integration of current telehealth technologies, cybraries for patients and healthcare team members with electronic resources and searchable medical content, serious medical games, e-learning platforms and conference venues.

Summary of Work: Development of an implementation strategy has required attention to the best ways in which the VMC can be synergistic with existing care models, decrease repetitive staff activities, increase dissemination of and participation in educational interventions, provide more effective education, capture activities for productivity measures, and be easy to navigate. Input from human factors engineers, clinicians, educators, and technology experts has been critical.

Summary of Results: Implementation plans include the development of five pilot projects characterized by the need for an educational intervention for patients or/and healthcare team members. The projects focus on areas of key clinical importance to Veteran health outcomes. The clinical areas include diabetes, sleep disturbances, congestive heart failure management, obesity, and preoperative care. Assessment strategies include a global assessment of learning, emergency skills and motivation of medical students can be improved by adding a text-based cases program or a simulation game to an e-module.

Discussion and Conclusions: The Virtual Medical Center represents an important opportunity to provide integrated educational and care activities which spans geography, technological enablers and VA healthcare expertise. Multidimensional input from technology, business process, education and clinical experts is required to optimize the opportunities for enhancing competence and clinical outcomes.

Take-home messages: Thoughtful implementation of educational activities directed to the healthcare team and to patients can be integrated into care models using a rich avatar-based virtual medical center. Multi-level considerations and assessments are critical to knowing educational and clinical outcomes.

Game-based or text-based cases: what do they add to instruction?

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Background: Simulation games can deliver instruction in a realistic, engaging way and are becoming increasingly popular in medical education. However, more insight in their effectiveness and design features is needed. This study investigated whether emergency skills and motivation of medical students can be improved by adding a text-based cases program or a simulation game to an e-module.

Summary of Work: We set up a randomized design with three groups: a control group working on an e-module, a cases group, combining the e-module with low-fidelity text based patients cases, and a game group, combining the e-module with a high-fidelity simulation game, based on the same cases. Participants completed a questionnaires on cognitive load and motivation. After a 4-week-study period, assessors rated students’ emergency care skills in mannequin-based scenarios.

Summary of Results: In total 61 students participated and were assessed; 16 control group, 20 cases and 25 game students. Learning time was 2 hours longer for the cases and game groups than for the control group. Emergency skills did not differ between groups. However, students who spent more game-time showed better skills. The game group experienced higher cognitive load than the cases group and felt more engaged, with large effect sizes.

Discussion and Conclusions: Students with little expertise in emergency care do not profit from working on open cases in adjunct to an e-module, which nonetheless challenged students to study longer. The high-fidelity game increased complexity and did not improve their skill-level, even though students put more effort into it and felt more engaged with it, compared to the low-fidelity cases.

Take-home messages: A simulation game offers a motivational learning environment. To improve skills, worked cases (e.g. video demonstrations) and open cases should be balanced with learner experience.
#7M Short Communications: Rural Education
Location: Carron 1, SECC

#7M1 (24633) Determinants of rural practice in urban origin students: A scoping review

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Background: The shortage of physicians in rural and remote communities is critical. Most studies have focused on the rural origin learner and find that the rural origin of a student is the primary consideration in recruiting physicians for practice in rural communities. This scoping review focuses on factors that predispose an urban origin student to choose a career in rural medicine.

Summary of Work: The study used Arksey and O’Malley’s guidelines for scoping review of literature, which in contradistinction to a traditional systematic review, is ephemeral yet comprehensive. MEDLINE (Ovid) and PubMed databases were used to review literature between January 1 1970, and November 30, 2014. After removing duplicates, articles were screened based on inclusion and exclusion criterion set up by the research team.

Summary of Results: The literature search resulted in 435 articles, 418 of which were excluded, leaving 17 articles for comprehensive review. These results were then organized into five themes that are factors linked to an urban origin student choosing rural practice.

Discussion and Conclusions: Urban origin students may choose rural practice because of market forces as well as lucrative loan repayment options and financial incentives by government. The participation in undergraduate and postgraduate rural training definitely alters the attitude of urban origin students. A handful of urban raised students have a predetermined mindset to practice rural at the time of matriculation. Obstacles for choosing a rural career include but are not limited to: fewer job and education opportunities for spouses/partners; lack of recreational and educational opportunities for children; and obscure opportunities for continuing medical education.

Take-home messages: Urban origin students respond to very specific identified rural focused incentives with a small but significant cohort that enters medical training with a pre-determined intent to practice rural.

#7M2 (25415) Rural rotations at core: Rarefied exposure or real experience?

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Background: Surgical recruitment challenges are frequently associated with rotations involving rural Hospitals (rDGH), partly because of adverse perceptions regarding long distance from social support networks allied to a fear of suboptimal training environments. The aim of this study was determine outcomes of core surgical training (CST) rotations involving significant training time in rDGHs with respect to JCST defined curricular requirements.

Summary of Work: Online portfolios (ISCP) from 99 Wales core trainees were reviewed related to operative experience, workplace based assessments (WBA), and academic output. Individual (6-month) posts were classified as rDGH or enhanced DGH / Teaching hospitals. Of the 99 trainees, 19 had completed at least 2 rDGH posts within 2-year rotations and were compared with 80 control CSTs. Primary outcome measure was success at national ST3 selection.

Summary of Results: Median logbook operative experience was 331 (93-611) operations in the rDGH rotations vs. 340 (64-1020) in controls (p=0.555). Median WBA numbers and audits performed were similar at 79 vs. 79 (p=0.469), 3 vs. 3 (p=0.377) respectively. Median presentations to national and international learned societies were fewer in rDGH rotations at 1 (0-5) vs. 2 (0-20, p=0.06), as were median numbers of publications at 0 (0-3) vs. 3 (0-11, p=0.217). ST3 appointment was similar at 21.1% vs. 21.3% (p=0.985).

Discussion and Conclusions: Core trainees should be reassured that progression from rDGH rotations were similar irrespective of specific placement though a non significant lesser academic output was associated with rDGH experience. Such data should help inform future rotational planning.

Take-home messages: The outcomes of rural DGH CST rotations were similar to other rotations.
#7M3 (27528)
Does it do what it says on the tin? Assessing the impact of undergraduate exposure to rural practice on career choices of medical graduates from Aberdeen and Dundee Universities

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Background: There is a widely documented shortage of doctors in rural practice worldwide. Most studies in this area have been conducted out with the UK. Scotland faces many of the challenges faced by other remote communities and it is a Scottish Government priority to address this issue. Two Scottish Universities, Aberdeen and Dundee offer students an opportunity to experience extended remote and rural placements. Both programmes now have graduates in specialist training who will be planning their long term career choices. This study investigates if experience of a rural placement influences the career intentions of young doctors.

Summary of Work: This is a mixed methods study using questionnaires and semi structured interviews to develop themes. Framework analysis was used to analyse this data.

Summary of Results: Exposure to rural placement as an undergraduate in Scotland does promote the intention to work rurally in the future; can affect future specialty choice and planned place of work; is highly valued in educational terms by students.

Discussion and Conclusions: Incorporating voluntary rural placements in medical undergraduate curricula in Scotland may impact positively on recruitment to rural healthcare posts. Further work is needed to assess the most effective way to incorporate rural elements into the curriculum.

Take-home messages: Exposure to rural placements as an undergraduate does influence career intention and needs to be explored as a strategy in filling the shortage of rural medical professionals.

#7M4 (27594)
Attitude of last year medical students towards working in rural area: A study from five countries in Asia

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Himanchu Negandhi, Public Health Foundation of India, Hayana, India

Kawkab Mahmud, James P. Grant School of Public Health, BRAC University, Dhaka, Bangladesh

Background: Five countries in Asia including Bangladesh, China, India, Thailand and Vietnam has formed a network called Asia-Pacific Network for Health Professional Education Reforms (ANHER). This network had collectively conducted a survey at national and institutional levels of medical, nursing and public health education as well as assessment of their final year graduates on their attitude, competencies and willingness to work in rural areas.

Summary of Work: Pretested anonymous questionnaire comprised of four sections including demographic data, attitudes on rural works, where to work after graduation and perception about competency of respondents was used. Descriptive and analytical statistics were used for data analyses.

Summary of Results: About 60% of students from Bangladesh and Thailand had positive attitude towards working in rural areas, 50% in both China and India and only 33% in Vietnam. Students' positive attitudes towards their school in terms of preparing or inspiring them to work in rural areas were low across all five countries. Upon graduation and in the next five years, majority of students wanted to work in public sectors. Interestingly confidence about overall competency was quite low.

Discussion and Conclusions: Positive attitude towards working in rural areas varied significantly across five countries in Asia. Medical schools should improve the preparation and inspiration towards working in rural areas for their students.

Take-home messages: Medical schools should put more effort in improving students’ attitude towards working in rural areas.
#7M5 (24524)
From Campus Curriculum to Rural Community Health Centers: A Model for Interprofessional Collaboration

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Background: In an effort to better serve underserved areas in the northeast U.S., teams from healthcare facilities were assembled together with biomedical and clinical faculty participating in workshops and planning sessions directed at improving interprofessional collaboration. The work, supported by the Josiah Macy Jr. Foundation and, basic to additional ongoing development, is aimed at creating effective healthcare work teams and providing the skills necessary for physicians to best work within those teams.

Summary of Work: Ongoing development of a four-year curriculum ensuring that medical students will graduate with interprofessional competencies and a focus on rural primary care and public health

Summary of Results:
- Preparation of medical students for interprofessional (IP) competencies and leadership within IP teams;
- Provision of integrated primary care for the underserved;
- Development of meaningful public health and rural health proficiencies.

Discussion and Conclusions: Beginning in Years One and Two by integrating medical students with other healthcare professions, requiring completion of a “Rural Health Course” plus participation in an interprofessional clinical rotation for Third Year selected students, the comprehensive program is still in development. Roadblocks around scheduling and effective curriculum design will be discussed.

Take-home messages: Interprofessional collaboration is an absolute necessity in today’s healthcare, especially in rural and underserved areas. The challenges and opportunities of infusing this in a medical school curriculum are key in ultimately improving healthcare delivery.

#7M6 (25878)
Growing and supporting senior clinical leaders for rural and regional academic medicine

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Background: Regional and rural Australians continue to suffer poor health outcomes with lower life expectancy, higher burden of disease and poorer post-diagnosis consequences than their metropolitan counterparts. Maldistribution of the medical workforce will persist until end-to-end training programs (medical school to completion of postgraduate training) are the norm in regional settings. This requires strategic senior clinical academic leadership and direction.

Summary of Work: We present a case study of recruitment and support for a senior consultant through transition to an academic leadership role as a change management strategy.

Summary of Results:
- Targeted recruitment of a respected senior consultant for an academic leadership role in Rural Medicine
- Support elicited from the Hospital Executive rebuilds the partnership between health service and university
- Experienced Manager appointed, who is familiar with university culture and activities
- Local clinician colleagues appointed to teaching positions with training and rewards
- Ongoing, visible and proactive support of the new leader by the university
- New communication techniques across the clinical school and hospital environment builds confidence and trust
- Linkage of activities across the medical training continuum creates efficiencies and a culture of learning.

Discussion and Conclusions: Appointment of a senior academic from within the clinical environment has been instrumental in changing the culture to a proud learning community that is attracting a reputation in clinical training from medical school to postgraduate posts. It will assist the development of high quality regional training programs to address the medical workforce shortage in regional Australia. This model is being replicated in other regional areas.

Take-home messages: Solutions to problems can often be solved locally.
Threshold Concepts in the realm of anatomy education.

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Stephen Stonelake, University of Birmingham, Department of Anatomy, Birmingham, UK
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Background: The ever expanding knowledge base accrued within the medical field places great demands on curriculums to cover more content in limited time periods. Thus, the benefit of pedagogical strategies which short-cut the learning process are self-evident. One such tool, that of Threshold Concepts (first described by Meyer and Land in 2003), seeks to do just that. A Threshold Concept represents a “game-changing” idea or way of thinking that transforms the student’s perception of a given subject, and is key to educational progress.

Summary of Work: For a concept to be defined as ‘threshold’, specific criteria have been defined by Meyer and Land. Utilising these criteria, any aspect of the anatomy curriculum that is commonly misunderstood and difficult to conceptualise (despite reviewing existing text or literature) was examined.

Summary of Results: Difficulty was found in identifying clear, defined Threshold Concepts with respect to the subject of anatomy. Examples include body planes in relation to organ location, movement and action of muscles, referred pain and body segmentation.

Discussion and Conclusions: Meyer and Land clearly outline the list of features required for a concept to be “threshold”. However, identification of clear examples within the anatomy curriculum is still required. Indeed, despite further focused discussion and reflection within the group, it became apparent that any such concepts within anatomy education remain elusive.

Take-home messages: The question remains as to whether a concept could still be considered as ‘threshold’ despite not meeting all the features as outlined by Meyer and Land.

Improved exam performance after prompting students to recall basic principles with respect to laryngeal anatomy

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Background: Students often report difficulty in learning laryngeal anatomy. Among our student cohort, this is reflected in consistently low exam scores on this content. To enhance student learning, this lesson was re-designed to incorporate the tenets of cognitive learning theory with an explicit focus on conceptual understanding and application of the underlying principles of this content.

Summary of Work: During the relevant anatomy lesson, first year medical students were taught the main principle underlying muscle nomenclature and action (fixed-to-free), and its application to the larynx, and discouraged from rote learning structure and function independently. Prior to their exam, half (Group A) were prompted to recall and then reminded of this principle; no exam content was revealed. The remaining students (Group B) received no intervention.

Summary of Results: Group A (n=44) scored significantly higher than Group B (n=39), both for larynx (50.7±4.4% vs. 31.5±3.5%; p=0.001) and remaining (59.6±1.7% vs. 54.0±2.3%; p=0.048) exam content. Whilst both groups scored worse on larynx content than the remainder, this was more significant for Group B (p<0.0001) than Group A (p=0.025).

Discussion and Conclusions: Reminding students to apply a general anatomical principle to answer questions on the larynx had a positive, significant impact on exam performance. Further, although this principle did not specifically apply to other topics examined, better overall exam performance suggests this pre-exam prompt may have encouraged logical reasoning across all examination topics.

Take-home messages: Reiteration of underlying principles and active discouragement of rote-learning details may enhance students’ ability to apply their knowledge in exam situations and encourage better reasoning and understanding overall.
Studying for the exam or learning for life? A study on knowledge encapsulation

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Jesper Holst Pedersen, Department of Cardio-Thoracic Surgery, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark
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Lars Konge, Centre for Clinical Education, Copenhagen, Denmark

Background: Knowledge encapsulation is an acknowledged attribute of medical expertise achieved through elaborate information conceptualisation. Encouragement of knowledge encapsulation in medical school can be achieved by teaching basic science with a clinical emphasis. The aim of this study was to investigate whether anatomy teachers are teaching gross anatomy in a way that facilitates knowledge encapsulation.

Summary of Work: Two multiple-choice tests in thoracic anatomy were developed using a modified Delphi approach with groups of four clinical consultants and four teachers, respectively, expressing their opinions on relevant thoracic anatomy knowledge. Validity evidence was gathered by administrating the tests to clinical consultants, anatomy teachers, and pre-course medical students. Post-course medical students took both tests to explore the focus of the course, i.e. whether it facilitated knowledge encapsulation.

Summary of Results: The pre-course students scored significantly lower than the teachers and post-course students in both tests and lower than the consultants in the consultants’ test (p < 0.001 for all comparisons). The teachers significantly outperformed the consultants (p = 0.03 in the consultants’ test, p < 0.001 in the teachers’ test) and the medical students (p < 0.001 in both tests). The post-course students scored significantly lower in the consultants’ test (p = 0.001) and significantly higher in the teachers’ test (p = 0.02) compared to the consultants.

Discussion and Conclusions: This study provides an insight into the teaching of medical students in gross anatomy demonstrating the students’ poor performance in the test containing clinically relevant anatomy thus implying that teachers’ teaching approach does not encourage development of knowledge encapsulation.

Does understanding basic neuroscience overcome neurophobia, a fear of neurology

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Background: Neurophobia, “a fear of the neural sciences and clinical neurology”1 is an established phenomenon amongst medical students and physicians. Conclusions from previous studies indicate a need for more neurology teaching, with basic neuroscience felt to be extremely useful2. This study examines whether a concise, focused tutorial integrating basic neuroscience with clinical neurology helps overcome neurophobia.

Summary of Work: Students from the University of Bristol (n=56) were surveyed using quantitative and qualitative questions pre/post/1 month after a 15 minute tutorial on neurological examination, integrating relevant anatomy and physiology with clinical findings.

Summary of Results: Analysis was performed using Wilcoxon signed ranks and Freidman testing. Comparing pre and post surveys there was a statistically significant improvement (p<0.05) in knowledge, confidence and understanding of clinical signs. Importantly this increased confidence persisted when students were re-surveyed 1 month later. Responses to difficulties faced when learning neurology include the following themes 1) complex/overwhelming subject, 2) lack of teaching, 3) inability to correlate neuroanatomy with clinical presentation.

Discussion and Conclusions: When teaching students (or even clinicians) with “neurophobia”, always commence with a review of basic neuroscience as a foundation on which to build an understanding of neurological function in health and disease.

Take-home messages: A short tutorial in basic neuroscience is a highly effective, long lasting tool in helping students feel more confident in their understanding of clinical neurological signs and their assessment of patients.
Medical students’ basic and higher-order knowledge development

**Background:** Medical students acquire basic knowledge, which will evolve into higher-order structures of knowledge during medical school. A commonly used way to assess the acquired knowledge is by multiple choice questions: basic knowledge with simple questions and higher-order knowledge with vignette questions. We investigated students’ ability (1) to answer simple and vignette questions and (2) to identify knowledge gaps.

**Summary of Work:** Participants were 347 first-year and 196 fourth-year medical students. To measure students’ knowledge, we used their progress test results from 2008 and 2011. We chose the progress test—which aims to assess knowledge covering the whole curriculum—because it contains simple and vignette questions; and has a question mark option that students select when they do not know the answer. We investigated whether simple and vignette questions were answered correctly, incorrectly or with a question mark. The latter was an indication of students identifying their knowledge gap. Repeated measures ANOVA and paired sample T-tests were performed.

**Summary of Results:** The percentages of correctly answered simple and vignette questions increased throughout medical school, with a higher increase for vignette questions during the final year. The further students progressed throughout medical school, the fewer question marks they used.

**Discussion and Conclusions:** Students need basic knowledge before they can build higher-order structures, which may have influenced their ability to identify gaps. A limitation is that we analyzed two progress tests. Future research with more tests should shed further light on how knowledge is built throughout medical school.

**Take-home messages:** The complexity of student knowledge increases most in the final years, whereas their ability to identify gaps decreases.
Medical students’ role as obligatory module board members in curricular development – a focus group analysis of students’ and faculties’ perspective

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Background: The new integrated, outcome-based curriculum at the Charité – Universitätsmedizin Berlin comprises of 40 modules total. Each module was designed by an interdisciplinary planning process and was steered by a module board of 4 members with equal rights (one basic scientist, two medical doctors, one with, the other without direct patient contact and one medical student). This analysis focuses on the perception of the students’ role as module board members by themselves and by faculty.

Summary of Work: Semi-structured guided focus-group interviews were conducted at conclusion of each planning period. In status-consistent focus groups (12 total: 2 with students, 10 with faculty) the students’ role as module board members was reflected. Voice recorded discussions were transcribed and analyzed by qualitative content analysis.

Summary of Results: Students and faculty reported not only acceptance but substantial appreciation for the institutionalized students’ perspective. Both parties realized that students can act as valuable experts of the taught and hidden curriculum. Students were accepted as mediators when problems among the teaching faculty body yielded conflicts. Student board members perceived their influence on the curriculum development process to be remarkable and as increasing over time. Furthermore, students experience their role as module board members impacted their professionalization.

Discussion and Conclusions: Student engagement in terms of students being obligatorily involved in curricular development has a marked effect on the medical program and on the students’ own professionalism.

Take-home messages: Giving medical students an active role in curricular development offers opportunities to enhance a curriculum and facilitate students’ professional growth.

#7O1 (26201)
Little Doctor Club and the training process to become a "doctor of value"

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Background: Little Doctor Club (LDC) was founded in 2010 by a group of CMU medical students, aiming to serve the public via creating the extracurricular activities based on the exhibitive-problems in the hospital or community. Throughout the academic year 2013-2014, five projects: Navigator, Heart to Heart, Brighten to the Blind, Palliative Care and Pun-Roy-Yim, were done. Palliative care (encouraging and relaxing the palliative patients) and Pun-Roy-Yim (volunteering for rural development camp) projects were striking and completely analyzed.

Summary of Work: Retrospective study was performed by using an anonymous post-activity questionnaire survey among 30 and 58 participants of Palliative Care and Pun-Roy-Yim projects in the academic year 2013-2014. Both qualitative and quantitative data (rating score 1, 5 points) were collected to evaluate the development of “core value” of professionalism.

Summary of Results: The Benefit rate of Palliative Care and Pun-Roy-Yim projects were 4.34/5 and 4.73/5, respectively. The Transformative Education and Contemplative Education occur along the way to develop the competency and “core value” of professionalism. All five projects have been continued in the academic year 2014-2015 following with the same method of research analysis.

Discussion and Conclusions: LDC’s projects encouraged the “core value” of professionalism and good attitude with happiness among givers and receivers. It is not only reduce stress from studying, but also motivate the life-long experience through process of learning by doing for self-development in cognitive, psycho-motor and affective domains without any usage of high-technology or expensive resources.

Take-home messages: LDC’s projects fulfill the gap in the curriculum, offering chances for medical students to become a “doctor of value” in the future.
Can the undergraduate medical curriculum facilitate leadership training?

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Background: All GMC registered doctors are required to possess leadership skills as stipulated in Good Medical Practice and Management for Doctors. Recent reviews into the quality of care such as the Francis Enquiry emphasise the need for better training of healthcare professionals in these areas. However, the implementation of relevant training has been slow and sporadic, with only a few universities worldwide incorporating these topics into their curricula.

Summary of Work: A quarterly lecture series on the topic of leadership in healthcare was organised by students at one of the largest health schools in Europe.

Summary of Results: Student demand for leadership and management opportunities has increased in recent years. Since the Institute of Healthcare Improvement (IHI) Open School’s inception in 2008, over 200,000 students across 69 countries have enrolled on its courses. With a better understanding of healthcare costs and managerial abilities, students stand in good stead for becoming clinicians that can ultimately deliver excellent patient care whilst minimising financial pressure.

Discussion and Conclusions: Undergraduate medical training is unique in comparison to other academic courses owing to its emphasis on interpersonal skills such as communication, empathy and teamwork. It would not be difficult to incorporate leadership skills into this pre-existing framework and assessments to ensure that medical students understand the importance of these skills in their training.

Take-home messages: Development of leadership competence needs to be an integral part of a doctor’s training and learning in a healthcare setting with limited resources and high patient expectations.

Student-led curriculum evaluation: hitting the nail on the head

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Background: Students usually act only as ‘participants’ in program evaluation designed from the perspective of medical schools. However, the Student Union at the Faculty of Medicine, Chulalongkorn University has established working groups to conduct student-led curriculum evaluation. This study reports the work of the second year team in the 2014/2015 academic year.

Summary of Work: Open-ended questionnaires were sent to all Year 2 students. The results obtained were arranged into 62-item closed-ended questionnaires in Round 2, covering issues relating to handouts, study guides, learning experiences, educational resources, formative assessment, grading, and curriculum evaluations. The results were presented to both curriculum committee and Year 2 students.

Summary of Results: The response rates in both rounds were 86% and 89%, respectively. Most students (81%) preferred handouts with mind maps than traditional handouts. They suggested that there should be study guides in gross anatomy and histology with complete lists of essential structures (94%); an integrated summary session in each course (89%); web-based formative assessment (89%); classroom-based formative assessment (79%); formative spot test (78%); and criterion-based grading (58%). Most respondents prefer our questionnaire (93%) to the course committees’ (82%) and the university’s (60%). Ninety-two percent would like to hear about developments and changes based on their evaluations.

Discussion and Conclusions: Our student-led evaluation resulted in a number of educationally sound recommendations. Some may be achievable shortly, but some are probably not. We plan to systematically follow up these issues and contribute to any developments that can better our student learning.

Take-home messages: Medical students could administer program evaluation which hits the nail right on the head.
#705 (26127)
'Ve Care'.....but do our Doctors?

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**Background:** In 2012 our Trust introduced a set of 'We Care' Values to be adopted by all staff in delivering our service to patients. A pilot study was undertaken to gauge the application of these values in medical practice, as Doctors had been implicated in patients' formal complaints.

**Summary of Work:** In a pilot, medical students were asked to observe staff interactions on wards and discuss their findings at Medical Grand Round.

- Embed values and standards using observation and feedback
- Audit applications of 'We Care' standards in practice
- Analyse doctors’ behaviours and its impact
- Students to adopt the values introduced
- Promote cultural change within the clinical setting
- Reduce complaints

Students made anonymous ward-based observations of staff communications and analysed findings. They evaluated these communications against the values of the organisation. Findings were presented at the Medical Grand Round including grade/job titles.

**Summary of Results:**

- Increase in Students' awareness of sub-standard behaviours demonstrated by doctors
- 51% of students' increased their awareness of organisational values
- 52% reported pilot had positive impact on their behaviours
- 50% reported it offered a platform for raising concerns
- 80% said the pilot had enhanced team working

**Take-home messages:** Student involvement in promoting and embedding organisational values is an innovative method of raising awareness among staff. Sharing findings within Grand Rounds encourages culture of transparency and new method of reporting to improve staff and patient experience, and potentially help reduce complaints. Analyses of complaints data will be undertaken to attribute its relation to doctors' behaviours.

#706 (25340)
The influence of assessment culture on receptivity to feedback

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**Background:** Feedback is essential to support the development of optimal performance. Medical students request more feedback after assessments, but often fail to utilise it. Aspects of the learning culture influence feedback uptake within an educational environment, but the influence of the assessment culture on feedback receptivity is unclear.

We aimed to explore which elements within the assessment culture of a medical school aid or hinder student receptivity to feedback.

**Summary of Work:** Using a constructivist grounded theory approach, we conducted six focus groups in three medical schools (in three separate countries) with different institutional approaches to assessment, ranging from a traditional summative assessment culture to a fully-implemented programmatic assessment culture. Data were analysed iteratively using constant comparison. Key themes were identified and clarified.

**Summary of Results:** Five principal elements within the assessment culture emerged as significant from the analysis. Receptivity to feedback was enhanced by assessment cultures which promoted students’ agency, by the provision of authentic and relevant assessment, and by appropriate scaffolding to aid the interpretation of feedback. Provision of grades and comparative ranking provided a helpful external reference but appeared to hinder the promotion of excellence. Feedback lacking in credibility or quality was ignored. These elements were represented in each school, though with differing degrees of emphasis.

**Discussion and Conclusions:** This study has identified important elements within assessment cultures to be addressed in order to enhance the learning potential of feedback following assessments.

**Take-home messages:** Students should be enabled to have greater control over assessment and feedback processes, which should be as authentic as possible. Effective long-term mentoring facilitates this process.
#707 (25795)
Are faculty evaluations of student engagement useful for the prediction of medical student drop outs?

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Background: In European medical schools, student variables associated with dropping out include prior qualifications, moving out from home, parents’ profession and various individual characteristics. This study tested the incremental explaining power of a proxy score for student engagement in class: the faculty score of student engagement (FSSE). The FSSE is the numerical average of scores attributed by faculty to each student at the end of each class, based on active and relevant participation. It is a low stakes score attributed in multiple learning contexts.

Summary of Work: This was a retrospective study conducted with 6 student cohorts (n=713, 49 dropouts) in the school of health sciences in Minho university in Portugal, with data from a longitudinal research database. Two multiple logit regression models, with or without FSSE, were used to estimate probabilities of dropping out. Admission related variables, socio-demographic factors, Big5 personality traits and FSSE were used as independent variables.

Summary of Results: The predictors (5% significance level) identified by both models were identical. When included, FSSE scores were significant, and duplicated the Pseudo – R²: from 18.6% to 37.3%. A student in the bottom quartile of FSSE has 19.9% chances of dropping out, while students in the other three quartiles have only 1.6%.

Discussion and Conclusions: Similarly to other studies, the admission GPA and age when entering college were significant drop out predictors. Adding the FSSE measure to the model increased the predictability of dropouts.

Take-home messages: Faculty scores of student engagement add important predictive power to drop out models.
#7Q Conference Workshop: Sequential testing methodologies – a practical guide to implementation and measuring benefits (25017)
Location: Castle I, Crowne Plaza

Richard Fuller*, On behalf of the UK Sequential Testing Collaboration, Leeds, UK
Godfrey Pell*, On behalf of the UK Sequential Testing Collaboration, Leeds, UK
Matthew Homer*, On behalf of the UK Sequential Testing Collaboration, Leeds, UK

Background: Sequential testing methodologies are relatively new assessment formats that help us deal with the challenges of feasibility, quality and cost whilst undertaking and delivering high stakes assessment. This typically takes the form of a two stage assessment process where all candidates are subject to a main ‘screening’ test, with lower performing candidates subject to an additional (sequential) test of similar magnitude. These candidates therefore undergo a longer test involving a broader spread of items, delivering a highly reliable assessment than would be provided in a traditional single test format, whilst providing an assessment that is ‘fair’ for candidates.

Intended Outcomes: Participants will gain theoretical and practical experience in the implementation of sequential testing, and explore the measurement of a range of markers of impact (e.g. quality metrics, student progression and cost-benefit analyses)

Structure: This highly interactive workshop will be delivered by facilitators with extensive assessment and sequential testing experience. Using models and materials from the University of Leeds’ development and implementation of sequential testing, a mixture of round table discussion and practical exercises will allow participants to apply lessons to their own assessment process. Models for sequentially testing OSCE and knowledge test formats will be used to illustrate techniques for implementation and measurement of impact.

Who Should Attend: This workshop has particular significance for those responsible for the design, delivery and analysis of performance based assessment.
Level: Intermediate

#7R Conference Workshop: How to Use the “Flipped Classroom” – A Method to Move the Ownership of Learning from the Teacher to the Trainee (25211)
Location: Castle II, Crowne Plaza

Teri Turner*, Baylor College of Medicine, Pediatrics, Houston, TX, USA
Larrie Greenberg*, The George Washington University School of Medicine and Health Sciences, Pediatrics, Washington, DC, USA
Benjamin Blatt*, The George Washington University School of Medicine and Health Sciences, Pediatrics, Washington, DC, USA

Background: The flipped classroom (FC), unlike the traditional lecture model, calls for presenting content as pre-class homework and using class time for students to apply what they have learned. The purpose of this workshop is to provide educators interested in but inexperienced with the FC with the knowledge and skills to implement this novel model in their home institutions; i.e., a train-the-trainer model. We will demonstrate how to use classroom face-to-face time for what the FC model developers intended: higher level active learning through learner-faculty engagement. To fully absorb the method, participants will be simulated learners, experiencing first-hand how the method can take learners up Bloom’s taxonomy to higher cognitive levels.

Intended Outcomes: Creation of engaging FC education.

Structure: Participants will: 1) reflect on the rationale and theory behind the FC model, 2) experience the FC in the role of learners 3) apply the knowledge and skills gained from this experience to formulate a FC plan for their home institutions. Participants will prepare for the classroom experience by reading 2 brief articles on adult learning. They will verify their knowledge by completing individual and group readiness tests, and translate this knowledge into action by analyzing how adult learning principles apply in a video simulation of a teaching encounter. Individuals will then relinquish the learner role and personalize what they have learned through creation of an individualized action plan outlining methods to implement the FC approach in their own teaching environments.

Who Should Attend: Individuals interested in using the FC approach in the classroom or clinical setting.
Level: Introductory
#7S Conference Workshop: Complexity, cognitive simulation, and medical education (26563)
Location: Castle III, Crowne Plaza
Tina Foster*, Geisel School of Medicine at Dartmouth, Obstetrics and Gynecology, Lebanon, NH, USA
Heidi Chumley*, American University of the Caribbean, Surgery, St Maarten, Netherlands Antilles
Robert Engleander, George Washington University School of Medicine, Pediatrics, Washington DC, USA
Claudia Mueller*, Stanford University, Pediatric Surgery, Palo Alto, California, USA
Satish Krishnamurthy, SUNY Upstate Medical University, Neurosurgery, Syracuse, New York, USA
Usha Satish, SUNY Upstate Medical University, Psychiatry, Syracuse, New York, USA

Background: Medical education increasingly involves active learning and competency-based assessment. We are working with new models to understand how medical students and postgraduate trainees learn. One well-validated and normed approach is the use of cognitive simulation technology which is known to correlate with real-world functioning, especially in unpredictable, ambiguous, and complex situations. We are in the process of building empirical data on the use of these simulations in medical education. Specific cognitive parameters (focus, task orientation, information management) correlate with academic success and faculty assessment of performance in complex clinical settings.

Intended Outcomes: Participants will understand the basics of cognitive simulation and its current and potential applications in undergraduate and postgraduate medical education, including its use for formative assessment and remediation. Exercises will offer the opportunity to explore how participants learn "how students think" and how simulation and technology can aid this.

Structure: There will be six short theory bursts which will situate and explore the current and potential uses of cognitive simulation along the continuum of undergraduate and postgraduate medical education. Interspersed between these will be opportunities for questions, discussion, and table work related to how we can best understand how trainees think and learn and current and potential uses of cognitive simulation in this arena.

Who Should Attend: Faculty, learners, administrators; those interested in novel uses of simulation and technology; those interested in how health professionals think and learn

Level: Introductory

#7T Conference Workshop: 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: Gala 1, Clyde Auditorium
Ricky Shek*, AMEE, Dundee, UK
Catherine Kennedy*, AMEE, Dundee, UK

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 and the stakeholders have a responsibility to keep abreast with 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 may find it useful to bring along a laptop or other device to fully participate in this session.
#7U Conference Workshop:
Assessing Communication and Professionalism with MCQs (24172)
Location: Gala 2, Clyde Auditorium

Kathy Holtzman*, American Board of Medical Specialties, International Programs, Chicago, USA
Krista Allbee*, American Board of Medical Specialties, International Programs, Chicago, USA

Background: Although medical educators agree on the importance of assessing physician professionalism, communication and related ethical topics throughout the continuum, they often find it challenging to develop realistic MCQs that assess whether examinees can apply their knowledge in these areas to decisions related to patient care. This highly interactive workshop will allow attendees to consider appropriate content for assessment from a global and cultural perspective and share/generate ideas for development of realistic scenarios/dilemmas that can be used as stimulus for traditional MCQ formats or with more innovative formats that include video/multimedia; attendees will have the opportunity to practice writing/reviewing scenarios.

Intended Outcomes: Participants will gain skills and ideas for writing scenarios for use with traditional MCQs and innovative MCQ formats at their home institutions. Attendees will leave the session with a tool kit including practical advice for structuring MCQs, guidelines for video development, and sample scenarios for use locally.

Structure: The workshop will be run in an interactive, seminar-style format as outlined below:
• Brief introduction
• Discussion of appropriate content to assess and associated challenges in small groups followed by full group discussion
• Review/discussion of sample scenarios and potential option lists in each area
• Review/discussion of innovative formats for potential use in assessment of hard-to-measure competencies
• Practice writing/revising scenarios for MCQs or innovative formats in small groups
• Full group review/discussion

Who Should Attend: Medical educators responsible for teaching/assessing professionalism, communication, and ethics.
Level: Intermediate

#7V Conference Workshop:
Navigating the chasm – co-creation of feedback between learners and their supervisors (27275)
Location: Staffa, Crowne Plaza

Heather Anne Armson, University of Calgary, Family Medicine, Calgary, Canada
Erik Driessen, Maastricht University, Health, Medicine and Life Sciences, Educational Development and Research, Maastricht, Netherlands
Karen Konings, Maastricht University, Health, Medicine and Life Sciences, Educational Development and Research, Maastricht, Netherlands
Kathryn Ross, American Board of Internal Medicine, Program in Health and Medical Education Research, Philadelphia, USA
Karen Mann, Dalhousie University, Psychiatry, Halifax, Canada,
Ivan Silver*, University of Toronto, Toronto, Canada

Background: “Giving and receiving effective feedback” workshops most often emphasize how faculty should provide feedback to learners. Less well addressed is how learners can provide feedback to their supervisors. Power dynamic differences between faculty and learners make learners reluctant to give constructive feedback to their supervisors, for fear that critical feedback will have negative repercussions. In response, learner feedback may be withheld from their supervisors until long after the resident leaves the setting. Lack of timely feedback from learners to faculty limits faculty’s ability to improve.

Intended Outcomes: Participants will:
• Identify co-creation approaches for providing feedback to supervisors, specifically focused on learner safety, and benefits to both the learner and supervisor.
• Consider the potential applications of these approaches in their own environments.

Structure: We will explore this issue utilizing a feedback model (R2C2), designed for providing performance feedback to residents by supervisors. The model emphasizes relationship and trust building as its core elements. In small and large groups, participants will:
• Discuss their experienced challenges in providing feedback to supervisors.
• Discuss the R2C2 model, and its potential to address issues of safety in providing feedback to supervisors.
• Consider a co-creation approach to feedback involving both the learner and supervisor.
• Use role play to practice co-creation of a feedback model using the R2C2 as a foundation

Who Should Attend: Faculty, residents and students
Level: Intermediate
#7W  Conference Workshop: Diversity: Issues in bioethics, professionalism and medical education
Location: Shuna, Crowne Plaza

Mona Siddiqui*, University of Edinburgh, UK
Janusz Janczukowicz*, Medical University of Lodz, Poland

Background: How do we understand diversity in the workplace, including educational and health care environment? For diversity to be a constructive force, it must be negotiated through multiple voices with people who can explore and balance the theoretical frameworks of cultural and religious thought with the lived realities of people’s lives. Words like sanctity and dignity of human life can assume a variety of different meanings in medical and religious thinking but issues such as abortion, organ donation and assisted dying reveal multiple perspectives across cultures fusing religious thought and medical knowledge. Issues of religious and cultural diversity become constantly more complex in the era of globalization of medical education with schools educating students of diverse backgrounds in the culturally complex educational environment preparing them for culturally and religiously diverse workplaces and societies around the world.

Intended Outcomes: The intended outcomes for this session are to (1) gain a deeper appreciation of some of the basic but contested terminology in bioethical issues; (2) discuss certain cases which reveal both religious and secular perspectives and how western and other cultures advance and communicate sensitive medical issues for the patient and the public; (3) discuss the approaches and methods of implementing diversity into medical curricula allowing both to promote local professional and ethical values and simultaneously respect the diversity of teachers, learners, patients and societies.

Structure: A brief introduction will be followed by discussion on bioethical cases. The cases will be available for the workshop participants during the meeting but those interested in reading more on the subject are encouraged to visit the link http://www.mededworld.org/SIGs.aspx and select the material uploaded to the “Tuesday” SIG. (It is necessary only to register for MedEdWorld to access the materials, and no payment is necessary.) Following the case-based discussion the methods of implementing diversity into medical curricula will be presented and discussed with the participants from the perspective of their experience and transferability of these methods to their own medical schools. The session will conclude with a summary and possibly with forming a group of people interested in further cooperation on this subject.

Who should attend: Both medical teachers and students interested in effective implementing diversity values into medical curricula.
Level: Intermediate

#7X  Conference Workshop: PBL online in health professions education: challenges and possibilities (24591)
Location: Jura, Crowne Plaza

Samuel Edelbring*, Linköping University, Medical and Health Sciences, Linköping, Sweden
Tino Kurz*, University of Linköping, Medical and Health Sciences, Linköping, Sweden
Anna Karin Johansson*, University of Linköping, Medical and Health Sciences, Linköping, Sweden
Siw Alehagen*, University of Linköping, Medical and Health Sciences, Linköping, Sweden
Pia Tingström, University of Linköping, Medical and Health Sciences, Linköping, Sweden
Patrik Ryttérström, University of Linköping, Department of Social and Welfare Studies, Linköping, Sweden

Background: Problem-based learning (PBL) is sometimes held as an ideal approach in health professional education. The PBL approach started out as being campus-based, but has also been transformed to online practice. However, the question of how to deal with core aspects like student centeredness, self-directed learning, problem-orientation and group processes online is not yet fully answered. We will collaboratively share experiences and ideas on how to deal with challenges and benefit from opportunities with the PBL approach online.

Intended Outcomes: The workshop will end up in a developed understanding of how to conduct PBL online based on participants' experiences and collaborative work. We will advance our knowledge, find practical tips and also refine and outline future burning questions pertaining to core PBL values. Our ambition is to create take home messages and specific questions for further inquiry.

Structure: The presenters will introduce core values of PBL based on the literature and experience. Participants may choose from suggested themes and then process them in a PBL-like fashion in facilitated tutorial groups. The facilitators will summarize the findings together with the groups. Suggested themes will circle around PBL online practice. Examples are group processes, brainstorming, synchronous and asynchronous discussions, technologies, examination and lectures.

Who Should Attend: Educators and students relating to PBL and online learning. Some understanding of the PBL approach is helpful.
Level: Intermediate
#7Y  Conference Workshop:
Strategies for providing support to medical students (26510)
Location: Barra, Crowne Plaza

Asha Venkatesh*, University of Aberdeen, Aberdeen, UK
Rachelle Arnold*, University of Aberdeen, Aberdeen, UK
Alan Denison*, University of Aberdeen, Aberdeen, UK
Malcolm Laing*, University of Aberdeen, Aberdeen, UK

Background: Medical curricula are intensive and medical students can have particular support needs. Stress and health issues in medical students are increasingly recognised by the Regulator and Faculty. Developing and delivering effective and proportionate strategies that identify and support students in difficulty is an increasing challenge for curricular leaders.

Intended Outcomes: By the end of this session participants will be able to:
1. State the spectrum of support needs that medical students may require.
2. Discuss the challenges and difficulties related to identifying students who are struggling.
3. State the importance of documenting support provided and how and with whom this documentation is shared while maintaining students’ confidentiality.
4. Be aware of the potential limitations in providing support and for students to access NHS and university support within a helpful timescale.

Structure: Following a series of short presentations, participants will work in small groups and will be presented with case based vignettes that will demonstrate a broad spectrum of student support needs and strategies to remediate them.

Who Should Attend: Educational and curricular leads, course administrators, those involved in providing student support.

Level: Intermediate
#7AA01 (26427)
"Pedagotchi" – game-based learning (GBL) in pediatrics

Lorenz Grigull*, Medical University Hannover, Pediatric Oncology and Hematology, Hannover, Germany
Ralf Schmidt, University of Duisburg-Essen, Entertainment Computing Group, Duisburg, Germany

Background: Playing games and using smartphone apps has become a part in every student's life. This new trend has not yet been satisfactorily incorporated into medical education. Therefore, we created a prototype of an interactive GBL application called Pedagotchi to support student's learning on decision-making.

Summary of Work: Following an user-centered design approach, we first gained insight into the student's learning behavior and preferences. We then designed a story-driven game concept that incorporates decision-making as a core mechanic. In the story, the sick boy “Tom” seeks medical advice for different medical issues. The students can subsequently perform the past medical history, select investigations (laboratory-tests, ultrasound, auscultation, urinary dipstick analysis) and give recommendations which influence the further course of the story. The GBL application provides feedback on the student's performance and offers an expert's view on each case. Social features of the application support and motivate discussions about the learning progress among students.

Summary of Results: Medical students are interested in smartphone and game-based learning offers. The training of decision-making can be incorporated into a GBL-application and support students learning in a playful and easy-to-use way.

Discussion and Conclusions: Although prototypical yet, GBL applications offered fascinating opportunities for teachers and students. The non-linear course of a medical problem, decision-making and feedback were only some benefits. Next steps will include the design of an appropriate author tool for new medical cases as well as further didactical framing within courses of pediatric oncology.

Take-home messages: Game-based learning applications are helpful for training of medical decision-making.

#7AA02 (23464)
Game Based eLearning in Medical Students: The Memorial University Experience

Sahar Iqbal*, Memorial University of Newfoundland, Internal Medicine, St. John’s, Canada

Background: Although on line gaming is almost ubiquitous as a hobby in today's learners, e Learning and teaching is a new concept in medical education. On line learning tends to emphasize team and collaborative learning while forming and maintaining dedicated learning communities.

Summary of Work: The purpose of this study is to examine the knowledge, attitude and practice of game-based learning in clinical clerks at Memorial University and compare it to traditional learning using the respiratory medicine game developed by the Imperial College medical faculty.

Summary of Results: A convenience sample of 10 male and females between 18-29 years of age were included. All the males and 70% females played video games but none had ever played Second Life or heard of the respiratory floor or the virtual hospital. The variable “quality of learning” was negatively related to “years at medical school” (r = -.72, p < .05) and positively related to “ease of use” (r = .86, p < .01). “Acceptability and applicability” was positively related to both “ease of use and “quality of learning” (r = .98, p < .01: r = .88, p < .01). 92% felt their learning was enhanced, 83 % were interested in having game based teaching integrated into the curriculum at Memorial.

Discussion and Conclusions: The small size limits generalizability of results, however the trends show promise for future e Learning opportunities in medicine. The study generated a great deal of interest in the technology and its possible implementation as a teaching tool at Memorial University.

Take-home messages: Game-based e Learning has tremendous potential to enhance learning in clinical medicine because of its interactive and immersive nature.
Serious Gaming Doesn’t Have to Be Seriously Expensive

Alex Drinkall*, Health Education England, York, UK
Richard Price, Health Education England, Leeds, UK

**Background:** Do computer games have a place in healthcare education and training? The same principles which make games so addictive and compelling can be applied to learning content, improving learner engagement and improving learning outcomes and knowledge retention. Developing effective game based learning can be seriously expensive, but it doesn’t have to be!

**Summary of Work:** We created a “serious” eLearning game to improve awareness of patient dignity and respect with an aim of improving patient care. Incorporating video scenarios, rewards for completing objectives and reflective activities, learners were encouraged to complete the game to improve their patient care.

**Summary of Results:** 70% of learners judged the learning to be better than traditional linear eLearning courses with many citing the rewards and recognition of their achievements as the primary reason for the improvement. Learners were encouraged to submit a reflective post following the learning and these provided an insight into the way in which changes to behaviour could be judged.

**Discussion and Conclusions:** Games based learning proved to be largely successful and while much more complex to develop, was relatively cheap to produce using in-house resources. Learner engagement was significantly improved using these techniques.

**Take-home messages:** The principles of the computer games industry can be applied to education and training, without a large budget and learner outcomes are improved.

Exploring the influence of participating in tactical decision games on medical students’ recognition and understanding of non-technical skills

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Janet Skinner, University of Edinburgh, Centre for Medical Education, Edinburgh, UK
Morwenna Wood, NHS Fife, Medical Education, Kirkcaldy, UK

**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”. Tactical decision games (TDGs) are low-fidelity classroom-based activities designed to develop proficiency in NTS. This study explored the influence of participating in non-medical TDGs on medical students’ recognition and understanding of NTS.

**Summary of Work:** Following full ethical approval, participating final year medical students took part in 2 non-medical TDGs with a short presentation and discussion around NTS between the 2 TDGs. The TDGs consisted of emergency scenarios (plane crash and shipwreck) where participants had a limited time to decide on a course of action. Thereafter, students participated in a video-recorded acute care simulation scenario followed by a video-stimulated debriefing interview (VSDI). The VSDI was audio-recorded and transcribed and coded with the assistance of NVivo software.

**Summary of Results:** Participating students were able to identify and discuss key NTS in a debriefing interview after participating in and observing their peers in an acute care scenario. Students were able to recognise and discuss the importance of speaking up and developing a shared understanding, effective task prioritisation and projecting ahead when faced with rapidly changing clinical situations.

**Discussion and Conclusions:** TDGs represent a low-fidelity, affordable and sustainable method of raising awareness and understanding of NTS in final year medical students. Further work is required to explore the potential impact of using medical TDGs to complement non-medical TDGs and to explore the influence of TDG participation on subsequent NTS behaviour.

**Take-home messages:** TDGs are a potential novel method of teaching NTS.
#7AA05 (27613)
Creating a web-based resource for Less Than Full Time Trainees

Jennifer Illingworth*, Imperial School of Anaesthesia, London, UK
Emilie Martinoni Hoogenboom, North Central School of Anaesthesia, London, UK
Annie Hunningher, Bart’s Health NHS Trust, Anaesthesia, London, UK
Joy Curran, Queen Victoria Hospital, Anaesthesia, East Grinstead, UK
Mira Tewari, University College Hospital NHS Trust, London, UK
Sian Jaggar, Royal Brompton and Harefield NHS Trust, London, UK

**Background:** The London Anaesthetics less-than-full-time (LTFT) training forum recognised a need for improved educational resources and support. A survey of 83 London anaesthetic trainees demonstrated that both returning to work or changing to LTFT training can be challenging (Martinoni-Hoogenboom). Trainees can have difficulties accessing guidance from tutors and peers, particularly as they frequently return to work in an unfamiliar hospital. We wanted to improve the information available for both new and existing LTFT trainees and considered a website solution, given some of the shared characteristics between LTFT trainees and distance learners (Wong).

**Summary of Work:** Key issues for this project to resolve were: cost, regular website updating to ensure content remained relevant, and licensing considerations.

**Summary of Results:** We chose Wordpress, a free to install content-management system. This enabled us to create a low-cost, high quality website that is easy to maintain and update without external IT input. In presenting content we considered how learning styles might impact on user engagement. Additional software monitors website traffic and provides user feedback guiding further development. All content was created by the group avoiding licensing issues.

**Discussion and Conclusions:** LTFT trainees, in particular those returning to work, need practical guidance in a form that can be accessed remotely in a time convenient manner. The adaptability and simplicity of current website software offers great potential to be used for educational resources.

**Take-home messages:** It is possible for non-experts to create websites and produce an accessible educational resource, such as ours for LTFT trainees.

#7AA06 (26573)
Qualitative analysis of English version evidence-based-medicine interactive eBook learning effect

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Wei-Yu Lin, Kaohsiung Chang Gung Memorial Hospital, Education, Kaohsiung, Taiwan
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**Background:** This study was initiated to deeply understand the reasons why students got good learning effect and aroused their interest in evidence-based medicine (EBM) interactive electronic book (e-book).

**Summary of Work:** English version e-book was designed via SimMAGIC eBook. It included the basic concepts of EBM. At the pediatric outpatient clinic, “e-book” and the skills of EBM were presented to the students to formulate a question from a real life patient. Students then practiced the five steps of EBM to search and analyze. Our study tried to find their 3 impacts of learning with open questions.

**Summary of Results:** A total of 23 students completed the questionnaire. Average satisfaction score of the students was 95.6 points (on a scale of 100) and they felt the teaching via e-book was good for immediate interaction and memory. With the interaction of e-books, 91.3% students felt that learning was improved in this interactive e-book for the more understandable interactive processes and easier to grasp the main points of learning EBM. 86.9% students felt that the e-book learning would increase asking a good search question, appraising the level of evidence and applying these skills to clinical questions for it was much easier than what they thought before. 78.2% students felt this EBM learning model would affect their attitudes towards EBM skills during future practice for their searching skills were much improved after the practice in this class.

**Discussion and Conclusions:** The e-books interactive mode could improve the EBM skills of the students, raised their interest in learning, and would affect most of their attitudes in the future practice.

**Take-home messages:** The integration of e-books interactive mode into clinical cases could improve EBM learning and this was an interesting and good learning effect method even written in English.
#7AA07 (28044)
DAMIS, choose how to learn

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Matías Jerez Ramírez, Universidad de Chile, Medicine, Santiago, Chile
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Nadia Escobar Salinas, Universidad de Chile, Medicine, Santiago, Chile
Abelino Jara, Universidad de Chile, Medicine, Santiago, Chile

**Background:** DAMIS is an education platform created in the need of students to have theme-based reading materials that integrate the vision of different disciplines and are attractive to use. This platform is intended to stimulate different learning styles in a dynamic, flexible and clinical experience-based model, which also integrates the faculty community, seeks to promote student’s self-learning and serves as an ideal knowledge management tool according to the student’s needs.

**Summary of Work:** A themed-based reading material for medical semiology (DAMIS) was created in the Prezi platform, organized in 9 dimensions: clinical story, symptoms and signs, definitions, statistics, aetiology and pathology, complementary studies, audiovisual media, tips and questions. These dimensions approach the same topic from different perspectives and relate to each other through key concepts. The clinical story is the main axis and it is based in a real clinical experience.

**Summary of Results:** Six successive prototypes of DAMIS were obtained. These were validated and improved with the opinion of students and teachers, who answered a survey and/or a semi-structured interview.

**Discussion and Conclusions:** DAMIS is an innovative response to a scenario where the use of technologies for education is more relevant every day. It integrates the vision of students and teachers for the generation of a platform that allows significant learning of different disciplines in medical teaching.

**Take-home messages:** Creation of teaching material by multi-generational student teams and medical teachers would be a positive factor for contents learning and reaching consensus in different perspectives of medicine.

#7AA08 (27953)
An interactive 3D virtual learning module for improved neuroanatomy education: A two-year study

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Roy Eagleson, Western University, Department of Electrical and Software Engineering, London, Canada
Sandrine de Ribaupierre*, Western University, Department of Clinical Neurological Sciences, London, Canada

**Background:** Neuroanatomy is one of the most challenging subjects in anatomy, with many students experiencing difficulty in grasping the complex spatial relationships. Students report having the lowest knowledge in neuroanatomy, and often avoid the subject, leading to the term “neurophobia”. E-learning technologies enable the opportunity for development of learner-centered educational tools, tailored to meet each student’s learning style. Multimodal resources may facilitate improved learning, however this has yet to be examined fully in the literature.

**Summary of Work:** An interactive 3D neuroanatomical model was developed to complement gross anatomy laboratory instruction. The module allows students to manipulate the model to view structures from any desired angle, view deep cortical structures at high magnification, and view interactive structural labels.

**Summary of Results:** The cross-over design divided participants into two groups, each beginning with anatomy knowledge and visuo-spatial ability tests, followed by access to either the 3D e-learning module or gross anatomy laboratory. Participants completed a second anatomy knowledge test prior to switching to the other learning modality. No significant differences in “baseline” anatomy knowledge or visuo-spatial abilities were observed between groups. Students who accessed 3D online resources scored significantly better than students who accessed gross anatomy resources on the first anatomy knowledge test. After learning with both modalities, no significant differences were observed between groups.

**Discussion and Conclusions:** Qualitative feedback for 3D module was very positive, and learning outcomes were equivalent or improved to those observed in the gross anatomy lab. Additional studies are required to confirm these preliminary results.

**Take-home messages:** Results could guide the design and implementation of more effective e-learning resources.
Teaching Students to Differentiate Seizure Subtypes using YouTube

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Jane Adcock, University of Oxford, Oxford Epilepsy Research Group, NIHR Biomedical Research Centre, Oxford, UK

Background: Clinical differentiation of epileptic from non-epileptic seizures is a skill best learned by direct observation rather than text based description and can influence management decisions in an acute situation. The video sharing website “YouTube” provides a large bank of freely available seizure videos that could be used to teach students the difference between epileptic and non-epileptic seizures.

Summary of Work: A YouTube search was performed for 8 different seizure types (Tonic-Clonic, Tonic, Atonic, Absence, Myoclonic, Simple-Partial, Complex-Partial, Pseudoseizure). Two consultant epileptologists rated the videos that met inclusion criteria for technical quality, most likely expert diagnosis and potential use in teaching. A list of these videos was compiled and assessed as a learning tool for teaching medical students to differentiate organic seizures from non-epileptic attacks.

Summary of Results: A total of 200 videos were analysed and 114 met inclusion criteria. Only 13% were rated as clear enough examples to recommend as a learning resource for students. Eight of these videos were incorporated into a teaching presentation, which was used to help medical students differentiate organic seizures from non-epileptic attacks.

Discussion and Conclusions: The majority of seizure videos on YouTube are not useful for teaching. However, our list of YouTube videos may be used successfully to help medical students recognise different seizure subtypes.

Take-home messages: Our list of free and easily accessible YouTube videos can help students to distinguish epileptic from non-epileptic attacks. It is possible that other clinical presentations requiring visual recognition could also be taught using YouTube acquired videos.

Teaching / learning Child Psychiatry online: PBL-inspired virtual patients

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Ruth C. Russell*, McGill University / McGill University Health Centre, Psychiatry, Montreal, Canada
David M. Fleiszer*, McGill University / McGill University Health Centre, Surgery / Oncology, Montreal, Canada
Andrea R. Fleiszer, McGill University, Nursing, Montreal, Canada

Background: The creation of Child and Adolescent Psychiatry (CAP) subspecialty residency programs across sixteen Canadian universities has reinforced the need to develop new, dynamic curricula for autonomous learning by senior residents (McGee et al., 2011). In response, we propose the integrated use of problem-based learning (PBL) and online virtual patients (VPs) as one pedagogical strategy. PBL promotes critical thinking and independent review of the literature. VPs require a learner to choose assessment variables and make treatment decisions, and provide individualized feedback on the learner’s clinical management choices (Cook & Triola, 2009; Poulton et al., 2009).

Summary of Work: An interactive online VP with an eating disorder diagnosis was created in an evidence-based PBL format. The case scenario allows the learner to assess the patient and develop a comprehensive treatment plan. Assessment and treatment options are based on principles from DSM-5, practice parameters, and relevant literature. The VP’s outcomes vary according to the student’s trajectory through the decisional tree. The student may also compare their VP management to that of an expert clinician.

Summary of Results: An overview of the process to develop an interactive online CAP-related VP in PBL format will be provided. A computerized demonstration will invite poster viewer feedback. A number of psychiatry-specific considerations for VP creation will be raised.

Discussion and Conclusions: The blended interactive online VP and PBL approach is a learner-centered pedagogical strategy with exciting educational possibilities.

Take-home messages: This innovative, transferable, and accessible online VP PBL strategy exemplifies the potential of technology-enhanced learning in residency programs.
#7AA11 (26314)
Real versus Virtual: Improving students’s learning by virtual labs.

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Per Whiss*, Linkoping University, Department of Medical and Health Sciences, Linkoping, Sweden
Andreas Eriksson, Linkoping University, Department of Medical and Health Sciences, Linkoping, Sweden
Anne-Christine Persson, Linkoping University, Faculty of Health Sciences, Linkoping, Sweden

**Background**: Understanding pharmacokinetics is crucial for patient safety. The main aim of this study was to find out if students’ understanding of basic pharmacokinetics improved by virtual laboratory work. Another objective was to find out if virtual labs implemented in medical education could be a way to decrease unnecessary use of hazardous chemicals.

**Summary of Work**: In addition to lectures and problem based learning (PBL) tutorials, undergraduate students of biomedicine, were offered virtual laboratory work. The learning package Pharmacokinetics simulation v 2.0 licensed by Commercial and Academic Services was used to produce students’ learning assignments. The program allow students to evaluate the impact of changing pharmacokinetics parameters on the concentration-time profile of a drug. Students worked individually with the assignment, followed up by a teacher-lead seminar.

**Summary of Results**: Students evaluated the relative impact of the different learning modalities: the lecture, the tutorial and the virtual lab, through an evaluation form. Out of the 35 students 29 responded. All modalities were evaluated to highly impact learning (3-4 on a five-grade scale). Virtual labs had equal learning impact as PBL-tutorials. However, examination results did not improve significantly. Students and teachers in this limited study were mostly positive to the experience. The fact that students valued the virtual experience as highly as PBL-tutorials give us reason to continue trying out virtual labs.

**Discussion and Conclusions**: Virtual labs can be used to complement or replace other learning modalities. However curriculum integration is important and the simulations needs to be coordinated with other learning modalities.

**Take-home messages**: Well-functioning IT-support is critical for the success of implementation.

#7AA12 (26286)
Subjective assessment of students’ ability to use ICT during the 1st year of the medicine study

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Eva Kraľová, Comenius University, Faculty of Medicine, Institute of Medical Physics, Biophysics, Informatics and Telemedicine, Bratislava, Slovakia

**Background**: Teaching of Informatics in High school in Slovakia is focused on using common application programs in limited range. The aim of study is to assess the readiness of the 1st year students to use ICT in the study of medicine and their ability to obtain correct information from appropriate sources.

**Summary of Work**: We realized questionnaire investigation, which detected: 1. Using search tools on the Internet by students. 2. How students are informed about biomedical databases. Students assigned score to each question (0 in the scale - doesn’t used, doesn’t known; 10 in the scale - the mostly used, level of expert). 185 questionnaires were evaluated.

**Summary of Results**: We find that: 1. Students used for their schoolworks mainly Internet search tools (average score 9.27), web portals (average score 7.09). Other searching tools are neglected by students (online libraries – average score 2.52; biomedical databases – average score 1.31).
2. 14% students (26/185) answered the question: “Which biomedicine databases do you know?” 9 of these students answered names databases correctly. Other students gave names web portals, dictionaries, encyclopaedias...

**Discussion and Conclusions**: The students have usually problem to acquire information, which is needed for their study. They created projects and papers at high school, but there were used only general web portals (e.g. Wikipedia) and other encyclopaedias. Their experience in the use of scientific databases and libraries are minimal and inadequate.

**Take-home messages**: Beginning medical students could learn searching relevant and current medical scientific sources in professional medical databases and libraries for the purposes of their study in the introductory course.
Using Dashboards as platforms for student valuations

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Background: Student evaluations play an important role in quality assurance and quality improvement of teaching and learning activities, and in aligning these with overall educational policies, at the University of Southern Denmark (SDU).

Summary of Work: At the Faculty of Health at SDU we are in the process of implementing QlikView, a dashboard type software, as a digital platform for gathering all student evaluations of teaching and learning activities at the faculty.

Summary of Results: In its implementation at the Faculty of Health at SDU, QlikView is set up to gather both quantitative (ratings) and qualitative (comments) knowledge from all individual student evaluations. This provides easy access to knowledge gained from student evaluations for individual teachers, educational leaders and managers, and faculty administrators.

Discussion and Conclusions: Making knowledge gained from student evaluations more accessible is an important step in paving the way for a more streamlined operationalization of both summative and formative knowledge. This is true for both quality assurance and quality improvement of teaching and learning activities. For both individual teachers looking for constructive feedback on their recent teaching activities, and managers and administrators assessing quality and trends in teaching at the faculty over time, a dashboard-type solution, such as QlikView, is an efficient and transparent platform.

Take-home messages: Dashboard-type software, such as QlikView, provides a centralized knowledge base for evaluations of teaching, allowing for a smooth and continuing operationalization of information gained from student evaluations.

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Sharing innovation with SisLAu, a collaborative learning platform based on wiki

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Background: Collaborative learning provides the students an opportunity to develop emotional and social competences, engagement, responsibility, autonomy and critical view.

Summary of Work: The System of Literature and Classes (SisLAu), created in 2011 at The School of Medicine of the University of Sao Paulo, Brazil, is a Web environment based on Mediawiki for collaborative learning of our students. However, the system configuration differs from Wikipedia. Login is mandatory to access its content. Although anonymous editions are not allowed, user freedom is maximum, since all users can edit all pages, including the profile pages of others. It was designed to receive all didactic material provided by teachers and produced by students alike.

Summary of Results: Up to December, 2014, SisLAu had registered 744 students, 51 professors and 49 collaborators as users. Only 121 acted as editors at least once, but 2,602 documents and 1,037 pages were accumulated. Altogether, along the last semester, 497 new files were deposited and 2,963 editions were performed by 47 users. While edition is still insipient, the system is heavily accessed, with an average of 115 connections and 945 pages visited per day. The number of editions and connections are increasing along time.

Discussion and Conclusions: While the system centralizes classroom notes and the material provided by teachers is enriched through collaborative knowledge, students are organizing their material as active agents of the educational process. Respect to people’s autonomy allows the coexistence of a variety of strategies proposed by each discipline in the same system.

Take-home messages: Freedom does lead to anarchy when students are active learners in cooperation with their teachers.
Student-centred learning and engagement in undergraduate medical education using Peerwise

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Background: Student-centred, active and collaborative forms of learning encourage student engagement, motivation and deep learning. One such approach, Peerwise (developed by Paul Denny, University of Auckland), is a free, online learning tool that allows students to create, answer and critique multiple choice questions.

Summary of Work: The University of Glasgow introduced Peerwise in 2011-12 to medical students in Years 1 and 3 and is now available to all year groups. Peerwise use is voluntary, anonymous and entirely student-led. Student views of PeerWise as a learning tool were assessed using a questionnaire and their engagement over four years of use was monitored.

Summary of Results: Reported advantages of PeerWise included the practice of MCQs and access to a question bank. Disadvantages included no quality control and the inclusion of questions that were irrelevant. Student participation with Peerwise is highest in year 1 and tends to decline in subsequent years. Student engagement with Peerwise is variable for different year cohorts, however for a given cohort, the same level of engagement persists for the proceeding years of the course.

Discussion and Conclusions: PeerWise was positively evaluated by students with several advantages and disadvantages recorded. Engagement with Peerwise will be affected by a number of factors however early introduction of Peerwise results in high rates of student engagement in that year and subsequent years.

Take-home messages: Peerwise is perceived by students as an effective learning tool in which they engage in an active and collaborative manner. Early strategies to promote the use of Peerwise in Year 1 may help to ensure continued use throughout undergraduate education.

Towards a more pedagogical use of a new LMS

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Background: In September 2013 the implementation of the new learning management system (LMS) started at Aarhus University. Contained in the central project each faculty was responsible for their own implementation; projects running for approximately two years.

Summary of Work: The project work showed that the biggest challenge was not to implement a new LMS, but to develop a more pedagogical use of the system.

Summary of Results: As a result of these challenges, the Faculty of Health used three central principles in the implementation process: 1) Close collaboration with the departments. 2) Education in functionality of the system as a base for educating pedagogical use. 3) Support for pilot projects containing a special pedagogical focus.

Discussion and Conclusions: The benefit of the three principles will be discussed, which includes: 1) How closeness and collaboration with the departments are optimized through a network of super users to assure relevant, local support for the departments together with continuous communication between the departments and the project. 2) How all academic and administrative staff is offered an education in central principles and functionality of the system to assure a base for pedagogical use (cf. Salmon’s Five Stage Model). 3) How the pilot project are used as pedagogical inspiration.

We conclude that all principles above are important in the use of the LMS because these steps make the users feel safe and motivated to explore the pedagogical possibilities

Take-home messages: The users being comfortable with the LMS are crucial to development of a pedagogical use. Close local collaboration, familiarity with the system and access to relevant inspiration are important factors to increase the comfort.
Show and TEL: What would a national on-line Technology Enhanced Learning community look like?

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Background: Technology Enhanced Learning (TEL) encompasses e-learning, mobile technologies, and simulation-based education resources. There is no overall cohesive or co-ordinated system for accessing existing resources, applying them in different educational contexts, or developing and sharing new resources.

Summary of Work: We analysed users’ needs for such a resource by purposefully sampling a cross section of healthcare academics, professionals (from hospital and community based clinical specialties), managers, educationalists, and representatives of other stakeholder NHS organisations. This involved hosting healthcare education working groups, stakeholder focus group sessions and conducting a national survey to identify key requirements/expectations of potential users of such a ‘TEL Hub’.

Summary of Results: Any hub needs to be more than a simple repository. There was an enthusiasm for ‘crowd-sourced’ resources from higher education, NHS and commercial sectors that could be uploaded by developers/creators whether individual or an organizational. Peer rating/review was seen to be key regarding quality. Linking/signposting to other existing repositories, portals, and online communities of practice was seen as crucial.

Discussion and Conclusions: Users currently are frustrated by the slowness, inefficiency and cost of producing and accessing high quality educational resources and support for TEL across a range of modalities. There is an appetite for innovation, collaboration and co-design of resources; for an easily searchable ‘hub’ that helps in accessing existing materials and highlighting those of the highest quality as judged by users in a transparent manner.

Take-home messages: A national TEL hub needs to enable people to deposit, find, sample, co-design, experience and feedback on a wide range of technologies and techniques in healthcare education.

Are YouTube videos an accurate and reliable source of educational information about cardiopulmonary resuscitation (CPR)?

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Background: Patients suffering a cardiac arrest require good quality bystander CPR to reduce morbidity and mortality, thus identifying a need for public education of this life saving skill. Videos have been shown to improve cognitive ability and knowledge. The internet video-sharing website YouTube allows anyone worldwide to publish and view videos freely. However, concerns have been raised regarding the accuracy and reliability of such videos given the lack of regulation. This literature review considers these concerns regarding educational YouTube content.

Summary of Work: Literature searches of Medline:EBSCO using the terms “CPR”, “Basic Life Support”, “reliability”, “quality” and “YouTube” retrieved 6 results. Authors of the 3 selected papers used explorative and quantitative methods to analyse the source; number of views/viewers per day; length of video and inclusion of mannequins or scene re-enactment. Viewability and sequential procedure in accordance with the American Heart Association 2010 CPR guidelines were scored out of 8.

Summary of Results: Selected studies analysed 52-209 videos. Videos lacked identification of the target audience and failed to state their credentials. Most used mannequins and numerous had procedural errors such as outdated methods.

Discussion and Conclusions: There is a role for good quality educational material from trusted sources in line with current best practice regarding healthcare topics. However, information within the videos could be misleading impacting negatively on the quality of treatment. Viewers of such videos should be mindful that YouTube is dynamic and currently unregulated.

Take-home messages: Good quality bystander CPR reduces morbidity and mortality. YouTube lacks procedurally accurate CPR videos from trusted sources.
SimMAGIC software for interactive multimedia e-book in clinical education

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Background: Interactive e-book could promise a higher motivation for learners by presenting contents in an interactive, game-based and competitive way. To improve the efficiency of learning and provide a simplified design tool, the authors decided to seek editing software for creating interactive multimedia e-book used in clinical education.

Summary of Work: In this study we used an e-book software, SimMAGIC, to rapidly create interactive multimedia e-books. It has simple and clear editing layout enabled editors to make creative eBooks quickly. An e-book workshop was held in our hospital. They needed to take 9 hours of lecture and practice, then hand in their own projects and be judged by experts afterwards.

Summary of Results: In all, 34 teachers finished their e-book projects, including 17 doctors and 17 health care staffs. According to the results from the experts, the average score of the health care staff is slightly higher than that of the doctors (83.7 to 81.6). Among these e-books, the score in Lecture Design is the highest, scoring 4.23 out of 5, followed by Creativity and Teaching Material Manufacture, which is 4.06 and 4.02, respectively; Contrarily, the score in Program Application is the lowest scoring 3.86; the teachers' satisfaction score towards the workshop is 4.4 out of 5.

Discussion and Conclusions: SimMAGIC Software is an excellent tool to design medical interactive multimedia e-book and should be tailored to an educational institution's requirements and produced quickly by hospital staffs at minimal cost.

Take-home messages: Creating interactive multimedia e-book with suitable software not only reduces time and money, but also help trainee to learn and practice in clinical environments.
A study to explore the perceived learning needs of case-based learning (CBL) facilitators

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Background: A new medical undergraduate curriculum was introduced to a UK medical school in 2013/2014, using case-based learning (CBL) as a key method of delivery. A literature review demonstrates that education of facilitators is essential to the success of a new curriculum. As part of a Medical Education MSc, a study was conducted to identify the educational needs of facilitators, to help inform a training model for new and returning facilitators.

Summary of Work: Semi-structured interviews were conducted with 18 facilitators following the first academic year of the new CBL curriculum. The transcripts were coded and thematic analysis was performed to identify their perceived learning needs and potential strategies to address them. The results were used to develop a training model for CBL facilitators.

Summary of Results: The main themes that emerged were the role of the facilitator; the theory and process underpinning CBL; feedback and experiential learning. Unexpected findings included a perceived clinical-academic facilitator divide.

Strategies to address learning needs for novice facilitators include training sessions covering the theory and ethos of CBL, clearly defining the role of a facilitator and observation of CBL sessions. Strategies to identify ongoing educational needs included regular facilitator meetings, student feedback and peer review.

Discussion and Conclusions: The transition from role as traditional lecturer to CBL facilitator can be difficult for educators. Several themes are identified are well documented in the literature but other less predictable learning needs may be programme specific.

Take-home messages: Facilitator feedback and their perceived needs should be used to inform the development of an educational programme for staff.

Introducing case-based learning in a large group format for a veterinary curriculum

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Background: Case-based learning (CBL) was introduced as part of a major curriculum review at Bristol Veterinary School. The aim was to improve integration between all first year subjects i.e. basic sciences (anatomy, physiology, biochemistry), animal management and professional studies, while highlighting the relevance by providing clinical context.

Summary of Work: Cases were designed to be delivered as whole class sessions in a lecture theatre (as sufficient small group teaching facilities were not readily available) and were co-facilitated by basic scientists and clinicians. Active learning was promoted by using an audience response system and incorporating small group tasks and discussions. A case template was developed in PowerPoint and populated by basic science and clinical staff in an iterative process. A survey was used to gather student feedback.

Summary of Results: Feedback indicated that students enjoyed the sessions and the cases were at about the right level of difficulty. Students valued the active learning tasks and considered that CBL assisted in integrating first year subjects while the clinical context motivated their learning. Free text comments included suggestions for improvements to the case template and further opportunities for interactivity.

Discussion and Conclusions: CBL was well received and appeared to improve motivation and assist with integration of taught material. Case development involved considerable time commitment. However, adopting widely used software (PowerPoint) and the large group format overcame constraints such as having to learn to use complicated software and resourcing small group sessions.

Take-home messages: Case-based learning can be successfully designed for a lecture theatre setting using readily available software.
Three different learning methods of neonatal chest x-ray interpretation: A one-year follow up in 6th year medical students at Medical Education Center Chiangrai Prachanukroh hospital

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Background: Neonatal chest x-ray (CXR) interpretation was taught in 5th year medical students. As we have known, different teaching methods will influence learners in different ways of learning. This study aims to follow up and assess one-year outcome of 3 learning methods.

Summary of Work: During the pediatric rotation, 3 groups of 5th year medical students learned neonatal CXR interpretation using 3 different methods: A was assigned for lecture-based learning, B was assigned to follow ward round with neonatologist and C was given instruction files for self-study. They were tested for 12 neonatal CXR questions at one year after the instruction. In addition, the questionnaire assessing students’ confidence in CXR interpretation using 1-5 rating scale and students’ most favorite learning method was also included.

Summary of Results: 25 students were enrolled. Mean GPAs were (A, B, C respectively) 2.79, 2.90, 3.03 (p=0.82). Mean scores of CXR interpretation were 7.5, 7.6, 9.8 (p=0.1). The correlation between mean scores and radiology examination grades were 0.12, 0.44, and 0.62. Students’ self-confidence in CXR interpretation on 1-5 rating scale were 3, 3.33 and 2.8. Students’ favorite learning methods were lecture-based learning and ward-rounded with neonatologist (23, 21, 13 points respectively).

Discussion and Conclusions: Self-directed learning group achieved the best score which also correlated with students’ radiology examination grade. Even though, students’ self-confidence and their favorite learning methods were high in lecture-based group and ward round with specialist group, it is the challenge for the educators to inspire, encourage and promote self-directed learning for the students.

Take-home messages: Self-directed learning is effective method and should be encouraged more.

Motivation orientation between traditional and blended learning contexts in clinical education

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Background: Motivation orientation plays an important role in self-directed learning which is crucial for the success of clinical learning. This study compared students’ perceived motivation orientation between traditional and blended learning contexts in clinical education.

Summary of Work: 258 junior clerkship students experienced both traditional and blended learning in their clinical rotations. Every student answered the “Motivation orientation questionnaire” toward both learning contexts. The questionnaire was Likert-7 scale and included three pre-proposed factors, i.e., self-efficacy (SE), intrinsic motivation (IM) as well as extrinsic motivation (EM). Qualitative questions about why and how in which learning context the students feel motivated were also asked. Exploratory factor analysis (EFA) was conducted to verify the questionnaire in each learning context. Comparisons between two learning contexts were done by paired-t test for each factor.

Summary of Results: EFA revealed consistent results within the two learning contexts with identical three pre-proposed factors. The overall alphas in both learning contexts were both 0.9. Paired-t Tests of SE, IM, and EM between two learning contexts revealed that students perceived significantly higher SE (p<.001) and IM (p<.001) in the blended learning context (SE: 4.92, IM: 5.35) than traditional learning context (SE: 4.61, IM: 4.93). The effect sizes for the SE (d=0.35) and IM (d=0.45) were small to medium.

Discussion and Conclusions: Clinical education may benefit from blended learning with more intrinsic motivated orientation.

Take-home messages: Investment on building up blended learning environment for clinical education is worthwhile not only by its well-known learner-paced and flexible characteristics but also by motivating students more intrinsic oriented.
Interactive Situational Teaching Program for New Nurses

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Background: Lack of patient care knowledge and skills and work adaptation difficulties lead to a high turnover rate of new nurses, which results in unstable manpower and affects the quality of care in the hospitals. We evaluated the effectiveness of an interactive situational teaching program (ISTP) for new nurses.

Summary of Work: The quasi-experimental method was applied in this study. Thirty-one new nurses were enrolled and they were divided into receiving interactive situational teaching program group and control group during a period from August 2014 to November 2014. Nursing Competency Questionnaire (NCQ) and Stress Questionnaire were used for valuation during the first week of work and three months after intervention.

Summary of Results: The difference on the parameters including education, stress status and competence average score were not significant during the first week of work between the two groups (p > 0.05). Conversely, the NCQ average score was used for valuation during the first 3 months of work after intervention. New nurses in the ISTP group had significant improvements in knowledge and skill for the clinical competence compared to those in the control group (p<0.05).

Discussion and Conclusions: We found that the ISTP for new nurses improved the clinical competence and reduced turnover rate, although only three months that have significant results. The ISTP is helpful in improving retention, especially reinforce learning incentives, and enhance confidence and the clinical competence of new nurses.

Take-home messages: The ISTP is helpful in improving retention and the clinical competence of new nurses.

What’s past is prologue: collaboration between retired physicians and students in medical education

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Background: The Prologue Project was created by Mayo Medical School’s Boerhaave Society for the History of Medicine. Recognizing deficits within traditional medical education regarding history and the humanities, we aimed to illustrate the important relationship between medicine and history. This was done through creating an opportunity for medical students to spend time in conversation with retired physicians and record oral histories.

Summary of Work: The project involved two phases: sharing and recording. Eleven retired Mayo Clinic physicians were paired with thirteen medical students for an evening of dining and conversation. While partners were assigned based on mutual interests and seated together, no further structure was implemented, and natural conversation dictated the subject matter discussed. In the second phase of the project, each student submitted a written reflection on the evening in an effort to make a historical record of thoughts and stories shared by retired physicians. This exercise in creative writing and recording was preserved in the Mayo Clinic historical archives.

Discussion and Conclusions: Medical education is a lesson in history as well as in biology, as the progression of science and healthcare is constant. Though some medical history has resulted in practices that are still used by physicians today, much of it has been forgotten. In order to fully understand and take part in the medicine of today, we must better understand the medicine of yesterday.

Take-home messages: Interactions between medical students and retired physicians provide a valuable opportunity for learning and enrichment in medical school curricula and an opportunity for the integration of history and humanities into medicine.
#7BB07 (24023)
A study to explore student opinion on the changing electrocardiographic terminology and its effect on the teaching

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Background: The replacement of the term posterior ischemia/infarction to describe the reciprocal electrocardiographic changes in leads V1, V2, V3 by the term lateral was suggested, because magnetic resonance imaging have demonstrated the oblique position of the heart within the thorax and so the region referred to as the posterior wall (based on anatomic and pathological studies of ex vivo hearts) was lateral rather than posterior. We explored student opinion on this change and its effect on the teaching.

Summary of Work: 28 students of medicine answered the questions which terminology - posterior or lateral they prefer, and why. Previously they had the short explanation of the history of this terminology and underwent the teaching in two ways – using the term posterior and lateral.

Summary of Results: All students preferred the term posterior: all the second year students - as more understandable explanation of electrocardiography and the third year students in both groups - mainly due to various complications that may arise from this change (80% in one group and 62.5% in another). Another part of the third year students answered that they prefer the term posterior as more understandable explanation of electrocardiography (20% in one group and 37.5% in another).

Discussion and Conclusions: Our study showed that students prefer the term posterior as more understandable explanation of electrocardiography and due to various complications that may arise from the changing electrocardiographic terminology. Because the term anterior was unchanged, the term posterior should be used to describe ischemia/infarction in the opposite location.

Take-home messages: Teaching should be simple and understandable.

#7BB08 (24308)
Students Select Own Cases for Presentation in Approach to Plain-Film Radiology Class

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Background: Systematic approach to plain-film interpretation is a radiology objective taught in the fourth year. In the past 12 years, students self-practiced interpretation on a film collection. In 2014, the number of medical students increased twofold. A new approach is adopted. Every student is to select a current hospital case for his/her own presentation.

Summary of Work: Objective: Each student approaches film interpretation by steps, including identification, detection, localization, analysis and differential diagnosis. Methods: Thirty-two students are divided into 2 groups (16 each). Each is asked to find a case with radiologic findings covered in the course and make a presentation. To prevent students being too focused on own cases, a student is randomly selected to interpret a film by turn. Teachers give feedback and add cases to improve coverage. A quiz is given at end of class. A final OSCE in plain film interpretation is given at end of course.

Summary of Results: In academic year 2013 (N = 32) OSCE, one student scored lower than 50%. In the preceding decade (N = 16), 2-3 students had low score (<50%) annually. A questionnaire was given to evaluate student satisfaction. Satisfaction level is above 80 %.

Discussion and Conclusions: The newer approach provides comparative autonomy and better learning outcome. Practice session for step-wise plain film interpretation could add to confidence, communication skills and performance of medical students.
#7BB09 (26266)
Does active participation in a daily quiz (TOPday) improve long-term retention for biomechanics?

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**Background:** Recently, we found that active participation in educational daily quizzes on biomechanics (Two-Opportunities-to–Practise-per-day, TOPday) improved students’ confidence, enthusiasm, and test results. In this study we investigated the long-term retention of knowledge in students in relation to their participation rate in TOPday.

**Summary of Work:** In June 2013 and 2014, 179 second-year Biomedical students daily received TOPday on biomechanics, electronically, including rich feedback. Afterwards, we registered from 154 students how many TOPday questions they completed (0-6[A]; 7-18[B]; 19-24[C]) and if students passed the test on biomechanics [TB]. Six months later, 122 third-year students did a recall-test on biomechanics [TB6], unexpectedly. Statistical analysis was performed on the data of 110 students of whom all information was complete.

**Summary of Results:** After 6 months, about half of the students who passed TB also passed TB6. In total, 45 students (41%) passed TB6. Of these students, 71% had very actively participated in TOPday [C], 20% had been active [B] and 9% had not actively participated [A], whereas these percentages were 40% [C], 34% [B], and 26% [A], for the 65 students who did not pass TB6. On average, students who very actively participated [C] scored significantly better (p<0,01) on TB6 than students from groups A and B.

**Discussion and Conclusions:** Students who very actively participated in TOPday [C] scored better than students from groups A and B, indicating that long-term retention was better for students who completed almost all TOP-day questions 6 months earlier.

**Take-home messages:** Daily quizzes seem to be a good vehicle for long-term retention.

#7BB10 (26476)
Unexpected Difficulties In Cell Biology Revealed By Drawings Of First Year Medical Students

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**Background:** Student drawings can reveal conceptual mistakes and difficulties which can hinder learning. Our goals were: i. to identify first year medical student difficulties related to the structure of a cell; ii. to evaluate whether those difficulties would differ between two countries; iii. to characterize the origin of such difficulties.

**Summary of Work:** A surprise in class assignment asked students to draw: 1. an eukaryotic cell representation; 2. an epithelial cell under the microscope Participants were 386 first year medical students from one school in Portugal and another in Brazil. Drawings were anonymized and mistakes were coded by 2 pairs of experts using a consensus criteria list as a reference. Semi-structured interviews with purposefully selected participants (n=17) were conducted to characterize the origins of mistakes. Transcription and analysis of each of the student interviews differentiated mistakes from misconceptions and identified the most frequent self-reported origins.

**Summary of Results:** There were four main groups of mistakes: scale issues [organelle (22%) and cell membrane (27.2%)]; general structure issues [tissue-like structure (26.2%) and unicellular representations (29.5%)]; intracellular structure issues/offset nucleus (21%) and the presence of odd structures. Portugal and Brazil displayed identical mistakes, except for scale issues, which were more common in students from Brazil. The most likely mistake origins identified in interviews were textbooks schemes and the lack of hands-on experience with microscopy.

**Discussion and Conclusions:** This study revealed unexpected and generalized student difficulties related to cell structure.

**Take-home messages:** Drawings could probably expose student difficulties with further molecular or cellular concepts.
The first stitches: what is the best teaching support?

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**Background**: Traditionally, initial medical programs mainly include theoretical knowledge. In 1997, Kovack concluded that skills procedure should benefit from specific methods and not only be taught within the services (Kovack G, J. Emerg med, 1997). Animations should be a teaching support to enable all students to practice basic skills. However, the literature is not unanimous on the benefit of animation compared to static pictures (Berney S, 2014).

**Summary of Work**: We set up a study to highlight the best media usable for students to achieve the first stitch. 53 students, in the second year of medical school, were divided in three groups, and faced with one of the three experimental conditions: “pictures + text”, “video + Sound”, “video + text”. They had to perform five stitches.

**Summary of Results**: The performance of all participants followed the classic learning curve: decreasing time to complete the task, and increasing quality of the stitches. The video conditions (sound and text) were significantly more effective than static pictures when consultation time of the instructions and execution time of the procedure were compared. However, the picture condition was significantly more effective when the performances were compared, using OSATS assessment.

**Discussion and Conclusions**: Video improves learning speed during the discovery phase of the procedure whereas static pictures are a better learning support to create stronger mental schemas. The use of new technologies in medical education can help us, as long as we identify their strengths and weaknesses.

E-Learning and Learning by Competition in Undergraduate Medical Education

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**Background**: Undergraduate medical students are supposed to follow a vast curriculum, which requires time management and specific abilities. Sometimes the topic of the subjects generates a lack of interest among the students and traditional methods are not enough.

**Summary of Work**: Students enrolled in the first year at the Faculty of Medicine studied biostatistics for a semester. During this semester, Moodle was used as e-learning platform intended to serve as an auxiliary tool to facilitate the study of biostatistics. Students were invited to participate in a competition consisting in submitting both questions and answers (Q&As) on biostatistics course topics, based on course outlines. The submissions were evaluated by the class teacher and validated ones were published on the platform for all students to view. Good Q&As award points to students. The ranking was available all the period.

**Summary of Results**: We were interested to see if the usage of this method increases the performance of the students at the final exam. Parameters such as time required for students to create and submit Q&As and for teacher to validate and publish them were also observed.

**Discussion and Conclusions**: The method seems to prove useful, highest ranking students in the Q&A competition were also the ones to receive the maximal mark in the exam. The competition increased student motivation, but further encouragement is needed, in order to increase active participation.

**Take-home messages**: The method seems to improve student performance and aid study, the results allowing us to recommend the application of the platform in all areas of medical curriculum.
What have a stewpot and a banana to do with human anatomy?

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Background: A profound understanding of the human anatomy not only requires a lot of factual knowledge but also a deep development of spatial sense. Active learning, visualisation and also humour are known to inspire students to learn and to improve learning outcomes.

Summary of Work: Having taught anatomy, embryology and radiology for more than 25 years the author would like to share her experience of visualizing complicated anatomical relationships. Examples: The development of the heart can be visualized by Play Doh. A banana helps to understand the fetal rotation of the stomach. The structure of a placenta can be compared to a stewpot. In order to explain the uterus and the broad ligament the author appears like a ghost. A special rag doll is used to demonstrate the topography of internal organs.

Summary of Results: The author was named the student-selected Teacher of the Year in 2008, 2010 and 2012. For the past 11 semesters her general lecture “Basics of Anatomy and Embryology” was always placed among the top 4 in the ranking list of about 100 general lectures of the local medical faculty.

Discussion and Conclusions: Einsteins saying “Make things as simple as possible but not simpler.” could be applied to the methodology of human anatomy teaching.

Take-home messages: “When I hear, I forget; when I see, I remember; and when I do, I understand.” (Chinese proverb)

“Teaser trailers” for the tough stuff

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Background: Pre-class preparation enables students to orientate themselves with regard to key concepts and vocabulary, enhancing the subsequent teaching session. Even for didactic lectures, the provision of notes and handouts in advance enable student orientation, but superficial learners may be less motivated to access these files. The aim of this study is to explore the feasibility of providing “Teaser Trailers” as an alternative pre-class preview.

Summary of Work: The Gastrointestinal-Hepatology module (GI-HEP) is delivered during the First Medical Year in RCSI, encompassing anatomy, biochemistry, physiology and embryology. Much of this content is subsequently reinforced by small group teaching or online activities. Paradoxically, more complex topics such as embryology are delivered by didactic sessions alone. For that reason, we have introduced “Teaser Trailers” to provide a brief orientation and overview of key concepts and content for these lectures. Videos are limited to less than 5 minutes in length and uploaded a week in advance of the lecture, for students to view online. This is not a flipped classroom; teaching remains didactic and teacher-centred, but may instead be better described as the introduction of additional multimedia for student learning.

Discussion and Conclusions: While pre-class preparation is advisable for complex concepts such as embryology, many students will have superficial or strategic approaches to learning, and not avail of provided PDFs or printouts. “Teaser Trailers” provide short, easily accessible overviews that students may access as an alternative. Superficial learners may be more inclined to pre-view than pre-read.
The use of arts to learn basic pathology

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Background: Basic pathology is a very important discipline in medical teaching. However, the subjects sometimes are considered very distant from the medical practice, such as “cell injury”, “inflammation and repair”.

Summary of Work: In order to promote a better understanding of its importance, we introduced art seminars linking the basics concepts and some diseases related with them, as granulomatous inflammation and a patient with tuberculosis, or a heart stroke to explain cell death, for 2nd year-medical students. They are induced to perform a clinical situation to explain the basic process, using music, theater performance or anything with creativity to show to their colleagues, in groups of 6 to 8 students.

Summary of Results: Theatrical performances were made by the students to explain basic pathology, using quiz shows, music, soap operas and other TV programs models. The other colleagues keep their attention much more then in a traditional lecture about the theme, and they have better performance at test examination.

Discussion and Conclusions: To learn basic pathology using theatre is a tool to approach abstract knowledge to clinical situations in medical practice and may enhance knowledge acquisition. At the same time, we can observe student behavior and posture in different situations that can be also analyzed.

Take-home messages: The use of new tools is an attractive alternative to traditional lectures and medical teachers should use different approaches to facilitate learning and evaluate student behavior.

Outcome comparison of 3rd year medical students between lecture based and active learning at Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Thailand

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Background: In Thailand, clinical pathology is taught as a pre-clinical subject for 3rd year medical students. At Faculty of Medicine, Vajira Hospital, there are approximately 80 medical students for each academic year. The objective of this study is to compare the outcome of student cognition between an additional active learning exercise and only a passive lecture.

Summary of Work: This retrospective study compared the outcome of 3rd -year medical students during academic year 2012 and 2013. For the former group, students were offered a 2 hours lecture while the latter group was offered a 10-minute online smartphone-based pretest before the lecture started. After 1.5 hours of lecture, students were divided into small groups of 4-6 people, and each group was participated in the crossword puzzle game which was used as a post-test to review their knowledge.

Summary of Results: Data collected from this study was analyzed by Mann-Whitney U test. There was no significant difference in the difficulty index of MCQ as well as the total scores and GPAs of both groups. The score of the second group was significantly higher than the first group (p-value < 0.001). In addition, KR-20 of all tests was more than 0.7.

Discussion and Conclusions: In a traditional lecture, an implementation of an active learning with a lecture can enhance cognitive outcomes suggesting that this tool promotes interests and engagement of students as well as their understanding before and after a lecture. Interpersonal skill and team work were also created during small group post-test discussion.

Take-home messages: An active learning such as an online smartphone-based pretest and the crossword puzzle game post-test can be used to improve cognitive outcomes of medical students.
#7CC01 (27065)  
Ratings of resident performance in 360-degree feedback: Performance theories of self and others  

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Background: Three sixty-degree evaluations are becoming increasingly important in assessment of trainee performance in the workplace. Adequate interpretation of performance ratings in 360-degree feedback procedures requires understanding of performance theories of rater sources.  

Summary of Work: Our research design is a Convergent Parallel (or concurrent) mixed methods design. Quantitatively 103 self-ratings of residents were analyzed. Exploratory factor analysis was conducted to identify factor structure of self-ratings and Cronbach’s alpha was obtained to measure internal consistency of the ratings. Qualitatively semi-structured interviews of nurses and residents were conducted to explore job related performance theories with respect to outstanding, average and problematic residents.  

Summary of Results: The single identified construct was professional behavior. The reliability analysis measured with Cronbach’s α = .91. Qualitatively seven major themes were explored related to performance theories, namely; communication skills, patient care, accessibility, teamwork skills, responsibility, medical knowledge and attitude. The communication skills and patient care were found to the major themes identified by both group of raters. The accessibility was particularly noted by the nurses for problematic residents.  

Discussion and Conclusions: Our research findings indicate that the 360-degree evaluation tool needs improvement. Some of the explored performance theories could be incorporated in the 360-degree rating scale to enhance its construct validity.  

Take-home messages: The better understanding of performance theories would help programme directors to develop profiles of outstanding, problematic and average resident, which may lead to development of instructional designs and assessment criteria to enhance the performance of underperforming residents, and hence enhancing the quality of the programme.

#7CC02 (25635)  
Value of the newer work-place based assessments in predicting doctors in difficulty  

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Background: Supervised Learning Events (SLEs) replaced traditional Foundation Work-Place Based Assessments (WPBA) in 2012. A key element of SLEs was to incorporate trainee reflection and feedback to drive learning and identify training issues early. Given limited extant evidence, our study investigates the value of the newer WPBA in predicting doctors in difficulty (DiD).  

Summary of Work: • Retrospective observational study of North-Western Foundation School trainees (2012-2013 cohort) Electronic-Portfolios (n=1086). • All DiD (n=71) included. • Controls randomly selected from same cohort (2:1 basis) (n=142). • Free-text from WPBA and Educational Supervisor Reports (ESR) assessed qualitatively and coded blindly using General Medical Council’s Good Practice Guideline domains.  

Summary of Results: • DiD prevalence rate 6.5%. • Team Assessment of Behaviour (TAB) strongly predictive of DiD (Receiver operator curve analysis Area Under the Curve (AUC) 0.74). • ESR strongly predictive of DiD status (AUC 0.90). • TAB and ESR predicted DiD status significantly associated with actual overall DiD status and health and performance subcategories (Fisher’s test-P<0.0001). • Newer WPBA are not used to their full potential with lack of constructive, particularly negative feedback (Qualitative analysis).  

Discussion and Conclusions: • TAB is the only WPBA useful in predicting DiD. • ESR is strongly predictive of DiD and plays a pivotal role in evaluating DiD. • Newer WPBA are not being used to their full potential • Focused training of trainers/trainees recommended to improve WPBA completion, feedback and managing DiD.  

Take-home messages: TAB and ESR have predictive value in identifying DiD but many other newer WPBA are not used to their full potential.
What is effective workplace-based assessment?

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Background: Workplace-based assessment (WPBA) refers to a set of tools to provide formal feedback in an everyday working situation based on direct observation of a real doctor-patient encounter.

Summary of Work: For the design of a study to investigate under which circumstances WPBA is most effective we performed a literature review on how “effective” WPBA is operationalized in the literature and categorized the results according to Kirkpatrick’s four-level model.

Summary of Results: We found a variety of different definitions of effective WPBA. Preliminary results show that whether or not WPBA was deemed as effective was defined by the personal view of its participants, by the acceptance of the instrument, or by the definition of an action plan. All of these outcome measurements can be assigned to the first level of Kirkpatrick’s model which describes the reaction and satisfaction of the participants.

Discussion and Conclusions: The variety of operational definitions of effective WPBA and their low classification in Kirkpatrick’s framework might be due to:
• different aims of the different studies,
• a shift in the conceptualization of WPBA from summative to formative assessment,
• difficulties in the operationalization and measurement of improved clinical performance.

More studies regarding the effectiveness of WPBA on higher levels are needed.

Take-home messages:
• There is a variety of definitions of effective WPBA.
• To reliably prove the effectiveness of WPBA outcome measurements on higher Kirkpatrick levels are needed.

Validating a ‘Fit-for-Purpose’ Competency Screening Examination for International Optometric Graduates (IOGs)

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Background: This pilot tested the appropriateness of an evaluating exam to screen IOGs for eligibility to challenge the national Optometrists licensing exam (CEO-ECO) through quantitative and qualitative analyses.

Summary of Work: 34 participants, (10 Optometrists, 24 Canadian exam-ready final year students), were recruited as comparative candidates. They completed a 140 item multiple choice exam and a 12 station OSCE, rated by 26 examiners. Clinical simulations with standardized patients and optometric equipment assessed practice performance in relevant scope of practice topics.

Summary of Results: Valid cases, developed by content experts, conformed to an Entry-to-Practice competency blueprint aligning key features. Trained examiners pre-rated items with tools validating content and competency scoring schemes. OSCE station and total test score psychometrics were acceptable (α-reliability 0.78). Written test average score and percentage pass/fail results were acceptable. Qualitative feedback from candidates affirmed suitability of content in terms of relevance to current Optometric practice and essential National competencies. Examiners, standardized patients, and support staff feedback supported practicality of logistical and operational issues.

Discussion and Conclusions: The test performed well with respect to the psychometric quality of results, acceptability to all participants and operational feasibility.

Take-home messages: This competency-based evaluating examination is intended to be offered to IOG candidates in lieu of traditional credential screening. The pilot incorporated an understanding of licensing exam parameters, and appropriate measures to validate competency assessment and address public safety. The pilot study results provide supportive evidence of the test’s suitability for screening IOGs for licensing exam eligibility.
#7CC05 (26580)
Going paperless with Mini-Clinical Evaluation Exercise and Direct Observation of Procedural Skills

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**Background:** Taipei City hospital has decided to develop a paperless feedback system for trainers and trainees 2 years ago. Most of the evaluation and feedback forms could be done in front of a computer. However, some assessments, for example, the Mini-Clinical Evaluation Exercise (Mini-CEX) and the Direct Observation of Procedural Skills (DOPS) tools, are administered on site and it would be very time-wasting if the trainer and trainee could not finish the evaluation right after the exercises and have to find computers to fill out the evaluation forms.

**Summary of Work:** The center of teaching and learning has designed and developed iOS and Android apps for Mini-CEX and DOPS in late 2014. The apps could be easily installed and the system would verify each user’s identity by confirming with the human resource management systems in Taipei City hospital. Every time before the exercise, the student only has to show the QR code and after the teacher scans it, they can enter into the patient’s room and start the exercise. The teacher could do all the evaluations and feedback on site without finding a computer to fill out the evaluations after the exercise.

**Summary of Results:** The on-site evaluation apps could save teachers’ and students’ time to finish the assessments and they could have more time to give feedback to each other.

**Discussion and Conclusions:** The apps could help trainers and trainees to finish the assessments on site and spend more time to give constructive feedback.

**Take-home messages:** Going paperless with Mini-CEX and DOPS is possible after the apps have been developed.

#7CC06 (24750)
Barriers for implementation of work-based assessment in general practice

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**Background:** Work-based assessment (WBA) is widely accepted, but few studies have investigated implementation issues in general practice (GP). This study explored possible obstacles and identified key elements for successful implementation of WBA methods in the Danish GP curriculum.

**Summary of Work:** Questionnaires on experiences with implementation of WBA were mailed to 107 GP trainers and 111 trainees. Trainers had attended a one day course in WBA, trainees received a short introduction.

**Summary of Results:** Data collection terminates in March 2015; final results will be presented at the conference. Preliminary results suggest that most trainers felt sufficiently skilled to perform WBA, however, not all trainees agreed. Trainers were generally more positive towards assessment and saw fewer barriers than trainees. Lack of time and planning was reported equally often by the trainers, while trainees found that lack of time was a more frequent barrier than lack of planning. Trainers did not identify trainees’ unease of being observed as a problem, however, nearly 40% of trainees reported unease an impediment to WBA.

**Discussion and Conclusions:** Good planning of WBA may be just as big a problem as finding the time. It seems that education of trainers positively influence trainers’ perception and use of WBA. It might be interesting to explore the impact of education on trainees’ perception of WBA. Especially it might be important to influence trainees’ unease of being observed.

**Take-home messages:** Sufficient education of both trainers and trainees might be needed for a successful implementation of WBA in general practice.
Patient satisfaction after encountering the medical students at mini-Clinical Evaluation Exercise (mini-CEX)

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Background: The mini-CEX was developed to assess clinical competencies of residents. It has been used as a method for assessment of medical students’ clinical competencies in several medical schools. But in Korea, students’ clinical exercise was expected to be low in patient satisfaction. Therefore, implementing the mini-CEX will be preceded by patient satisfaction survey on students’ clinical exercise. We investigated patient satisfaction after student encounter at mini-CEX.

Summary of Work: The mini-CEX was done during the clinical clerkship of third year medical students. Attending physicians had roles of introducing student to patients and obtaining consent about mini-CEX from patients. Survey on patient satisfaction was done with Questionnaire consisted of 6 items after student encounter in mini-CEX. The items employed five ordinal-scale descriptors (from 1=poor to 5=excellent). Also correlation between patient satisfaction and students’ mini-CEX score were analysed.

Summary of Results: A total of 76 patients completed the survey. This Questionnaire had Cronbach’s alpha 0.764, indicating good internal consistency. Patient satisfaction was high with total mean score greater than 25 (mean 27.1, SD 3.38). But satisfaction score and student characteristics (mini-CEX total score, students’ competencies on history taking, physical examination, and communication skill) were not correlated. Attending physician’s introduction of student to patients was more important.

Discussion and Conclusions: Patient satisfaction after student encounter at mini-CEX was high, but it was not correlated with student factor.

“Book smart does not equal street smart”: assessment of “does” in anesthesiology residency program

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Background: Comparing to knowledge-based competencies, assessment at the apex of Miller’s pyramid, assessment of “does”, is the real challenge. Therefore, we aimed to analyse assessment of performance in real situation and compare with other test formats.

Summary of Work: Based on Miller’s pyramid of competence, an assessment of “does”, focus on testing resident’s actual performance, has been evaluated from real situation during performing general or regional anesthesia (GA/RA) using checklist. In addition, the resident’s skill and attitude was evaluated by supervisor. The multiple-choice questions (MCQ), modified essay questions (MEQ), objective structured clinical examination (OSCE), GA/RA, skill and attitude scores of eight subjects were collected from 30 residents during 2008 to 2014. Correlation and linear regression analysis between the GA/RA scores and scores from other formats were analyzed.

Summary of Results: The mean score + SD (range) of GA/RA scores was 9.17 + 0.71 (7.18–10) from the full marks of 10. Good correlation between scores of GA/RA and skill was found with the correlation coefficient (r) of 0.66 and 95% confidence interval (CI) of 0.47 and 0.79. Comparing with cognitive assessments using MCQ and MEQ, the r (95% CI) were 0.29 (0.07, 0.49) and 0.35 (0.14, 0.54), respectively. Results of OSCE showed poor correlation with GA/RA score with the r of 0.06 and 95% CI of -0.17 and 0.28.

Discussion and Conclusions: There was good correlation between GA/RA and skill scores. The OPCE had poor correlation with GA/RA scores.

Take-home messages: Commonly used method to evaluate cognitive competency, such as MCQ, MEQ or OSCE, may not reflect the resident’s actual performance.
Improving presenting behavior by using Directly Observed Procedural Skills (DOPS) and video-assisted feedback in postgraduate year dental residents

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**Background:** Presenting an article paper or a reading topic to the colleague is a common work to postgraduate residents. To improve their presenting behavior, we designed a DOPS evaluation and video-assisted feedback program to strengthen presenting behavior of postgraduate year (PGY) dental residents.

**Summary of Work:** Eight quantitative items about presenting behavior were listed on the DOPS evaluation sheet. Every participant had to give a short presentation for evaluation for three times (day1, day 7 and 6 month). For each presentation, we videotaped, replayed and gave feedback right after self-evaluation about the presenting behavior of the resident. Paired-t-test was used to analyze the progress of the resident’s presenting behavior. We also collected the data of learning helpfulness (1: the least helpful to 5: very helpful) of the program after the second time evaluation.

**Summary of Results:** Among 34 participants (male: female=15:19, age: 27.6 ± 1.4 years), thirty-two of them had received 3 times of DOPS evaluation. Results showed that two items, eye contact and filler words reduction, of the eight items had significant improvement. The residents reported that they had high improvement of their presenting behavior (4.1±0.5) and positive helpfulness for their future presenting skill (4.2±0.6).

**Discussion and Conclusions:** The program could significantly improve presenting behaviors such as eye contact and filler words reduction of postgraduate year (PGY) dental residents. The residents thought that the program was very helpful for their future report or presentation.

Analyzing the effect of a computer-based format on the provision of feedback during mini-CEX assessments in the emergency department

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**Background:** Mini-CEX is widely used in the clinical education system. Receiving appropriate feedback during mini-CEX assessments promotes the identification of strengths and weaknesses within trainees’ clinical competencies, which is crucial for effective learning. Our objective is to analyse the effect of digitalization on feedback provisions during mini-CEX assessments.

**Summary of Work:** This is a retrospective analysis of the documented feedback provided by assessors using mini-CEX in an emergency department (ED). The participants were post-graduate year-one (PGY1) doctors who were scheduled to undergo four mini-CEX assessments during their ED rotations. During the study period, the format was shifted from paper-based to computer-based according to the policy of the hospital management level. The contents were exactly the same between these two formats. The frequency of use and the word count for each feedback component (anything especially good, suggestions for development, and an agreed plan of action) were analysed.

**Summary of Results:** A total of 899 mini-CEX assessments were collected and analysed. The completion rate of all three feedback components (strengths, suggestions for development, and an agreed action plan) were 19.0 percent and 28.3 percent when using a paper-based format and a computer-based format, respectively (Table1). The feedback-facilitating effect of the computer-based format was uneven among junior and senior emergency physicians (table2). In addition, the feedback completion showed a primacy effect that the assessors tend to provide the first one or two feedback components in a busy ED setting (Figure1)

**Discussion and Conclusions:** A computer-based format facilitates the completion of the feedback in a busy emergency room setting, especially on the part of junior assessors.

**Take-home messages:** computer format facilitates feedback provision during mini-CEX assessments.
#7CC11 (25307)
The outcome of DOPS in clinical skill evaluation of medical technologist

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Background: Direct Observation of Procedural Skills (DOPS) is the most widely used assessment tool to assess medical technologists’ (MTs) clinical skills. However, there were few related studies about its efficiency.

Summary of Work: We set up 7 new clinical items during 2013-2014 that included BNP, Neonatal bilirubin test, Biochemistry analyzer, Blood gas, Ketone body, Osmolality and PCT. We investigated the outcome of DOPS assessment, which has been structuralized and its reliability was validated. The 21 trainees consisted of 0-1 years (6), 2-3 years (4), 4-10 years (5) and ≥11 years (6) of seniority. The DOPS we used encompass the assessment of knowledge (principle), attitudes (communication skills, patient’s priority, seeking help) and procedural skills (waste handling, quality control(QC), operations, data verification), scaling from 0-6 grades. 139 DOPS results from 7 clinical items were collected.

Summary of Results: The 94.2% (131/139) trainees were qualified during first assessment (≧4). 7 different DOPS assessments from 21 trainees were significant differences (mean between 3.97 to 4.59, p<0.0001). The DOPS assessment related to waste handling, communication skills, patients priority and seeking help were higher in senior group when divide the seniority by 2-3 year (p<0.05).

Discussion and Conclusions: All assessors were qualified and trainees educated by a consistent training program. The assessing performance in junior group (seniority less than 3 years) were undistinguished from senior group in the section of principle, QC, operations and data verification (p>0.05). Contrary, junior group received lower grades than senior group in the section of communication skills, patients priority and seeking help (p<0.05). The data indicates that the longer the trainee trained, the better performance in attitude skills.

Take-home messages: The structured DOPS assessment could effectively identify MTs’ clinical skills according to trainees’ seniority, which could be a useful reference for future education.

#7CC12 (25793)
Validating Objective Measures of Technical Skill Proficiency: A Comparison of Two Motion-Capture Devices

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Background: A logistical problem of competency-based technical skill education is that each skill be measured with sufficient precision to assure expertise. One possible solution is the replacement of human observation with computerized motion tracking devices. However, these devices must demonstrate their reliability to justify their use in imperative decisions about competency. The Imperial College Surgical Assessment Device (ICSAD) is a custom software-hardware package that provides metrics regarding the efficiency of precision movements. It is used to judge expert surgical skill, which is determined by the distance the surgeon’s hands travel and the total number of discrete movements they make during an operation. However, the ICSAD assessment metrics have been limited to their reliability to justify their use in imperative decisions about competency.

Summary of Work: In this study, we compare the ICSAD against the gold standard of motion analysis: the VICON motion-capture system. We compared both devices’ accuracy in measuring movements with known “total path length” and “number of movement” characteristics under velocity thresholds of 7.4 mm/sec and 15mm/sec.

Summary of Results: Our analyses revealed that the ICSAD provides appropriate measurements for total path length (p<0.001), but provides significantly inaccurate measures of the total number of movements performed (p<0.0001). Also, velocity threshold has a significant impact on the ICSAD measurement of total movements (p<0.0001).

Take-home messages: This research helps us understand how objective motion capture systems may be used to improve methods of competency assessment in technical skill education, and leads to new questions about how these systems may be used to develop measurement approaches that provide meaningful information about expertise.
Correlation between workplace-based assessment (WBA) and objective structured clinical examination (OSCE) among postgraduate medical trainees in Taiwan

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**Background:** Workplace-based assessment (WBA) and objective structured clinical examination (OSCE) act as both formative and summative assessment of clinical competences of medical trainees. The purposes of this study are to investigate whether clinical performance by WBA is correlated with OSCE outcomes among postgraduate year one (PGY) medical trainees and further analyze the predicting effect of each WBA method on OSCE grades.

**Summary of Work:** Participants consisted of 94 PGY medical trainees from 2012 and 2013 cohorts at Kaohsiung Medical University Hospital. WBA methods included Mini-Clinical Evaluation Exercise (Mini-CEX), Case-based Discussion (CbD), Direct Observation of Procedural Skills (DOPS), 360 degree multi-source feedback (MSF), and overall clinical teacher’s evaluation (CTE). OSCE was designed in 10-12 stations blueprint with history taking, physical examination, clinical procedure skills, management plans, communication/ethical judgment, and patient education.

**Summary of Results:** Average frequency of WBA ranged from 2.2 DOPSs to 7.2 CTEs/trainee. Lowest scores was in MSF. The passing rates of OSCE were 87.0% (2012) and 89.0% (2013). Stations on clinical procedure skills, physical examination and management plans exhibited the greater significant effects on OSCE outcomes. Four WBA methods except MSF showed significant correlations with final OSCE grades ($r=0.35$ to $0.51$). Multiple regression analysis demonstrated the independent significant effect of overall CTE and Mini-CEX ($P<0.01$).

**Discussion and Conclusions:** Most WBA methods were significantly correlated with summative OSCE among PGY medical trainees. The lack of correlation effect of MSF with OSCE outcomes might be explained by its lower scores and greater variations.

**Take-home messages:** Clinical competences evaluation by formative WBA are correlated with summative OSCE. Overall CTE and Mini-CEX exert the greater predicting effects.

Use of OSLER in clinical examination to assess achievement of multiple domains of program learning outcomes – GMU experience

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**Background:** Gulf Medical University aligned the MBBS program learning outcomes to National Qualification Framework. It became imperative to use effective assessment strategies to document that learners have met outcomes in domains of knowledge, skills and competencies. The objective of this study is to highlight value of Objective Structured Long Case Examination Record (OSLER) in clinical assessment to assess achievement of various domains of outcomes.

**Summary of Work:** A 4-station OSLER was recently introduced to compliment the traditional 12-station OSCE in the summative clinical examination for final year MBBS students. The former tested composite skills while the latter tested only component skills. Each OSLER station lasts 30 minutes and 2 examiners marked independently based on a rubric prepared by arriving at a consensus on the desired competency for each station. The students were expected to take history, perform clinical examination, interpret investigations, formulate differential diagnosis and management plan on real or standardized patients with a significant clinical problem.

**Summary of Results:** OSLER was able to assess 5 out of the 7 program learning outcomes in the domains of medical knowledge, communication and clinical skills, research and analytical skills, professionalism and values, and patient care. Nevertheless it was a weak tool to assess leadership and teamwork, and self-development.

**Discussion and Conclusions:** OSLER is one of the effective tools to assess composite clinical skills keeping in tune with the future role of the student, in addition to assessing multiple outcomes in various domains at the same time.

**Take-home messages:** OSLER is recommended as an additional clinical assessment tool to assess achievement of multiple program outcomes.
Assessment of Knowledge, Skills and Attitudes in Ob&Gyn

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Background: In 2007 our institution implemented the CCA (Clinical Skills Assessment) for students of Y5 and Y6. This CSA is based on simulation with standardized patients (SP), and runs 20 consultations rooms with the same case, at the same time. Our purpose was to identify if there is correlation between the students' performance at this CSA with the mean internship score (MIS) during the Ob&Gyn rotation (short essays, oral exam and global rating composed).

Summary of Work: CSA is a student assessment tool able to identify medical knowledge, clinical skills and learners' behaviors during consultation. During this assessment, 20 facilitators fill in a binary checklist (yes-no).

Summary of Results: We compared 778 students' performance (Y5=340 and Y6=438) in the CSA with the MIS, using Pearson coefficient and test t Student. The mean for CSA 5Y was 6.37 (SD 1.73, range 1.00-10.0) and MIS was 8.41 (SD 0.58, range 5.80-9.70). In the 6Y the CCA was 6.40 (SD1.61, range 1.80-10.0) and MIS was 8.43 (SD 0.78, range 5.00-10.0). There was a low correlation between CSA and MIS, Y5 (p < .05, r=.107) and Y6 (p < .001, r=.123). The mean for CSA was significant lower than MIS (p< 0.005).

Discussion and Conclusions: The student’s score for CSA may show a different aspect of students' performance, complementing regular assessment strategies.

Take-home messages: Introduce news assessment tools allow to reflect about the regular assessment strategies and potential improvements.

Developing an online system "c-Checker" for communicating and assessing clinical clerkship students

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Background: Workplace-based assessment (WBA) is essential in clinical clerkship, and a paper-based WBA has been used in Chiba University. Currently, faculty and students are becoming familiar with web-based works by using PC, tablets and smartphones. Summary of Work: We developed online system “c-Checker” which enable faculty to assess and give comments to clerkship students in workplace by using tablets and to confirm assessment by using PC tablets on web. It also enable clerkship students to check faculty’s assessment and comments quickly. “c-Checker” works also as portfolio system by storing sequential assessment, faculty’s feedback and student’s self-reflection. We started a research evaluating usefulness of “c-Checker” in clinical clerkship in February 2015. Attending doctors in the department of internal medicine, general medicine, neurology and psychiatry started to use “c-Checker” for their rotating clerkship students. Questionnaire and semi-structured interview were planned for evaluating usefulness of “c-Checker” for fostering clinical competencies of clerkship students.

Summary of Results: Faculty anticipated to start using “c-Checker” and they expected it as an easy-to-use tool and effective system for supporting clinical development of clerkship students.

Discussion and Conclusions: Online system “c-Checker” is considered an effective tool for fostering clinical competences of clerkship students as workplace-based assessment and e-portfolio. It is considered superior to traditional paper-based system because of several reasons: on-site assessment of students in workplace, interactive feedback and reflection between faculty and students, sequential data collection, and easy summarization of students' data.

Take-home messages: Current technology development enable us to develop and use effective educational system such as workplace-based assessment and portfolio practically.
Correlation between subjective evaluation during clerkship and GPAX in final year medical students

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Background: Subjective evaluation by instructors is one of student evaluation during clerkship. It is unclear if this method of evaluation is related with overall performance as measured by GPAX. This study was aimed to examine the correlation between subjective evaluation score during clerkship in different departments and final year GPAX.

Summary of Work: Fifty final year medical students were evaluated in 2 parts (competency and human quality) by clinical instructors during six departmental clerkships, using 5-level Likert scale questions. Their overall performance was measured by the cumulative grade point average (GPAX) at graduation. The correlation between the subjective evaluation score in each department and GPAX was analyzed using Pearson’s correlation.

Summary of Results: The overall subjective evaluation score was modestly related with final GPAX (r=0.289, p<0.05), with different patterns of correlation across departments. Moderate correlation was observed in pediatric, medicine, and obstetrics/gynecology departments, whereas poor correlation was found for surgery, orthopedics, and emergency departments. Competency aspect was more strongly related with GPAX than human quality aspect. Although 3rd year GPAX was strongly correlated with the final GPAX (r=0.919, p < 0.001), the 3rd year GPAX was not statistically correlated with the overall subjective evaluation score.

Discussion and Conclusions: There was modest correlation between subjective evaluation score during student clerkship and the overall performance, with different correlation across departments.

Take-home messages: The validity of subjective student evaluation is doubtful and should therefore be standardized.

The experience of University Potiguar with realistic simulation among medical students

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Background: Realistic medical simulation of clinical scenarios replicates experiences of real life and creates an interactive environment without exposing patients and students at risk. It develops techniques and skills, and also provides a practical examination tool through the Objective Structured Clinical Examination (OSCE).

Summary of Work: The simulation is embedded in weekly practices in many disciplines such as cardiology, nephrology and neurology. At the end of the semester we make an interdisciplinary OSCE and this note is part of the final grade for each subject. We submit students a questionnaire to assess the importance of simulation. Forty nine students (74.2%) set out to answer and sign the consent form.

Summary of Results: The realistic simulation had awakened a sense of responsibility in 75.5% of students; 71% reported that simulation required a better medical posture, while 16% denied this evolution of attitude. 51% reported greater autonomy in the absence of the teacher and 33% reported inhibition due to observation by colleagues. 90% exposed progress in taking action and 60% said that the simulation helped them to identify clinical manifestations satisfactorily, while 8% think this is not a good tool.

Discussion and Conclusions: Realistic simulation as a learning method was approved by students. It has been effective in optimizing performance and clinical skills, as it controls the external factors, standardizes the problems presented by patients and generates a debriefing, increasing self-knowledge and confidence.

Take-home messages: Realistic simulation is patient-centered, ensuring humanization, rapid analysis and synthesis of clinical information and approved by students in our university.
**#7CC19 (24086)**
Do formative work based placed assessments improve educational impact?

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**Background:** A trainee led group designed a new work based place assessment – the safeguarding Case Based Discussion (CbD) - that was launched by the Royal College of Paediatrics and Child Health in September 2013. The aim was a shift toward formative assessment and removal of the summative scoring system, with hypothesised improvement in educational impact.

**Summary of Work:** An online survey was sent to all college tutors and trainees in London to compare trainer and trainee experience using the new CbD compared with the previous CbD.

**Summary of Results:** 161 trainee responses were evenly distributed throughout training years. 70% of trainees and 90% of college tutors felt the new CbD better assessed the trainee's knowledge, application and clinical skills. 52% of trainees and 81% of tutors felt it stimulated learning more. 64% of trainees and 87% of tutors felt learning objectives were clearer.

**Discussion and Conclusions:** Although safeguarding children is an integral part of a paediatrician's job, the old work place based assessments did not stipulate that any CbDs needed to cover safeguarding. Introduction of the new formative safeguarding CbD has ensured a supervisor assesses safeguarding and the trainees ability to work as part of the multidisciplinary team required to manage these cases. The results of our survey indicate that trainees and trainers have found the new CbD practical and educational.

**Take-home messages:** The new formative safeguarding CbD appears to improve educational impact from a trainer and trainee perspective. The main barrier reported to completing work based placed assessments was both trainer and trainee time.

**#7CC20 (24593)**
An Alternative Certification Examination “Ace” to Assess the Domains of Professional Practice at the End of a Medical Degree

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**Background:** Medical graduates are required to be competent in many domains of professional practice when joining the healthcare workforce. Current undergraduate examination methods robustly assess up to five of these eight required skills. This study sought to evaluate an alternative certification examination "ACE" in assessing all eight of the required domains.

**Summary of Work:** 143 final year medical students were invited to participate in an "ACE" in February 2013. 137 students agreed to participate - 95.8% of the class. The "ACE" format consisted of 4 sequential patient encounters observed by two independent examiners. It assessed all eight required domains of professional practice. Examiners and students evaluated this exam format using a Likert scale and free text comments.

**Summary of Results:** The "ACE" assessed all eight domains. The inclusion of a patient safety measure of avoidance of an egregious error in the pass criteria resulted in 27 (18.9%) students failing to meet the pass criteria. The correlation of grades between independent examiners in the "ACE" was strong at 0.907 (CI 0.766, 1) Cronbachs Alpha. The "ACE" format was reported as an acceptable examination methodology by Examiners for formative or summative assessment at the end of a primary medical degree.

**Discussion and Conclusions:** The "ACE" exam format is standardised, integrative and has excellent inter-rater reliability. Inclusion of a patient safety measure as pass criteria appears to increase specificity. The "ACE" shows potential as an adjunctive examination to the traditional long case and OSCE in assessing all eight domains of professional practice.

**Take-home messages:** Assessment methods must be robust with proven sensitivity and specificity. Technical and non -technical skills should be assessed simultaneously. Patient safety should be considered in pass criteria.
Using patient narratives as effective learning tools for patient safety in interprofessional healthcare education

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Background: Healthcare workforce education is a key component of any strategy to improve patient safety attitudes amongst staff. Historically the patient’s perspective has not featured strongly in such educational endeavours. This project aimed to explore the potential of using patient narratives as a patient safety educational resource in an undergraduate interprofessional setting.

Summary of Work: Medical, nursing and pharmacy students were invited to participate from respective courses at two separate UK Universities. One of three separate interprofessional learning (IPL) sets were attended by a total of 21 students during which they watched a narrative describing the death of a patient following a prescribing error, which was told by the patient’s partner. Subsequent discussion, facilitated using a pre-specified framework, was recorded and transcribed for thematic analysis. A questionnaire was completed before and after the session to assess views towards IPL and this type of educational resource.

Summary of Results: Six main themes emerged, namely error, outcomes, roles and responsibilities, interprofessional relationships, support, and organisational issues. Students wished to understand how errors arose, how to prevent such events, and described a greater understanding of colleagues’ roles and responsibilities. Further development of interprofessional learning based on patient narratives was supported strongly.

Discussion and Conclusions: Patient narratives offer a useful educational resource for the IPL setting. A facilitator framework is important, and the mix of participating student disciplines should guide the choice of the patient narrative according to its core themes.

Take-home messages: Patient narratives are an effective IPL educational resource.

Inter-professional education as an alternative approach to analyzing medication errors in primary health care in Spain

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Background: Medication errors are unintentional failures in the process of prescribing, dispensing, or administering medication that involve multiple healthcare team members as well as patients who consume prescription drugs. One of the primary causes of medication errors is due to lack of communication, both between healthcare professionals and the patient, and between various healthcare professionals themselves. To mitigate the latter type of error, an intervention strategy with the aim of reducing medication errors and, thereby, ensuring the safety of the patient is proposed. Indeed, inter-professional education can be viewed as an opportunity for future health professionals to work together, aiming at minimizing the number of medication errors and augmenting the effectiveness of pharmacological treatments.

Summary of Work: Professors and students from several Health Science undergraduate degrees at the European University of Madrid will participate in the resolution of activities and clinical cases to help optimize health care quality through learning proper communication and inter-professional collaboration strategies.

Summary of Results: The biomedical undergraduate student is expected to develop effective communication strategies with other professionals in health care teams and realize that the result of this interaction affects the correct pharmacotherapy monitoring of the patient.

Discussion and Conclusions: It is fundamental to motivate future health professionals about the urgent need for adequate inter-professional communication. Introducing these types of active learning activities can help promote coordination between various professionals in primary health care and assure the implementation of effective and safe treatments

Take-home messages: Health Science schools should include inter-professional activities to promote collaborative work between different healthcare professionals.
Improving patient safety: undergraduate interprofessional education with high-fidelity simulation to highlight the human factors in medical errors

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Background: In 2009 the Department of Health introduced a 'Never Events' (NEs) policy, aiming to reduce error within the NHS. Ineffective teamwork and interprofessional communication is a well-recognised cause of medical error. The aim of this project was to establish if inter-professional undergraduate simulation training can raise awareness of medical error.

Summary of Work: Three high-fidelity simulation scenarios, incorporating six NEs and each containing two patients, were delivered to final year medical (n=30) and nursing (n=21) students over 6 sessions. Scenarios addressed the effect of human factors on medical errors. Debriefs covered important technical and non-technical learning points. Following the session participants completed a questionnaire using Likert scales and free text boxes.

Summary of Results: A statistically significant improvement in awareness of NEs (p value <0.0001) was seen, with a mean awareness after the session 9.9/10. Student’s felt the teaching improved communication, teamwork and clinical judgment skills, each with a mean score of 9.0/10. Additionally, students felt the teaching improved their awareness of other health professionals’ roles, (p value <0.0001). Feedback identified several common themes: teaching improved confidence in communicating relevant information, it helped understand why medical errors occur; moreover all students wanted further inter-professional simulation training opportunities.

Discussion and Conclusions: Simulation demonstrated a statistically significant increase in awareness of the human factors in error as well as technical and non-technical skills in the study group.

Take-home messages: Inter-professional education can help nursing and medical undergraduates learn technical and non-technical skills effectively.

Association between communication, competency for interprofessional collaborative practice, and team performance in Japan

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Background: The aim of this study was to clarify the relationship between team communication, competency for interprofessional collaborative practice, and satisfaction with perceived team performance at a teaching hospital in Japan.

Summary of Work: From October through November 2014, we conducted a quantitative cross-sectional survey using anonymous self-report questionnaires on all health care professionals working in a single Japanese teaching hospital. We used three established instruments as follows: the 29-item Chiba Interprofessional Competency Scale (CICS29) to measure competency for interprofessional collaborative practice; the 7-item Interdisciplinary Team Process and Performance Scale (ITPPS) to measure team effectiveness; and a modified 5-item Safety Attitudes Questionnaire (SAQ) to measure satisfaction with team performance. This study was approved by the Institutional Review Board of the Chiba University School of Nursing.

Summary of Results: Data were obtained from 1132 respondents as follows: 50.1% from nurses; 33.7% from physicians; and 16.2% from other medical professionals. A moderate correlation was evident between CICS29 and both ITPPS (r=0.65, p<0.05) and SAQ (r=0.38, p<0.05). Comparisons using analysis of variance indicated that medical professionals who engaged in interprofessional communication more frequently had significantly higher scores for both CICS29 and ITPPS.

Discussion and Conclusions: These results suggest that improving the competency of staff will promote greater team effectiveness and higher levels of job satisfaction. To achieve this, efforts will need to be made to foster more frequent general communication among medical professionals.

Take-home messages: More frequent general interprofessional communication is recommended for improving team performance.
Innovative Multiprofessional Simulation Training in Obstetrics

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Background: Emergency drills are an integral part of training for all staff working in the labour ward. At existing courses (eg ALSO, MOET) individuals are trained in emergency management. Traditionally, team roles are assigned randomly to the group regardless of experience or clinical role. This is stressful and distracting as participants have to think what another would do in a situation instead of practising what they themselves would do. Therefore, we decided to develop an obstetric simulation course for multiprofessionals.

Summary of Work: Two groups of professionals comprising a senior, junior and foundation obstetric trainee, an anaesthetic trainee and 2 midwives took part. Each group participated in a scenario with the other group observing. After feedback, the groups swapped and another clinical scenario was played out. Real equipment, a mannequin and simulated drugs were required. Scenarios were haemorrhage and eclampsia.

Summary of Results: The participants practised their usual role within the team. The teams observed the importance of good communication between members and strong leadership was necessary to manage emergencies well. They found there needed to be greater direction from the team leader so that no clinical tasks were missed out.

Discussion and Conclusions: In the future, we intend to include consultant and clinical support staff in our courses. We will also add different types of scenarios so that there may be more emphasis on anaesthetic or midwifery complications. It is also important to practice scenarios that are infrequent but have important consequences, such as amniotic fluid embolism.

Take-home messages: Emergencies are managed better when the team has trained together.
Background: Interprofessional collaborative practice is needed to deal with healthcare issues which have become complicated in recent years. However, the understanding of complicated cases has not been sufficiently elucidated. Therefore, this study aimed to clarify how healthcare professionals build a consensus and set objectives in complicated case involving multi-professionals.

Summary of Work: The participants were doctors, nurses, pharmacists, therapists, social workers, dentists, dental hygienists, and other professionals, who were divided into groups of five to six subjects, each composed of different professionals. Three cases were analyzed using the Minnesota Complexity Assessment Method (MCAC). We held simulated conferences using three complicated cases per one session. The consensus-building in each case was recorded using video and IC recorders. Six researchers analyzed the process about consensus-building and objectives-setting.

Summary of Results: Study participants were a total of 41 people consisting 8 groups. In the context of consensus building, the path from collecting information to solving the problem became less clear as the case got more complex; however, we could observe that a particular professional who had already experienced similar cases led the discussion on his/her own initiative. In objectives-setting, all professional groups considered the one issue in the “Simple” case to be the most urgent, whereas participants tended to check background information for the “Complicated” case. In the “Complex” case, participants tended to feel confused, where medical and welfare sector sometimes stood in opposition against each other, and they set goals in a different manner.

Discussion and Conclusions: As a case became more complicated, participants became more perplexed during consensus-building and objectives-setting. Our findings highlight the necessity of facilitators who are responsible for promoting interprofessional cooperation in more complex cases.

Take-home messages: More complicated case might indicate the necessity of a skilled interprofessional facilitator.

Interprofessional Collaborative Practice; Modelling a way forward
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Background: This presentation describes a model of interprofessional, intercultural experiential learning in a developing country. The model was developed by the School of Health & Rehabilitation Sciences at The University of Queensland (UQ), Australia. Students from the professions of physiotherapy, occupational therapy and speech pathology, supervised by an interprofessional clinical education team undertake a three phase learning activity (Preparation prior to placement, Participation in-country & Consolidation post-placement) as an assessed component of their professional programs. Students work in interprofessional teams with our in-country partners to identify and deliver sustainable strategies in the provision of rehabilitation interventions for communities in Vietnam and Timor Leste.

Summary of Work: Implemented in 2011 in Vietnam the model was expanded in 2014 to incorporate Timor Leste. To date, 242 students, approximately 75 local staff and volunteers, and more than 200 clients and their families spanning urban and rural communities have participated. The presentation describes the development and implementation of the model, community and student learning outcomes, lessons learned and future recommendations.

Summary of Results: A range of evaluation strategies seek to investigate outcomes and refine the model, exploring perspectives from the student, educator, and in-country partners. An analysis of outcomes with respect to interprofessional learning, cultural competence and impact on local communities will be presented.

Discussion and Conclusions: Experiential learning within the presented model allows students to experience diversity of health care demands, promote a model of interprofessional service delivery in communities where health care professions are underrepresented, and experience intercultural learning across a range of populations. This model has potential application for other health and education professions seeking to establish in-country partnerships to support local communities.

Take-home messages: Interprofessional and intercultural learning can be challenging. Success requires student and educator preparation and ongoing facilitation. This presentation provides a model for successful learning and sustainable partner relationships.
Development of an interprofessional education facilitation program for health professionals using instructional design

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Background: There is a growing need for facilitation skills in interprofessional education (IPE) for health professionals in various settings, but effective education programs are not provided adequately in Japan. We developed an IPE facilitation program using principles of instructional design.

Summary of Work: We designed a two-day program of IPE facilitation where participants watched video cases before discussing both the barriers to and competencies for effective interprofessional collaboration (IPC), applied those intellectual skills to analyze their own situation, and practiced IPE facilitation skills in a mock workshop. Each step of the design was conducted according to the ADDIE model of instructional design.

Summary of Results: After conducting several pilots, the final version of the program was held over two days during January and February 2015 with 14 health professionals. They were assessed by their IPC analysis worksheet descriptions based on rubric criteria, and pre- and post-questionnaires using the interprofessional facilitation scale (IPFS). Thirteen participants passed the criteria of IPC analysis. The average of IPFS scores improved from 19.9 to 38.1 (p<0.01).

Discussion and Conclusions: Our program was effective in improving health professionals' abilities in analyzing the barriers to and competencies for IPC of in their own situation, and in interprofessional facilitation skills. According to the ARCS model, program strengths included making the learning content relevant by having participants analyze their own situations, and making learners confident in IPE facilitation through the mock workshop and tutor feedback.

Take-home messages: IPE facilitation competencies can be learned effectively through a program developed by instructional design.
Narrative learning for interprofessional education in laboratory medicine: a pilot curricular study in a medical center in Taiwan

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Background: Laboratory medicine plays an important role in modern multi-professional healthcare system. System based practice and mutual understanding of each clinical profession are important to interprofessional collaboration and quality healthcare services. However, hospital education medical technicians usually put the focus on laboratory works and rarely would extend to events in the clinical patient care units. Therefore, medical technicians' ability of interprofessional collaboration and the understanding of their own roles in the healthcare system would be very limited. In order to create coherent and meaningful understanding of interprofessional collaboration in healthcare system, we designed an innovative educational program for medical technicians that is based on narrative learning.

Summary of Work: Medical technicians were assigned to write a first person perspective narrative about how a specimen (e.g. blood) from a patient would meet different professions and travels through different departments in the hospital. We collaborated with general internal medicine department to recruit volunteered patients. A guideline and a story example were given to the technicians to facilitate their observation and writing. A small group discussion was used to share their writings and for facilitators to give feedback.

Summary of Results: With guideline and example, medical technicians were able to write a narrative of how laboratory medicine department and clinical departments would collaborate in patient care services. They also developed a better understanding of laboratory medicine’s role in healthcare system.

Discussion and Conclusions: Narrative learning would help to create a coherent experiences and meaningful understandings of how laboratory medicine department plays its role to provide effective healthcare service.

Take-home messages: Narrative learning would help to create a coherent experiences and meaningful understanding in laboratory medicine.

The creation of an educational model for structured demonstration of interprofessional practice in teaching hospital: Experience from Kaohsiung Medical University Hospital

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Background: Although deeply embedded in our daily hospital practice, interprofessional collaboration remains invisible to most of the young clinical students. The lack of formal clinical roles and relatively peripheral involvement of clinical students have led to insufficient opportunities for learning of interprofessional interaction. An education model should be created to provide available opportunities for observation of interprofessional collaborative practice in teaching hospital.

Summary of Work: In Kaohsiung Medical University hospital, we established a model that would allow multi-professional teams to apply to their interprofessional educational activities. With structured case demonstration, clinical teachers and students are able to observe the dynamics among the interaction between different healthcare professions. Each activity contains two major sections: structured demonstration and educational discussion. The demonstration of patient-centered and problem-focused case discussion is performed by clinical staffs in a multi-professional team. Meanwhile, an educational modulator will facilitate the educational discussion to highlight important learning issues. Guidelines for structured demonstration and educational discussion were provided to facilitate the discussion between attended clinical teachers and students.

Summary of Results: Five educational demonstrations were performed in 6 months. Surveillance showed that participants were able to define the learning objectives in demonstrations and were satisfied with the learning experiences. Most participants agreed that structured demonstration had provided observable interactions that would help with the learning of interprofessional collaborations.

Discussion and Conclusions: Our model provided regular demonstration with increased learning opportunities, and more observable interprofessional interaction that were previously hidden.

Take-home messages: Structured demonstration is an effective approach to the hospital education of interprofessional collaborative practice.
#7DD13 (23356)
Interprofessional Collaboration as a Strategy to Improve the Quality of Antenatal Care: A lesson from Nusantara Health Collaborative, Indonesia

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Iswandy Janet Turu ’Allo, University of Padjajaran, Bandung, Indonesia

Background: Nusantara Health Collaborative was an event hosted by a collaboration of (Indonesian) health-care students from various disciplines combining a variety of learning methods. Projects supported by the Directorate General of Higher Education HPEQ Ministry of education and culture of the Republic of Indonesia.

Summary of Work: The participants were health-care professionals and health-care students from various disciplines. Expert lectures on interprofessional education and practice, video training and case-based group discussions were conducted on day one. On day two, participants took part in simulation training. A pretest and posttest were used to evaluate the program.

Summary of Results: More than 90% of participants perceived the advantages of the program. A model for inter-professional practice in antenatal care service was also the product of this program.

Discussion and Conclusions: NHC was a helpful learning model for enhance both skills and knowledge in antenatal care service. By using an inter-professional approach, the outcome of health services can be improved greatly. It is hoped that this approach can serve as a method to enhance both skills and knowledge in antenatal care service through inter-professional practice.

Take-home messages: The products of this collaborative program should be followed up and developed further to gain even better results. Thus, further support for program development is required. Participants felt satisfied and hoped the same program could be conducted every year with some improvements.

#7DD14 (27189)
Striking a balance – managing team efficiency and applicability to enhance interprofessional learning (IPL)

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Background: IPL is integral to promoting effective interprofessional collaboration among healthcare practitioners. Some barriers to IPL among academic administrators identified in earlier studies include scheduling problems, rigid curriculum and lack of perceived value. We aimed to ascertain attitudes and barriers to IPL among interprofessional healthcare practitioners in a non-academic setting.

Summary of Work: We surveyed 34 staff using the Attitudes towards Interprofessional Health Care Teams Scale (ATHCTS); Modified Readiness for Interprofessional Learning Scale (RIPLS); and Attitudes towards Interprofessional Learning in the Academic Setting Scale (IPLAS) to study staff’s attitudes towards different aspects of IPL. Exploratory factor analysis yielded six factors: team value/team efficiency (ATHCTS); expertise/professional identity (RIPLS); and administrative support/interprofessional culture (IPLAS). Total and factor mean scores were computed for comparison.

Summary of Results: IPLAS had lower total mean (3.55 on 5-point Likert scale; p=0.0002) and moderate correlation (r=0.38 to 0.41) compared with ATHCTS (mean=3.81) and RIPLS (mean=4.02). For factor scores, respondents endorsed lower scores on items relating to “team efficiency” (mean=2.35 to 2.88), such as IPL being time consuming and logistically difficult. Correlation analyses further confirmed that the “team efficiency” factor on the ATHCTS correlated poorly with other factors (r=-0.05 to 0.49).

Discussion and Conclusions: Healthcare practitioners generally held positive attitudes towards IPL. However, they viewed that IPL could compromise team efficiency which may impact patient care. Additionally, IPL in academic setting was perceived to have less applicability to healthcare institutions.

Take-home messages: Perceived lower efficiency and applicability may be potential barriers to IPL among non-academic healthcare practitioners.
Inter-professional Education Program for Junior Interns: Pharmacist Shadowing

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Background: Health care need to integrate all of the professional, not only the division of labor was even more inter-disciplinary cooperation for best patient’s care. Therefore, we designed the program of one-day pharmacist shadowing, we would like to achieve the goals of enhancing mutual understanding between professionals and cooperation.

Summary of Work: Before the internship starting their clinical learning in the hospital, they are assigned to the “one-day pharmacist shadowing” program. On the beginning and at the end of the pharmacist shadowing, interns shall complete the pre-and the post-test questionnaires (one each). We designed eight items in our questionnaires, explanation the pharmacy provided services in clinical, Statistical analysis was conducted using SPSS predictive analysis software (version 17) Significance was set at p< 0.05.

Summary of Results: A total of 36 valid questionnaires after the questionnaire by the recovery and consolidation. The results of junior interns understand for professional of pharmacy the top 3 items scores of the end program were “providing drug information to doctor”, “prescription evaluation and medication error management” and “the role of pharmacy in discharge planning services”, the average score is 4.53±0.56, 4.42±0.60 and 4.36±0.64, respectively. All of items p< 0.05.

Discussion and Conclusions: Through mutual understanding between the professional and strengthen partnerships, more practice patient-centered medical care, and pharmacists could also be learning between different grades, and have the opportunity to own reflection clinical value and location.

Take-home messages: Through inter-professional education (IPE) concept formation team, the team could develop training and learning model, inter-disciplinary coordination between cooperation and communication.

Introducing interprofessional simulation training in obstetric emergencies in a tertiary hospital in Singapore

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Background: As obstetric emergencies may occur infrequently, simulation has been introduced to train staff with the aim of reducing maternal and neonatal morbidity.

Summary of Work: The PROMPT (Practical Obstetric Multiprofessional Training) workshop is an evidence based training package. Its implementation in the UK had shown significant improvement across a range of perinatal and maternal outcomes therefore our hospital decided to adopt it. Trainees in Obstetrics & Gynaecology, Anaesthesia and Family Medicine train alongside midwives and nurses. The programme emphasizes human factors such as effective communication and situational awareness. High fidelity simulators (SimMom, Laerdal and Noelle, Gaumard) are used for scenarios such as eclamptic seizure and postpartum haemorrhage. Participants are debriefed on decision making, roles and responsibilities and teamwork during crisis management.

Summary of Results: We have trained 183 participants in 8 workshops since the first course in February 2013. Evaluation by participants reveals a high level of satisfaction. The majority agreed that the lectures introduced useful concepts in obstetrics crisis management, the simulation session identified gaps in their knowledge and overall attending the course reinforced their confidence & skills in crisis management.

Discussion and Conclusions: Participants especially appreciate the opportunity to train in interdisciplinary teams, feeling that this improves their communication skills. Interprofessional simulation training in obstetric emergencies improves communication between the key personnel involved in the care of our patients.

Take-home messages: Patient safety can be improved as we learn to function well as a team.
Use of multidisciplinary simulation to improve acute management of paediatric retrievals and emergencies at district general hospital: follow up

**Background:** Croydon University Hospital has one of the highest paediatric retrieval rates in the South West London. Croydon not only has the highest in number, they are often sicker than the average paediatric patient. There have been a number of critical incidences involving paediatric retrievals and emergencies highlighting a need to develop multidisciplinary teams to improve the management of these patients.

**Summary of Work:** The Paediatric Retrieval and Acute Multi-disciplinary Simulation (PRAMS) course was developed in association with the South London Retrieval Service to improve knowledge, skills and team-working for inter-professional paediatric retrieval team functioning. This proved to be valuable in breaking down barriers between specialties and enhancing morale. Addressing learning needs for a disparate group of professionals caring for sick children. Such as, theatre staff and emergency department nurses.

**Summary of Results:** The follow up programme looked to show how the participants’ objectives from different backgrounds were being met by the original courses. It created a realistic environment and encouraged inter-professional learning and understanding. Staff reported that the course had a positive impact on their subsequent retrievals and emergency experience.

**Discussion and Conclusions:** This course was important to develop due to the high number of sick paediatric cases. The course facilitated in improving and maintaining skills needed for safe paediatric management in a DGH prior to transfer to a tertiary centre. It bridged the gap in care of sick children between hospitals.

**Take-home messages:** Simulation proved instrumental in creating and nurturing multidisciplinary teams within the organisation and improved team morale, which in turn enhanced paediatric patient care and safety.

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Are Role Perceptions of Residents and Nurses Translated into Action? A Mixed-Methods Study in Internal Medicine

**Background:** Studies on interprofessional collaboration mostly focus on role perceptions or actions, but less on their association. We aimed at analyzing the association between residents’ and nurses’ role perceptions and their translation into action.

**Summary of Work:** 14 residents and 14 nurses from a General Internal Medicine Division were individually interviewed about their own role perceptions, and then randomly paired to manage two simulated clinical cases. We used descriptive and kappa statistics to assess general concordance between participants’ perceptions and actions and we explored their meaning with a qualitative approach.

**Summary of Results:** Overall, there is a weak correlation between themes mentioned in role perception and their translation into action for residents (kappa 0.20, p<0.007) and nurses (kappa 0.27, p<0.001). More themes were present in action than during interviews, for residents (p<0.011) and nurses (p<0.001), especially for themes such as “common objectives”, “verification”, or “help, availability”. Some themes were equally mentioned and performed (e.g. “technical information sharing”), but others appeared more frequently in interviews (e.g. “dependence” on the other professional, “feedback”, “team building”), with variations depending on the profession.

**Discussion and Conclusions:** Some themes present in action may not be explicitly part of nurses’ and residents’ role perceptions, while some perceptions may be difficult to translate into practice, for reasons to be further explored. There are therefore discordances between residents’ and nurses’ role perceptions and their translation into action.

**Take-home messages:** Themes for which residents’ and nurses’ actions do not match their role perceptions may represent topics for better role clarification and training.
Outcomes of a structured inter-professional Ultrasound Guided Vascular Access Workshop: A retrospective review analyzing structure, participation and satisfaction

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Background: Ultrasound guided vascular access is an increasing need in highly complex hospitals, with different specialties and disciplines interested in learning these skills. A need assessment performed in our institution concluded that a formal training opportunity was needed. A half day workshop was designed, developed and implemented.

Summary of Work: We retrospectively reviewed our experience in the past 18 months performing this workshop. It was widely advertised in our organization and acceptance was on a first come first serve basis. An on-line teaching module and pre course reading material were delivered to the participants as a pre-requisite. The workshop was structured with didactic lectures (ultrasound technologist, interventional radiologist and vascular access nurse) and simulation based learning in task trainers. Time was given for deliberate practice and final debriefing. Satisfaction was measured by a Likert scale (1 to 5).

Summary of Results: A total of 30 participants have registered in the workshop since January 2014. Intensive care (27%) and Radiology (23%) represented the majority of participants. Other disciplines that participated included general surgery, emergency medicine and anesthesiology. 50 % was staff and 50 % trainees. There were high levels of satisfaction with the sessions with an overall satisfaction rated as 4 or 5 by all participants.

Discussion and Conclusions: A successful Ultrasound guided vascular access workshop was created using and inter-professional approach and different teaching modalities. There were high levels of satisfaction and a variety of specialties and disciplines interested. The workshop was equally attractive to staff and trainees. Take-home messages: An inter-professional ultrasound guided vascular access workshop is an effective and engaging learning experience.

Effectiveness of Modified Legitimate Peripheral Participation (LPP) for Postgraduate Training in Chronic Kidney Disease (CKD) Management

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Background: The incidence of CKD greatly increases in Thailand, whilst the nephrologists are shortage. BMEC is developing the training course for interns to practice in limited subspecialty. This study modified the principle of legitimate peripheral participant (LPP) to teach interns in the management of CKD stage 3-5.

Summary of Work: This is a prospective study using modified LPP gathering with 20 minute-lecture and case-based discussion. We divided the learners into 4 groups, each consisted of 3-4 interns, an extern, and experienced physician. At the end of class, the dietitian, specialized nurse, and nephrologist participated to summarize the course. Both knowledge and attitude were evaluated.

Summary of Results: The knowledge evaluation showed no difference between interns and experienced physicians. The attitude evaluated by questionnaires showed the high score of the recognition in role, self-confidence, and empathy in patient-care. The thematic analysis from mini-interview showed that learning with modified LPP provided more understanding and confident. Sharing with the experienced team could be more practical to real situation than the traditional training.

Discussion and Conclusions: The modified LPP showed that learning with the multidisciplinary team improved the application of knowledge and provided the positive attitude in advanced CKD management. Take-home messages: The modified LPP can be successfully applied for multidisciplinary postgraduate in learning advanced and complicated issue.
Interprofessional training activity in pre-hospital emergency

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Background: To acting in emergencies it is important that health professionals develop specific and differentiated skills. So undergraduate courses in medicine and nursing should encourage the development of these skills and abilities. The aim of the present study is to analyze the core competencies in basic and advanced life support and its implementation process in medical and nursing courses in a public university of Brazil.

Summary of Work: This is an exploratory descriptive study, with medical and nursing graduates of last year undergraduate, who performed theoretical and practical training in pre-hospital emergency care, and participated in Objective Structured Clinical Evaluation stations in laboratory Skills.

Summary of Results: 24 students participated in the activity. Weekly classes were conducted theoretical and practical for one school semester, taught by doctors and nurses of the EMS. Topics covered included: basic and advanced life support, safe transport in clinical emergencies, trauma, gynecological, obstetric, Pediatric and psychiatric diseases. Practice activity was performed in the ambulances. Students were encouraged to critical-reflective reasoning and on the importance of integration between doctors and nurses. Was performed pre-test, post-test and OSCE. It was observed that 88% of students showed increased score compared to the pre-test.

Discussion and Conclusions: The study contributed to organize practical stations, identifying the basic clinical skills. It is suggested that an integrated discipline is made possible in both undergraduate courses.

Take-home messages: The EMS requires rapid decision-making, being fundamental an articulation between doctor and nurse. The interprofessional formation in emergency it is important for future safe practice.
Using Simulation to Promote Collaborative Working in Mental Healthcare

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Background: Interprofessional working in mental healthcare is paramount: Many serious untoward incidents occur because of problems with effective collaboration. Evidence suggests that by training multidisciplinary teams together, individuals are more likely to take advantage of the knowledge and skills of their colleagues in clinical practice. We developed a series of interprofessional simulation courses to address this.

Summary of Work: The courses focus on clinical topics at the mental-physical interface including children with mental health difficulties in acute hospitals; perinatal mental healthcare; and managing challenging patients in the Emergency Department. The scenarios involve multiple participants in tasks focussed on collaboration. The debriefs promote reflection on colleagues’ perspectives and promoting better awareness of roles and responsibilities.

Summary of Results: Questionnaires before and after the courses revealed improvements in attitudes towards collaborative working. For example, participants felt more able to ask for necessary assistance and information from colleagues than they had beforehand. Qualitative data from the debriefs, discussions and focus groups was analysed. It suggested the courses promote positive attitudes towards multiagency working such as delegates being more likely to involve other teams earlier.

Discussion and Conclusions: The results suggest that these courses are useful in changing attitudes towards collaborative working. The data collection tools used need to be adapted to draw out these changes more clearly. We hope to analyse the impact of the courses on patient outcomes.

Take-home messages: Interprofessional simulation courses are useful in fostering a more effective collaborative working environment in the care of individuals with mental health difficulties – particularly across historic divides such as health and social care.
#7EE Posters: Ethics and Empathy / Medical Education Research

**Location:** Hall 4, SECC

**#7EE01 (26016)**

**Education of clinical ethics at hospital corners: a creative and effective approach for education of clinical ethics in the hospital**

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**Background:** Most of the formal educational activities for clinical ethics are classroom-based but ethical conflicts in clinical encounters are closely related to the situational factors such as time, place and interactions among related people. Therefore, Kaohsiung Medical University Hospital adapted a new approach named “education of clinical ethics at the hospital corners” to provide the situated educational opportunity of clinical ethics.

**Summary of Work:** Lectures and a poster competition were conducted to create educational materials of ethical issues that are closely linked to different sites in the hospital. Information were incorporated with images to create knowledgeable and imaginary educational materials for students, staffs and patients. Posters were evaluated according to the significance of the ethical issue, placing of the poster, educational design and reproducibility. Thirty-eight posters were created with themes including truth-telling, DNR, patient privacy, hospice & palliative care and medical expense dispute. A map for finding posters was also created to guide the learning or teaching upon these materials.

**Summary of Results:** These educational posters took learners out of campus and hospital classrooms. Medical, nursing and pharmacy students were arranged to use these posters to assist their learning of biomedical ethics across the hospital. Surveillance found our activities effective in raising awareness of ethical issues and in delivery of essential knowledge.

**Discussion and Conclusions:** Our approach of using artistic educational posters in hospital corners would be an alternative and effective way for situated education of clinical ethics.

**Take-home messages:** Every hospital corner could be the classroom for learning of clinical ethics if good educational materials are provided.

**#7EE02 (25981)**

**Change of medical student moral level after 1 year of clinical learning with patients.**

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**Background:** Moral development is important for medical students to become a good doctor. Ethic education integrates into the medical curriculum. From many studies, clinical training on ward may inhibit medical students’ ethical and moral development. This study assessed moral level in medical students after 1 year of their education and the ways that medical students improve their moral levels.

**Summary of Work:** 4th year medical students were enrolled in the study during ethics session. The students evaluated their own moral level by using multiple vote technique on Lawrence Kohlberg moral development, and then they learned 7 ethical topics in 3 hours ethics class. We invited the same individuals to re-evaluate their own moral level again by the same techniques one year later. Towards the end of the class, those 5th year medical students find the ways that improve their moral levels.

**Summary of Results:** The stage of moral level increase from mean 3.89 in 4th years to 4.75 in 5th years (p < 0.0001) and students suggested the ways to increase moral level is doing with a willing mind (30%), put themselves in patient’s shoes (21%) and role modeling (21%).

**Discussion and Conclusions:** At one year after clinical training on ward, moral of medical students tends to increase which differs from other studies. Three important ways that students used to develop an ethical level are doing with a willing mind, put themselves in patient’s shoes and role modeling.

**Take-home messages:** Medical ethics in clinical year can be improve several ways by clinical faculty.
#7EE03 (27387)
Is Japanese medical students' empathetic communication sufficient to gain satisfaction of standardized patient (SP)?

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Background: Physicians’ emphatic communication raise patients’ satisfaction. This study examined the effect of medical students’ emphatic communication to SPs’ satisfaction.

Summary of Work: Thirty-six fifth-year medical students participated medical interview training. This training required student to perform history taking, physical examination and differential diagnosis to SPs. Thirty-six videotapes of consultations were analyzed by using The Roter Interaction Analysis System (RIAS) and classified 41 RIAS codes into 9 category-groups based on their functional meanings. For example, utterances of empathy were included in the group of utterances for expressing emotions. SPs rated two satisfaction questionnaires. Correlations between medical students’ communication style and SPs’ satisfaction were analyzed.

Summary of Results: The average numbers of utterance were 163.00±26.21 in medical students, and 114.54±23.92 in SPs. Two category-groups, utterances for building good atmosphere and building partnership occupied 51% of medical students’ utterances. The dominant RIAS code in the first category group showed medical students’ agreement with SPs and latter showed checking their own understandings. However, utterance for expressing emotions was only 3% of students’ utterances and there were no correlations among category-groups and SPs’ satisfaction scores.

Discussion and Conclusions: Medical students exchanging many of agreement and checks of understandings focused on building relationships with SPs, which might assume educational effect. Considering about few utterances of empathy, students experienced this training including differential diagnosis for the first time and might hasten to think diagnosis. Thus they could not show both building relationship and showing empathy.

Take-home messages: More trainings including differential diagnosis may facilitate students to get used to perform both building relationship and showing empathy simultaneously.

#7EE04 (27349)
A study on the association between mindfulness, empathy and patient-centredness in Italian medical students

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Background: Recent research has shown that there is a change of medical students’ empathy and caring attitude during internship experience and that mindfulness – the quality of being fully present and attentive in the moment – facilitates a variety of well-being outcomes for healthcare professionals

Summary of Work: This study was designed to compare the profile of a sample of Italian students with literature data on empathy and patient-orientation attitude; to examine changes in empathy from second to fifth year (internship in Italy begins in the third year) and to assess whether mindfulness was associated with empathy and patient-centeredness.

Summary of Results: JSPE and PPOS Italian students scores seems a bit higher than data collected in the anglo-saxon areas; there is no the expected decrease in empathy and patient centeredness during internship experience; mindfulness is positively associated with empathy and patient-centeredness scores.

Discussion and Conclusions: Internship experience in the hospital wards seems to have a very low negative impact on empathy and attitudes towards patients, probably due to some aspects of the curriculum structure (e.g. early experience with General Practitioners).

Take-home messages: Mindfulness for the medical student includes an understanding of patients as not merely objects of care and an awareness of the patients’ (and their own) emotions.
Empathy predicts learning outcomes of clerkship training programs for undergraduate medical students

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Background: We investigated whether medical students’ scores on the Jefferson Scale of Physician Empathy (JSPE) predict learning outcomes of clerkship training.

Summary of Work: Participants were 54 fifth-year medical students who were about to receive a core clerkship of 3-month internal medicine, 3-month surgery, and 3-month obstetrics-gynecology-pediatrics-radiology at a 3000-bed medical center. Among these, 18 students received the 3-month internal medicine and 3-month surgery clerkship at another 200-bed cancer center. Two groups of students were matched by a propensity score modeling. All students received the same Objective Structured Clinical Examination (OSCE) and a validated humanism questionnaire adjudicated by standardized patients (SP) as measures of learning outcomes at the end of each 3-month rotation. Besides, at baseline and end of the 9-month clerkship training, all students completed the JSPE, which comprises three domains: perspective taking, compassionate care, and standing in one’s shoes.

Summary of Results: On average, the JSPE scores declined slightly on the domains of perspective taking and compassionate care but improved on standing in one’s shoes. In the multivariate model accounting for training hospitals, an increase in the perspective taking score independently predicted a high overall OSCE score and a high SP-adjudicated humanism score (p=0.0092 and 0.0094, respectively). An increase in the compassionate care score also independently predicted a high OSCE score (p= 0.0472).

Discussion and Conclusions: A change in empathy during clerkship may predict OSCE and humanism scores at the end of the clerkship training.

Take-home messages: Empathy has a positive role in clerkship training outcomes.

Pain and its interpretation: A qualitative research on increasing the sensitivity to Pain in humanistic curriculum for undergraduate medical students

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Background: Pain and its interpretation has been a major concern of medicine, religion and philosophy. It is something that a person is experiencing or something that is happening to someone. Although the gap between the primary sensation toward pain and the secondary perception by another, namely its interpretation, cannot be overcome, it can still be bridged by empathy. Hence to increase the sensitivity to pain is highly emphasized in medical education. This research has its theoretical base of experiential pedagogy. The objective of this research was to observe how undergraduate medical students construct their own way to perceive and define pain of the other in this humanistic curriculum.

Summary of Work: A qualitative research study was conducted with hermeneutic phenomenological approach to explore the process of transformation of students’ perceptions and attitude toward pain of another. At the first phase the personal experience and understanding of pain are discussed in small groups. The anthropological research method is introduced, so that the participated students can make field observation and in-depth interviews with selected patients. Research data consist of the descriptions about encountering the core patients in details, the life stories of them, and the personal feedback of the students. Finally the data are analyzed by hermeneutic phenomenological research method.

Summary of Results: The participated student indicated significantly the diversification of perception and defining pain. This qualitative research data reveals explicitly they survey the empathetic emotional resonance not as a full-on experience of the other’s pain, but rather a “participation in the emotional content of another’s pain”.

Discussion and Conclusions: Empathy is to be experienced when one participates the life story of the others. The sensitivity toward pain is increased when encountering patients in pain profoundly. It improves medical students to extend their humanistic vision.

Take-home messages: How can the longitudinal humanistic Curriculum designed in medical education?
#7EE07 (26771)
Comparison of Two Measures of Undergraduate Medical Student Empathy

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Background: Studies investigating the trajectory of medical student empathy have produced conflicting results. The extent to which differing results are in part due to differences in the measures used is unclear.

Summary of Work: Analysis of responses of 620 students completing both Jefferson Scale of Physician Empathy (JSPE-S) and the Perspective Taking (IRI-PT) and Empathetic Concern (IRI-EC) subscales of Davis Interpersonal Reactivity Index as part of a longitudinal study at Cambridge University. Separate comparisons were made of measures of cognitive empathy IRI-PT and perspective taking JSPE-S items and measures of affective empathy IRI-EC and compassionate care JSPE-S items

Summary of Results: Reliability - Cronbach's alpha IRI-PT : 0.81, IRI-EC : 0.77, JSPE items perspective taking: 0.74, compassionate care: 0.59. Correlation within sub scale scores ranged from - IRI-PT 0.25 to 0.53; JSPE perspective taking 0.05 to 0.46; IRI-EC 0.06 to 0.44; JSPE compassionate care 0.06 to 0.40. Inter-scale correlation was low at both scale and individual item level. Maximum correlation between individual items was 0.28. Similar results for total sub scale scores and individual item scores from a national study of undergraduate medical students will be presented.

Discussion and Conclusions: Poor level of correlation between measures both as scales and in terms of individual items suggests they may be measuring different concepts - IRI a view of self, JSPE an aspirational view of how doctors should behave.

Take-home messages: Both scales may be valid and reliable but a better understanding of what each is measuring may facilitate better understanding of medical students' empathy.

#7EE08 (24602)
Physician's empathy and patient-centeredness among male and female clerks in a medical center in Taiwan

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Background: Empathy and patient-centeredness are essential part of a meaningful patient-physician relationship. The purpose of this study was to assess the change of physician's empathy and patient-centeredness between genders during the clerkship year.

Summary of Work: The study was conducted before and after one-year rotational-based clerkship in 2013-14. Ninety-nine M5 students in a medical center in Taipei City participated in this study. Students' empathy was measured using Jefferson Scale of Physician Empathy - Student Version (JSPE-S). Higher scores on JSPE-S indicate more empathy. Students' patient-centered beliefs were measured using Patient-Practitioner Orientation Scale (PPOS). Higher scores on PPOS indicate a belief that the student is patient-centered.

Summary of Results: At the baseline, there was no difference between male and female students on JSPE-S and PPOS scores (total, share, and care dimension). The JSPE-S score reduced after clerkship in male students (p=0.014), but not changed in female students. The PPOS scores (total, share, care) after clerkship were lower in female students (p=0.001, p<0.001, p=0.017). But there was no significant difference between pre- and post-test within both gender groups.

Discussion and Conclusions: In this study, changes of students' attitudes toward empathy and patient-centeredness during clerkship were different between genders.

Take-home messages: 1. The empathy declined in male students after clerkship, but not in female students.
2. The female students' patient-centeredness beliefs were lower than male students after clerkship.
Is empathy affected by medical students’ somnolence?

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Background: Empathy may be viewed as a mutable/situational state, in which affective and cognitive responses are sensitive to circumstances, such as educational experiences, mental, psychological and physical state. We hypothesized that students in more advanced years of medical training and without somnolence would have higher empathy scores.

Summary of Work: Cross-sectional multi-centric study with the use of validated self-report questionnaires of empathy (the Interpersonal Reactivity Index – IRI) and daytime sleepiness (Epworth Sleepiness Scale - ESS) among a random sample of medical students. Questionnaires were available to students on an electronic platform designed for the study – the VERAS platform.

Summary of Results: From the total of 1,650 randomized students, 1,350 (81.8%) completed all questionnaires. Students from different phases of medical training had minor differences on empathic dispositions (p<0.05; f<0.25). Most of students (n=759; 56.2%) had excessive daytime sleepiness (ESS scores ≥ 10). Empathy scores were weakly correlated with ESS scores (r≤0.1; p≤ 0.05).

Discussion and Conclusions: Although most studies on medical students’ empathy have indicated a decline of emotional and cognitive empathic skills throughout medical school, the extent to which empathy scores can be translated into its behavioural expression remains uncertain. Even though somnolence may affect one’s cognitive skills, it does not seem to interfere with students’ empathic dispositions. Conclusions: Educational experiences did not seem to affect (either positively or negatively) the development of students’ empathic skills. Our hypothesis that somnolent students would have difficulties in engaging the other’s perspective was not confirmed.

Take-home messages: The understanding of the behavioural expression of empathy and its correlates still needs further investigation in medical education.
Empathy in Medical Students: A Three Year Prospective Cohort Study at Universidad Andrés Bello, Viña del Mar, Chile

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Background: Empathy is one of the main characteristics that medical doctors should develop.

Summary of Work: Objective: compare empathy scores for medical students during a three year follow up. A cohort study with 33 students (18 men and 14 women) was performed. The Jefferson Empathy Scale, was used to obtain baseline data, at the beginning of the third year, and for follow up at the end of the third, fourth and fifth year. Statistic analysis: Friedman, t Student and Mann-Whitney tests. Informed consent was obtained.

Summary of Results: No significant differences were observed across years and gender for global empathy, perspective taking, compassionate care and standing in the patient's shoes. Nevertheless, perspective taking in females, showed a statistically significant increase between baseline and the end of the third year (p < 0.05).

Discussion and Conclusions: No decrease in empathy for any of the years studied was observed, as previous studies have shown. Possible explanatios could be the homogeneous characteristics of the sample, and the small size of the groups during clinical rotations, which allows for personalized tutoring. No significant changes was revealed in global empathy, as well as in the perspective taking, compassionate care and 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 observing the trends on empathetic behavior. A qualitative study should complement the data to provide better understanding.

When I say sometimes, I mean… : What do residents mean when they talk about duty hours

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Background: The ACGME resident’s survey which is administered in the form of Likert scale, is used to make important decisions related to accreditation. Some studies have found issues with validity and reliability of Likert scale survey; however none has been done with the resident’s survey. Therefore, the purpose of this research is to understand the validity and reliability of resident's survey in the hope that the findings could be used to inform stakeholders on the limit of the Likert scale.

Summary of Work: A survey was sent to residents enrolled at two sponsoring institutions in Singapore. Residents were required to indicate the frequency of the Likert options.

Summary of Results: A sample of 119 residents was used in the analysis. Standard deviations were greater for duty hours than the other domains. Repeated-measure ANOVA found that ‘very often’, (F(3,472)=4.14, p<.05) and ‘extremely often’ responses (F(3,472)=5.51, p<.05) were lower in the duty hour domain.

Discussion and Conclusions: The reliability of the resident’s survey could be affected by the lower frequency and wide variation in the duty hour domain. Likert scale might not be the best mean to obtain input on frequency as Schwarz (1999) explained that responses like ‘sometimes’ and ‘very often’ would mean different frequencies in different contexts. Similarly, Schaeffer (1991) explained that wide variation can arise when respondents differ in their frequency judgment of an event and are asked to map it onto a Likert scale. Residents might differ sharply in their frequency assessment of an event due to differing context and it might be better to employ a frequency slider scale.

Take-home messages: To enhance reliability of the resident’s survey, it will be advisable to adopt frequency slider scale instead.
The influence of survey medium: experience from a national undergraduate medical conference

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Background: The use of questionnaires to ascertain the value of a workshop or conference is a common survey method employed by medical societies. The ubiquity of online surveying software, and relative ease of data collection, has led to the increasing use of electronic surveys over paper forms. We sought to establish whether the two media produced equivalent results.

Summary of Work: Seventy-five medical students attended a national undergraduate conference. Each was randomly allocated to receive an electronic (via e-mail) or paper feedback survey. The questionnaire comprised five statements, with a five point Likert-type scale used to indicate level of agreement. Chi-square tests were used to compare the proportion of questionnaires completed and the equivalence of overall responses in paper vs electronic feedback.

Summary of Results: Thirty-five students received the electronic survey, and forty the paper questionnaire. There was no difference in response rates (electronic vs paper: 48.6% vs 40%, p=0.45). Responses to electronic surveying were not equivalent to those generated from paper questionnaires (p<0.001). Students were more likely to strongly agree with statements if responding electronically (29.4% vs 15%).

Discussion and Conclusions: The disparate responses received between the two media may reflect a high rate of acquiescence bias in electronic surveying. However, given the modest response rates, this may also reflect distinct groups choosing to respond to different media. Responses from electronic survey media are easier to analyse, but give contrasting results compared to paper feedback forms.

Take-home messages: Electronic and paper feedback surveying may not produce equivalent responses.
A theoretically-driven Community of Practice Framework (CoPF) for Analysing the Disconnect Between Education Theory and Practice in Pharmacy Programmes

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Background: Duncan-Hewitt and Austin (2005) argue that in the last two centuries, pharmacist professional education has shifted from apprenticeships into higher education. This shift has created “a gap between education theory and education practice”. There is now a need to understand the role education theory plays in evidence based educational practice for pharmacy education.

Summary of Work: Using the lens of constructivist educational theory, specifically Community of Practice (Lave and Wenger 2001), a CoPF has been constructed to examine this disconnect particularly in the design of Pharmacy programmes.

The CoPF was developed through extensive literature review, analysis of sources to highlight key concepts, and peer review with leading pharmacy education scholars and regulators.

Summary of Results: The theoretically developed CoPF has the following six components:
- Ideal conditions for implementation
- Curriculum
- Teaching strategy
- Assessment
- Expected outputs
- Challenges

Discussion and Conclusions: The CoPF has been designed to support a systematic examination of existing Pharmacy programmes, in order to reduce the impacts of any disconnect between education theory and education practice. It can also be utilized as a basic framework to facilitate the design of new Pharmacy programmes to ensure they are adaptable to changes in curriculum and profession, and produce competent students with stronger professional identity.

The CoPF components are presented, with examples, to explain the framework, its use for analysing and developing Pharmacy programmes.

Take-home messages: In developing the CoPF, we hope to foreground the role of educational theories in improving programme consistency, aligning theory and practice in areas of curriculum, teaching strategy and assessment, to improve student experiences.
Evaluation of the Medical Professional Outcomes Of ‘Clinical Medicine And Professional Skills’ Program From The View of Students And Clinical Teachers

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Background: Changing healthcare needs of an aging society in epidemiological transition created the necessity to embed the professionalism context into medical education. Undergraduate medical education programs now adopt new approaches including different educational strategies as well as redefined competence areas for medical professionalism, like communicational skills, attitudinal and ethical issues, teamwork, etc. These new trends in medical education are believed to benefit good medical practice and a person centered approach of future medical professionals, thus increasing quality of care.

Summary of Work: At Acıbadem University School of Medicine the curriculum is structured according to the new perspectives of medical education principles and a new pre-clinical professionality program which is called Clinical Medicine and Professional Skills (CMPS) is embedded to the curriculum. It is providing the students a broad understanding of professionalism, ethics, communication and clinical skills, and some basic procedural skills before attending the clerkship years. This study aims to describe the perception of students and teachers about professionalism outcomes of CMPS program.

Discussion and Conclusions: The results of this study showed that early exposure to professionalism domains in undergraduate medical education creates a high level of professional self-awareness going along with corresponding expectations from the forth following medical education infrastructure in students. They have high levels of expectations of the medical curriculum in the clinical phase the training sites and infrastructure as well as from the clinical teachers in terms of “being a good role model and a good teacher”.

Effect of rearranging basic science for Medicine I topic sequence on learning development: the Joint Medical Programme students

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Background: Basic science for medicine I subject is one of the preparatory subjects for the first year Joint Medical Programme students (between Srinakharinwirot University (SWU), Thailand and the University of Nottingham (UoN), UK). The rearrangement of the topics was conducted in the year 2012 including basic chemistry, atomic and molecular structure, chemical reactions, biological molecules, enzyme, energy metabolism, DNA to protein. The objective was to provide basic knowledge before studying pre-clinical subjects at UoN.

Summary of Work: The study aims to compare the scores of students from 2012-2014 after topic sequence rearrangement of the Basic science for medicine I subject. The study was conducted among 12 students each year.

Summary of Results: The students’ maximum scores were 88.40, 96.10 and 87.40; the minimum scores 71.90, 75.40 and 74.4; the score range 16.5, 20.7 and 12.70 for the year 2012, 2013 and 2014, respectively.

Discussion and Conclusions: The higher scores of students in the year 2013 and 2014 implied that the rearranging of the topic sequence supports learning development of the students. In addition, teaching experiences of the lecturers in the year 2012 helps teaching development in the year 2013 and 2014. The 2013 scores showed high score range of 20.70 referring different learning skill of the students in the group, whereas, that of the year 2014 showed minimal score range implying quite similar learning skill.

Take-home messages: The basic science for medicine I topic sequence rearrangement helps improving learning development of the first year Joint Medical Programme
#7FF05 (25347) Medical undergraduate curriculum reform through teaching ENT in primary care

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**Background:** ENT problems are 10% of the workload of GPs and in UK alone there are over 300 million consultations in primary care each year. The largest volume of ENT workload are the non-threatening ailments such as painful and discharging ears, sore throat, deafness, sinusitis, nose bleeds, snoring and sleep apnoea not seen in hospitals which are dominated by ENT emergencies, oncological and reconstructive surgery. In addition the demographic changes with increasing longevity and chronic diseases means that there will be even greater demand for ENT services. Thus it is imperative that if 50% of students enter primary care then as students the curriculum should reflect this learning as preparation for future practice.

**Summary of Work:** This innovative idea is based on the READ Codes which classify ENT patients on a GP list and thus enable creation of special ENT clinics in primary care. All consultations are carried out by the attending ENT Consultant, GP and medical students. ENT teaching thus becomes part of the primary care attachment freeing up space in the overall crowded curriculum.

**Summary of Results:** Such an arrangement improves the learning of the student, GP, practice nurses and manages patients in their local environment which is cost effective.

**Discussion and Conclusions:** This innovative practice is encouraged by a handful of surgeons and GPs, but there is real scope of adoption by medical schools and primary care with the added benefit of improved work based learning and patient care at lower cost.

**Take-home messages:** Medical students can be more effectively taught ENT in primary care thus freeing up space in the crowded undergraduate curriculum.

#7FF06 (26883) Designing a systematic approach to undergraduates training for the 3 medical schools: Paediatrics Core Curriculum

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**Background:** KKH is the main Paediatric academic center within the SingHealth medical cluster. The Paeds ACP is responsible for undergraduate training of Paediatric Medicine within SingHealth Cluster. Paeds ACP initiated a taskforce to look into ways to meet the needs of undergraduate training in the 3 medical schools. The taskforce deliberated and recommended the formulation of a unifying curriculum guide for faculty within the Paeds ACP.

**Summary of Work:** Phase I: Stakeholders within the Paeds ACP that included representatives from 3 medical schools was invited to form the PCC team. The team performed needs assessments on training objectives from the 3 schools.

Phase II: The PCC crafted a paediatric training guide for the faculty within the Paeds ACP detailing learning objectives, teaching methodology, key concepts, suggested and alternative teaching means and assessment guides.

Phase III: Roadshows and consensus meetings were held within the Paeds ACP to gather feedback and suggestions for improving the PCC. Discussions were also held to suggest models and means to pilot and roll out the PCC.

Phase IV: Pilot programs involving both faculties as well as residents within the Paeds ACP were implemented to test run the program and gather feedback from the students on the usefulness of the new program.

**Summary of Results:** A PCC manual was formulated as a guidebook for faculty. The pilot run was rolled out on 2 groups of YLL Year 3 medical students in Nov 2014 and Dec 2014 respectively. Progress and feedback of medical students were monitored via a test run dashboard.

**Discussion and Conclusions:** A unifying paediatric undergraduate program was formulated in Paediatrics ACP at KKH to meet the growing needs of Paediatric undergraduate training and to ensure a structured delivery of good quality training for medical students from medical schools within Singhealth cluster.

**Take-home messages:** PCC is essential to meet the needs of three School of Medicine (SoM).
Study outcome of the Joint Medical Programme
B.MedSci. students in the UK before and after modification of year one preparatory course in Thailand

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Background: The Joint Medical Programme (between Srinakharinwirot University (SWU), Thailand and the University of Nottingham (UoN), UK) recruits the top 12 qualified students each year by direct admission since 2003.

Summary of Work: From 2009, the preparatory course curriculum at SWU was modified from general sciences to biomedical sciences in order to prepare students for a following biomedical course in UoN. Average percentages of the final marks and the percentages of students per class who graduated with first class honour before and after such modification were compared.

Summary of Results: The mean final marks of students in the group that had been taught with general sciences (year 2006-2008) and the group that had been taught with biomedical sciences (year 2009-2013) were similar (60.2±1.25 vs. 63.4±1.22, P=0.078, respectively). The average percentage of students finally awarded with distinction, however, increased. Overall, there was a significant improvement of student performances over the years since the course was established. For instance, the percentages of the students who graduated with first class honour from year 2011 – 2013 were 18.18% (N = 11), 22.2% (N = 9), and 50.00% (N = 10), respectively.

Discussion and Conclusions: The modification of the preparatory course curriculum facilitated student performances in the B.Med.Sc. course in the UK indicated by the increased in average final marks and the number of first class honour students (50% in year 2013).

Take-home messages: The Joint Medical Programme is unique in terms of student adaptation during transitioning between the two countries. Modification of a course curriculum positively affected student performances.
Mapping the undergraduate curriculum – a network visualisation approach

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Background: During review for redesign of the Leicester curriculum, a detailed audit of the current curriculum, coupled with a mapping exercise, was planned. Not a new concept, curriculum mapping is a key tool supporting planning of consistency and coherence of students’ experiences of a curriculum.

Summary of Work: The complexity of undergraduate medical curricula is widely acknowledged. Furthermore, learning is an inherently individual process. Each learner must navigate a complex network of learning opportunities, designed to permit recapitulation and reiteration as well as enforced retrieval of prior knowledge. Application of network theory to the study of complex networks is developing alongside expansions in the study of social networks and complex biological phenomena. A variety of social network analysis tools are available. Gephi™ was selected as it has an established presence, is open source and offers graphical user interface.

Summary of Results: Presenting the curriculum as a complex network allowed visualisation of the complexity of the learning experience, evidence for content correlation opportunities and graphical representation of the recurrence of learning opportunities.

Discussion and Conclusions: This approach has permitted a multidimensional representation of a curriculum that encases management, quality and cognitive processes in a single interactive graph. Prospectively, continuing refinement of the graph will allow enhanced utility by more accurate representation of the strength of links and facilitate curriculum audit by mapping “orphans” and redundancies.

Take-home messages: In neural networks, functional connectivity is defined as temporal correlation between spatially distant events. If functional connectivity corresponds to curriculum integration, network visualisation methodology may provide a useful pedagogical paradigm to support curriculum integration for students.

Blueprinting educational strategies for a general surgery clerkship using the Kern model

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Background: The Kern model is an iterative six-step approach to curriculum design and evaluation. Determination of optimal teaching strategies to deliver curriculum content requires a balance of formal learning theory, student needs, and feasibility within the constraints of a given program. Prior needs assessments of medical students in surgical clerkships suggest that active learning environments such as small group discussion and outpatient settings are preferred, while traditional strategies such as lectures and reading are less engaging. Restructuring of the clerkship curriculum at our institution provided an opportunity to re-evaluate content delivery methods. We describe our experience with determination of educational strategies and implementation of an updated curriculum.

Summary of Work: All rotation objectives were organized into an electronic blueprint. These were mapped to cognitive, psychomotor, or affective domains to determine an appropriate corresponding teaching strategy as per Kern. Implementation of education strategies was guided by availability of lecture time, simulation sessions, and small group teaching opportunities within the context of our institution. Content of these sessions was determined from the blueprint.

Summary of Results: A curriculum blueprint was created to map objectives to optimal teaching method and environment based on feasibility within our program.

Discussion and Conclusions: Objective blueprinting utilizing the Kern model facilitates merging of curriculum design theory with real life constraints of a surgical clerkship curriculum, and serves as a foundation for future program and learner evaluation.

Take-home messages: Blueprinting allows for clear linking of objectives to specific learning strategies, and delineates for both educators and students how and where competencies could be most optimally achieved.
Boosting competence-orientation in undergraduate medical education by visualizing curriculum diagnosis: a web-based tool assists change management

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**Background:** Internationally undergraduate medical education is challenged by developing competencies relevant for medical doctors. In Germany, the National Competence-Based Catalogue of Learning Objectives for Medical Education (NKLM) provides a framework for redesigning established curricula. However, faculty, stakeholders and teachers are not easily convinced of need and feasibility of curriculum redesign. How to analyse and visualize the amount of curriculum data regarding varying questions of interest and use it as door opener for structured curriculum development?

**Summary of Work:** We developed a web-based, database-driven application for curriculum mapping. Curricula of 4 faculties were mapped regarding NKLM roles. Graphical analysis tools are accessible on the online user interface for prompt visualization.

**Summary of Results:** Based on realistic data sets, status quo scenarios for competency roles were exemplarily revealed. Key questions were: - What role profiles are diagnosed? - How are roles presented during study (coverage, level, transparency and by which departments)? – Where are gaps and redundancies? – How are roles assessed? We presented diagnostic graphs to each medical faculty. The graphs were easily understood and constructively discussed (“door openers”). By now, medical faculties started to develop local competency tracks, easily to be monitored. Furthermore, during NKLM consensus process the steering committee presented the results to the official representatives of German faculties due to the argumentative power of data.

**Discussion and Conclusions:** We present a powerful tool for competence-based curriculum diagnosis. Its strength lies in easy visualisation of data regarding different aspects and perspectives. Faculty and students profit from increased transparency. Curriculum development and change management are facilitated.

#7FF11 (26331)

The Dynamic Learning System: Enabling individualization of student experiences while ensuring standardized core outcomes through a systems approach

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**Background:** In 2013 our institution implemented a major curricular revision designed to create a dynamic system of learning which is responsive to needs of individual learners.

**Summary of Work:** To create a system of learning, we defined intended outcomes, designed learning opportunities to explicitly support them, and carefully aligned our assessment program to measure them. We instituted developmental milestones to assess learner competence across multiple domains in all courses and settings. A structured, coached review process of each learner’s digital portfolio monitors individual progress and enables personalized learning plans.

**Summary of Results:** In evaluating our programmatic effectiveness, we ask four major questions: 1) Did the students achieve the objectives of the learning system? 2) Did the learning system (people, process, technology) help the students accomplish the milestones and objectives? 3) Was the learning environment positive? 4) Does the learning system improve itself? Preliminary outcomes data affirms each question.

**Discussion and Conclusions:** Data from the first year of implementation is positive in many aspects. For a change of this magnitude, the process has gone quite smoothly with maintenance of overall satisfaction among learners and educators. We have identified areas for ongoing refinement and monitoring. In summary, the intended system of learning does exist. Early evidence indicates that the system helps students achieve desired outcomes in a positive environment, and that the system is improving.

**Take-home messages:** Rather than thinking of curriculum as a static sequence of courses, we advocate for a systems approach that enables individualization of student experiences while ensuring standardized core outcomes.
#7FF13 (28077)
**Students assessment of the basic medical education in Sweden**

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**Background:** The general outcomes of basic medical education in Sweden are set at a national level but the curriculum design and particular learning outcomes can differ between the universities. In 2007 the national outcomes where redefined, and changes were made in local curriculums and learning outcomes.

**Summary of Work:** For two years The Swedish Medical Association has conducted surveys to those who graduated from the six universities that provide basic medical education in Sweden, asking how well they think that their education has prepared them for their work as (junior) doctors.

**Summary of Results:** The results show that the newly graduated doctors are rather satisfied with their education. All universities get high scores in central areas like preparing the students to diagnose and treat common conditions and to work as (junior) doctors. In areas like interprofessional training, leadership and emergency care there are larger differences between the universities.

**Discussion and Conclusions:** The differences in results between universities suggest that local curriculum design do have an impact on student abilities. The overall scores of the 2014-survey is slightly higher than in the 2013-survey, suggesting the that curriculum changes implemented in 2007 has set, leaving the second class of students slightly more satisfied than the first.

**Take-home messages:** Asking former students from several universities the same questions makes it possible to compare the result of local strengths and profiles. Multi-university surveys about perceived quality of education can provide valuable information.

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#7FF14 (26871)
**Geriatric knowledge among clinical medical students of Srinagarind Medical school, Khon Kaen University, Thailand**

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**Background:** Ageing society has impacts at the national and global scales. Consequently, the proportion of older patients has been increasing. Therefore, geriatric care should be more emphasized in medical curriculum. The objectives of this study were to evaluate geriatric knowledge among clinical year medical students and to compare the levels of knowledge among those students.

**Summary of Work:** This is a cross-sectional descriptive study of clinical medical students of Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Thailand for the academic year of 2012. A self-administered questionnaire was used to collect the data including demographic data, geriatric knowledge in 5 dimensions. Descriptive statistics were used to analyze the outcomes.

**Summary of Results:** Three-hundred and sixty-nine questionnaires were sent back (93.8%). The median scores of geriatric knowledge were 18/30 (maximum=25, minimum=0). At the passing level of 60%, there were only 201/369 (54.4%) achieved that level where 6th-year medical students had significantly higher proportion of passing (75.4%) than 5thand 4th-year medical students (64.1%, 47.5%) at p<0.01. The psychosocial area was the section that the majority of the students passed (97.4%), followed by environmental area (93.6%), functional area (76.7%), physical area (71%), and mental area (44.5%).

**Discussion and Conclusions:** The geriatric knowledge of the clinical medical students was modest. Most of them had limited knowledge in mental section. Implementing of geriatric holistic care particularly in the area of mental care is recommended.

**Take-home messages:** The clinical medical students had modest knowledge in geriatric medicine especially in the area of mental change with ageing. Medical curriculum should emphasize the importance of geriatric care for medical students.
Do medical student attitudes towards frailty and delirium change following the ‘Care of the Older Person’ teaching week?

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Background: The ‘Geriatric Giants’ include delirium and frailty but there is little evidence outlining medical students’ attitudes towards these conditions or their conceptualisation. Our aim was to investigate whether medical student attitudes towards frailty and delirium change following the introduction of the ‘Care of the Older Person’ teaching week in year 4 at Manchester Medical School.

Summary of Work: The university gave ethical approval and a mixed methodological approach was used. All 4th year medical students at Salford Royal Teaching Hospital were sent a Likert questionnaire that measures attitudes towards frailty and delirium. Semi-structured interviews were used with 4th year students before and after the teaching week to identify changes in attitude towards frailty and dementia and their conceptualisation. 5th year students were also interviewed and sent questionnaires, making a comparison group. In total the questionnaire was sent to 200 students and 12 students interviewed.

Summary of Results: Data collection is in progress and analysis will be completed by August ready to present at the conference in September 2015.

Discussion and Conclusions: Frailty and delirium can be managed poorly in a hospital setting and equipping students with knowledge, skills and experience in these areas will help identify such patients and provide them with the most suitable care. Our hypothesis is that a dedicated week of teaching will change medical student attitudes to frailty and improve their knowledge of delirium. This will be reviewed following the results of our study.

Take-home messages: With an increasingly ageing population, a focus on common conditions that affect the elderly is beneficial for medical undergraduate curriculums.

A “Diabetes Acute Care Day” for medical students increases their knowledge and confidence of acute/inpatient diabetes care: a preparedness to practice pilot study

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Presenter: AW MacEwen*, Crosshouse Hospital, Department of Diabetes and Endocrinology, Kilmarnock, UK

Background: Evidence suggests that junior doctors lack the confidence and skills to manage inpatient diabetes. Diabetes is a common condition affecting 10-20% of inpatients. It is vital that medical undergraduates are prepared to safely manage diabetes prior to graduation. The most effective way to achieve this is unclear.

Summary of Work: Participants attended four short lectures on principles of diabetes, diabetic emergencies, inpatient diabetes and peri-operative care followed by case-based learning tutorials on diabetic emergencies using simulated blood glucose charts to interpret and practice subsequent insulin prescription. Participant knowledge and confidence were assessed pre and post-course using multiple-choice questions and confidence questionnaires using a visual analogue.

Summary of Results: 53% students completed the survey pre-course and 72% post-course. Mean confidence increased in all areas with a mean at baseline of 46.9mm rising to 71.2mm post-participation (p<0.001). The largest increases were in the management of hyperglycaemic hyperosmolar state, patients on subcutaneous and intravenous insulin and perioperative care. The mean mark obtained in the pre-test multiple choice questions (MCQs) was 2.72 (27.2%) and increased to 4.74 (47.4%) on the post-score MCQs (p<0.001). The mean number of MCQ questions answered increased from 4.71 pre-course to 9.56 post-test.

Discussion and Conclusions: An intensive “Diabetes Acute Care Day” consisting of themed live lectures and case-based learning tutorials is an effective way to increase medical students’ knowledge and confidence in acute/inpatient diabetes.

Take-home messages: Further development of this educational intervention is required to prepare medical students for practice at the time of graduation.
Biophysics in the undergraduate medical curriculum – student’s attitudes

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Background: Biophysics and its applications are fundamental for medical sciences and practice, but students’ opinions and expectations regarding the Biophysics are often negative. The teacher should try to modify them, to make physical basis of medicine more interesting and demonstrate its usefulness for medicine. The different tools, including appropriate students’ feedback (e.g. questionnaire), can be used for an enhancement of the teaching process.

Summary of Work: We present the pedagogical investigation using anonymous questionnaire (92 respondents, 1st year medical students). The analysis assesses the students’ suggestions and statements concerning Biophysics. The horizontal and vertical coordination of the Biophysics with other biomedical teaching subjects was discussed.

Summary of Results: Analysis of results showed: 32% of respondents had a negative and very negative attitude to the Biophysics before, subsequently 48% of respondents better understood physical laws in the medical applications after completing the biophysics course. Respondents wanted to learn physical principles of the biological processes (57%), the medical devices (31%) and applications of physics in medicine (49,5%). They evaluated benefits of the Biophysics for their future careers as medium and large (61%). Biophysics is considered to be useful to acquire knowledge about for physical principles of modern diagnostic and therapeutic methods (90 %).

Discussion and Conclusions: Results could be considered in management of teaching process, preparation of new teaching materials and modification of didactic approaches. The relevance of Biophysics as a teaching subject in the undergraduate medical curriculum is justified.

Take-home messages: Students’ evaluation of teaching process presents the possible feedback information and can help to make teaching of Biophysics more attractive.

Professionalism: is the challenge being already accepted?

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Background: The relevance of including professionalism in learning activities of undergraduate medical curriculum is well established in literature. In this way, in our medical school we have designed a program to include it in the formal curriculum. We believed that some aspects of professional attitude were already learned by our students through informal and hidden learning experiences.

Summary of Work: In order to access professional attitude we have used the Barry Challenges to Professionalism Questionnaire (Barry et al, 2000), which includes six scenarios addressing professional attitude, translated and adapted. The questionnaire was then distributed to first year and final year medical students.

Summary of Results: Answered the questionnaire 191 students. There was no difference between first and final year students' global answers regarding acceptance of gifts and physician impairment. The other 4 scenarios (conflict of interest, confidentiality, sexual harassment and honesty in documentation) showed that final year students scored better than first year’s (p value <0.001, 0.007, <0.001 and <0.001, respectively).

Discussion and Conclusions: In four out of six challenges, the students from the final year choose the best attitude differently from the first year students. Although our study has the limitation of using only one method to access professionalism, these results show that curriculum, either formal or informal, changes students’ perception of professional attitudes.

Take-home messages: Professionalism is influenced by several experiences in medical school, formal and informal. It is important to measure their impact on students’ attitudes.
Addressing professional values through Medical English course

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Background: With the pace of globalization, medical students who are non-native speakers need to acquire English competence that enables them to cope with coursework and engage with professional and clinical encounters. The study seeks to address: How can a ‘Medical English’ course be redesigned to address both aspect of generic knowledge and professional values for medical students in the early stage of their program?

Summary of Work: The study implemented the redesigned course, changing the former lecture-/vocabulary-based Medical English course to a blended, lecture-plus activity including Task-based learning and hybridized PBL, and flipped classroom format with 146 second-year Taiwanese medical students. An end of course questionnaire on the activities was conducted and qualitative data such as essays and participant researchers’ tracking observation were collected and analyzed to cross-examine the quantitative data.

Summary of Results: The quantitative data show that the majority of students have positive feedback to (1) encouraging them to ‘use’ English, (2) developing cultural competence, critical thinking, (3) understanding the relationship between medicine and the society and doctor-patient communication style. The qualitative data echo the qualitative data.

Discussion and Conclusions: Both set of data show that such a course design were perceived by students and instructors to foster professional values such as reflection, problem identification and solving, collaboration, problematizing of doctor-patient relationships, cross-cultural negotiations, and the awareness of empathy. The positive evaluation suggests that relevant language enhancement can be combined with deep learning about medical professional values.

Take-home messages: The development of professional values can start in a general course like Medical English in the early stages of their program and continue into their later years.
#7GG Posters: Clinical Teaching: Evaluation and Feedback
Location: Hall 4, SECC

#7GG01 (25734)
Continuity of care: tutor consistency can increase educational value

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Background: We host half-day clinical placements for University of Glasgow third-year medical students during their 15-week transition block. We describe a series of improvements that improved student feedback and increased the placement’s educational value.

Summary of Work: Drawing upon educational theory and previous feedback we improved the educational style, governance and quality assurance arrangements for the block. Named clinical teaching fellows (CTFs) assumed responsibility for a particular student group, and were given protected time to prepare and deliver each session. We addressed topics based upon student preferences, patient availability, and the requirements of the medical school curriculum. A blended learning approach was adopted with a typical session including bedside teaching, supervised history-taking and examination practice, with subsequent classroom discussion. The format was tailored to suit the student group as their preferred learning styles emerged. Informal, verbal feedback was gathered each session, and formal written feedback obtained at the block’s conclusion.

Summary of Results: Student feedback was overwhelmingly positive. Tutor credibility and consistency was particularly appreciated. Blended learning and continuous evolution of teaching styles maintained student interest and enthusiasm during each hospital visit. CTFs gained professional satisfaction from the longitudinal relationship with their students, and enjoyed watching them develop their knowledge, skills and confidence.

Discussion and Conclusions: Consistent tutors, who are responsive to student needs, can provide an excellent educational experience. Adequate provision of time, regular feedback, and mindfulness of students’ learning styles are key to achieving this. This approach benefit students and tutors alike.

Take-home messages: Continuity of tutor-student contact, and tutor awareness of learning styles, supports positive transition into clinical practice.

#7GG02 (28042)
The Impact of a Dedicated Teaching Registrar on Medical Students Perceptions of Antenatal & Gynaecology Teaching Clinics

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Jeremy Gasson, Singleton Hospital, Swansea, UK
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Andrew Grant, Swansea University, Swansea, UK
Judy McKimm, Swansea University, Swansea, UK

Background: Clinical environments are where the core learning of medicine occurs, with real patients, interacting with the true demands of the profession. However bedside teaching is largely opportunistic, unstructured and variable (Irby & Rakestraw 1981, Smith et al 2004, Young et al 2009).

In our department students frequently attend clinics for observational purposes. They seldom have the opportunity to independently conduct consultations with direct supervision. They are infrequently given the option to clerk the patient in another room and present the case. The time dedicated to students is often sub-optimal. This results in a lack of consistency within students’ learning experiences (Young et al 2009).

In order to address this from September 2014 a teaching registrar in obstetrics and gynaecology commenced clinics directly supervising students to undertake consultations and provide guidance and feedback on their performance.

Summary of Work: All students undertaking their obstetric and gynaecology clinical placement are invited to complete questionnaires when attending specialised teaching clinics.

Summary of Results: To date 30 students have attended antenatal clinics and 20 students attended gynaecology clinics. All were satisfied with their teaching at the clinic. Only 1 student would not wish to attend this clinic again. Forty nine of the 50 students believe it is more useful than a standard clinic and 2 students felt threatened or anxious by the clinic format.

Discussion and Conclusions: Since their introduction these clinics have been well received by the students and therefore are something that should be continued.

Take-home messages: Student satisfaction with this intervention is high. This model is easily transferable to other clinical specialties.
Multidisciplinary Clinical Skills Teaching: A Comparison of senior medical student, nurse practitioner and doctor tutors in Undergraduate Clinical Skills Teaching

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Background: The aim of this study was to compare student feedback data on clinical skills from medical students being taught by a combination of senior medical students, nurse practitioners and doctors; to assess whether there is a significant disparity in student satisfaction and confidence in their practical knowledge.

Summary of Work: Two sessions were delivered to thirty-six third-year medical students at the University of Glasgow in May 2014. Clinical sessions covered the following stations: GI, CVS, Respiratory, Neurology, Peak Flow, Basic Life Support, Blood Pressure and REMS Knee. Final-year medical students, senior nurse practitioners and GMC-registered doctors delivered the sessions. Questionnaire-based data was collected covering overall rating, knowledge covered, visual material, enthusiasm, interactivity, communication and structure. Students were asked to rate the tutor on the above categories from 1-6 (6 being the best and 1 being poorest). Mean scores, SD and C.I were calculated for each session.

Summary of Results: The mean overall rating for the clinical stations ranged from 5.33 for GI to 5.69 for REMS Knee. Mean ratings for being taught by medical students was 5.64, nurse practitioners, 5.58 and Doctors, 5.72. Medical students rated their (mean) confidence at 3.47 before the session and 4.89 post-session. All scores are out of 6.

Discussion and Conclusions: Based on student feedback and after statistical analysis, there was no difference to medical students being taught clinical skills by senior medical students, nurse practitioners or doctors. Students' confidence in their skills improved, regardless.

Take-home messages: Being taught clinical skills by a combination of medical students, nurse practitioners and doctors all versed in peer-teaching; does not compromise student satisfaction.

Performance of preclinical years show significant correlation with performance during their clerkship in internal medicine rotations

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Background: Studying in clinical years requires several novel clinical skills which negatively affect students' performances. This study aimed to explore whether scores earned in preclinical years would correlate well with performance in clinical years.

Summary of Work: Grade point average (GPA) during preclinical year for a cohort of medical students in a medical school in Thailand was collected and explored for correlation with their performances during clinical years in internal medicine rotations.

Summary of Results: Pre-clinic GPA shows good correlation with total score for 4th year rotation in internal medicine (r = 0.37, p<0.001). The correlations have, however, been attenuated when compared with their performance in 5th year and 6th year (r = 0.28, p<0.001 and r = 0.17, p=0.01; respectively). Correlation of scores during 4th year showed good correlation with performance in 5th and 6th years for both total score (r= 0.63, p<0.001 and r = 0.49, p < 0.001; respectively) and scores for clinical performances (r= 0.35, p<0.001 and r = 0.20, p = 0.003; respectively)

Discussion and Conclusions: GPA from preclinical years could predict how well medical students would do during their clinical year. Nevertheless score during their clerkship might be a better predictor for their future clinical performances.

Conclusions: Despite of being a new style of learning for medical students, their performances remains predictably to be in similar directions as their performances in preclinical years.

Take-home messages: Students’ clinical performances are somewhat predictable using GPA but some other predictive factors remains to be further explored.
Effectiveness and student satisfaction of a multimodal clinical course to train male medical students about female pelvic and breast examinations

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Background: Training male students about clinical examination of female breast and perineum remains a challenge. A recent survey in Saudi Arabia (Abdulghani et al., 2008) also supported these findings. With such prevalent situation, a clinical skills course was conducted to train Year-2 (pre-clinical) medical students regarding female pelvic and breast examination on mannequins at Alfaisal University Skills Lab, aided by videos and limited clinical rotations.

Summary of Work: A quasi-experimental study was conducted, in which feedback was obtained via a self-reported survey from Year-2 students (n=71) about their experience of learning the female pelvic and breast examination after the newly structured course (“intervention”). The control group was Year-3 students (senior batch, n=51), who were trained only through clinical rotations in obstetrics/gynaecology.

The course rating (perceived satisfaction) as well as Objective Structured Clinical Examination (OSCE) scores were compared between both groups.

Summary of Results: The response rate was 59.15% and 92.15% for Year-2 and 3 respectively. Mean (±SD) OSCE scores of post-intervention group were significantly higher than pre-intervention group (83.8±8 vs 63±14.1, p<0.001). Year-2 students rated the skills lab sessions better than the hospital and video sessions. However, Year-2 students rated the course lower (statistically insignificant) than their seniors. Also, there was no significant correlation between course rating and OSCE scores in either group.

Discussion and Conclusions: Better OSCE scores of Year-2 students (post-intervention group) suggest better learning. However, relatively lower perceived rating of the course in Year-2 than Year-3 might be due to dissatisfaction with the clinical rotations.

Take-home messages: Multimodal teaching approach in clinical skills course leads to better learning.
Cognitive demands of major clinical clerkships: a call for tailored curricula change?

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Background: Clerkships are often given similar time allocation to ease student rotation. However, clerkship demands may differ and uniquely impact students. Understanding differences may help to optimize curricula design.

Summary of Work: Recruited final-year, medical students (n=138; 91%) had 318 clerkship experiences in four, nine-week clerkships (medicine, surgery, paediatrics, obstetrics & gynaecology (O&G)). Participants completed questionnaires at the beginning and end of clerkships, while purposively selected students participated in seven focus groups (n=41). Questionnaires assessed confidence in various areas of work-based learning and interviews explored demands of clerkships. Qualitative and quantitative data were analyzed thematically and using Stata v13 respectively.

Summary of Results: Students described medicine as the most demanding clerkship due to the comparatively larger volume of work; many students entered medicine with high levels of anxiety as compared to other clerkships. Three themes of clerkship demands emerged: cognitive demands, structural experiences and emotional experiences. Questionnaires were very reliable (Cronbach alpha >0.8). Students had the lowest confidence scores when entering medicine and highest entering O&G. Only during medicine and surgery were statistically significant changes in confidence observed (<0.001 and <0.01 respectively).

Discussion and Conclusions: Final year clerkships were not equal in their demands – these differences were supported by triangulation of qualitative and quantitative data. Understanding differences in the demands of clerkships could stimulate tailored curricular improvement.

Clerkships may differ in their demands and understanding these differences may support optimization of learning.

Take-home messages: Though it may be expedient for clinical clerkships to have similar aliquots of time, differences in clerkship demands may warrant increased educational or emotional support for some clerkships.
Satisfaction of the 4th-year medical students on 5-day bedside teaching system at Obstetrics and Gynecology Department

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Background: Bedside teaching is an important learning process, establishing a relationship among medical students and patients, in which critical thinking and physical examination skills, together with intensive care under supervision can be achieved. This study is proposed to evaluate satisfaction of the 4th year medical students on 5-day bedside teaching program at Obstetrics and Gynecology Department.

Summary of Work: In this cross sectional study, demographic data, attitudes was obtained from a questionnaire, satisfaction were obtained from questionnaire and self-reflection diagram. Score was ranked according from 1-5, full score was 5.

Summary of Results: Thirty-one medical students were enrolled in study. From questionnaire, overall satisfaction was well score 4.15. Student attitudes about knowledge gain were significantly increased from 1.78 to 3.95. All students were satisfied with provided case studies, teachers’ determination (4.52), and teaching style of their teachers (4.15) in terms of history taking (4.31), physical examination skills (4.36), and patients’ management and communication techniques (4.26). Furthermore, the students were satisfied with the lesson containing the medical ethics and morality topic (4.42). From self-reflection diagram, score was 4.56 compared with other department.

Discussion and Conclusions: Overall of medical students were very satisfied on 5 days bedside teaching, especially teachers’ determination that includes medical ethic and morality lesson.

Take-home messages: This teaching system is a beginning step for medical students to be good doctor in the future.

Learning effect of classmate assessment in OSCE after teaching rounds

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Background: The assessment of learning effects after teaching rounds combined with OSCE (Objective Structured Clinical Examination) method.

Summary of Work: During teaching rounds, students (interns) are allowed to interact with hospitalized patients before analyzing and discussing the encounter afterwards. The teacher prepares a clinical scenario in advance. Imitating the OSCE method, one student is selected to play the role of the examinee, while the others take on the role of examiners and grades the interaction. The student being tested self evaluates his/her own performance as well. Items to be evaluated on such as diarrhea history taking and physical examination (which is performed on a mannequin) of lower abdominal pain etc. is devised by the teacher. The teacher then asks the student with the least amount of completed items, followed by the 2nd lowest scoring student to supplement the unfinished items until all items are discussed.

Summary of Results: Students respond with interest and enthusiasm to this type of teaching method, reaching a satisfaction rate of 95%. Meeting with real hospitalized patients makes the students learning impressed. Through simulation tests, like OSCE, the interactive discussions among students will further deepen their learning impression. Scoring among classmates range from 68.2-81.8 (74.5±5) points, teacher's scoring is 50-68.2 (57.5 ± 6.4) points, and the student's own scoring is about 40.9-50 (45.5 ± 6.4) points. However, after discussions, the students' scores are re-assessed to be about 50-65 (55.5 ± 5.2) points.

Discussion and Conclusions: Students assessing their own learning is a feasible type of teaching method. Such method will have a far-reaching impact on the future of teaching, but long term observation and assessment are still needed.

Take-home messages: Imitating the OSCE method after teaching rounds, one student is selected to play the role of the examinee and assessed by other classmates is one of good interactive teaching methods.
#7GG11 (24853)
Attitude of nursing students about effective factors on clinical education

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Background: Clinical education is a mutual process. learners and instructors has same partnership. clinical education is series of instructing and learning facilitators activities in clinical environment with the aim of creation of measurable changes in learners for presenting their clinical care.

Summary of Work: This is a cross sectional analytical qualitative study in which 102 senior undergraduate students (field trainees) of nursing, were selected from an educational center in Rasht, Iran. To reach objectives of this work, a questionnaire was designed by the authors. The questionnaire consisted of two parts including demographic specifications plus questions concerning the effective factors on clinical education process which were classified into 5 groups including: characteristics of the clinical instructors, educational programming, conditions and facilities of the clinical education, learners' conditions and characteristics, evaluating system. Scientific reliability of the tool was proved using content validity and through calculation of \( \alpha - \text{Cronbach's coefficient} \) (0.827). The data were imported to SPSS (version 16) software package and then using descriptive statistical indexes (frequency, mean, and variance) and appropriate nonparametric tests (Mann–Whitney and Kruskal–Wallis) the data were analyzed.

Summary of Results: There was a significant correlation between samples major and their attitude toward the role of educational programming \((p = 0.00)\), conditions and facilities of the educational environment \((p = 0.003)\), and conditions and characteristics of the learners \((p=0.03)\) was observed

Discussion and Conclusions: Whereas clinical education process is important as a foundation of professional identity formation for learners and due to findings of this study, nursing educational programmers should do their best to reinforcement and facilitate of clinical education process via codification structural program, proper storage clinical environment and fast reflection of problems.

Take-home messages: educational programming, conditions and facilities of the educational environment and conditions and characteristics of the learners are effective factors on nursing clinical education.

#7GG12 (26173)
Previously achieved Skills and Knowledge – an introspection from year 6 students in clinical practical year at the Medical University of Vienna

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Background: Starting with the academic year 2014/15 year 6 of medical curriculum at Medical University of Vienna has changed significantly. Now the students have to complete 48 weeks of clinical practical training including three rotations and 35 work hours (in clinical setting and self-study) in hospitals. In the past few years curriculum elements have been adapted up front to prepare students appropriately. The question is whether students have been taught and gained necessary skills and knowledge to face the demands of the novel year 6.

Summary of Work: Midway through the clinical rotations students have been invited online to answer four open-end questions regarding helpful skills and knowledge from the first 5 years as well as desired skills and knowledge for today’s challenges.

Summary of Results: Students named four main curriculum elements teaching skills, which helped them in the clinical practical year (Basic Medical Skills, Medical Interview, Propaedeutics in Clerkship, and Clerkship itself) and are held in year 2+3, clerkships also in year 4). Regarding knowledge students stressed two key domains, Internal Medicine and Pharmacology, but also report that they are missing hands-on knowledge in Pharmacology (like trade names of pharmaceuticals).

Discussion and Conclusions: Students reported from an introspective point of view their experience with knowledge and skills demands during clinical practical year, given that every single student experienced rotations in more or less unique settings. The feedback gives us an idea where to focus training to provide them with proper armamentarium.

Take-home messages: Every curriculum element should reflect, analyse and if necessary highlight teaching in step with actual practice.
How do two skill teaching methods compare in terms of cost effectiveness?

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Background: Clinical educators have many competing demands for their time and skills. In this setting, Peyton’s four-step approach (4SA) to teaching clinical skills has gained favour in courses such as Advanced Life Support (ALS). However, evidence comparing the skill retention between this method and a more traditional two-step approach (eg “see one, do one”) is unclear. Additionally, the comparative time and resources required is poorly understood.

Summary of Work: In a randomised controlled trial, students were taught two skills by the two different methods. Student performances were recorded prior to, immediately following and then 6 months following the teaching sessions, and marked by blinded assessors. The time taken to teach with each method was also recorded.

Summary of Results: Preliminary results indicate that 4SA takes approximately 25% longer to teach than the traditional method. Cost of resources is computed theoretically, with 4SA correlating to increased costs. This cost varies depending on the skill. Retention data is still being gathered.

Discussion and Conclusions: 4SA requires more time and resources to teach. This is a significant consideration when providing education in under-resourced settings. Retention data will help educational organisations and curriculum designers to better understand whether this method is associated with improved student performance, and therefore better patient outcomes. Understanding skill retention is particularly relevant for health development where intensive teaching sessions are delivered without ongoing supervision of skill practice.

Take-home messages: The increased costs associated with 4SA may be justified if supported by improved skill retention. This data is still being analysed by researchers.

Clinical Practical Year: students’ actual time spent on predefined tasks – room for improvement?

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Background: At the Medical University of Vienna a clinical practical year was introduced in winter term of 2014. Students should acquire skills, knowledge and professional attitude according to the Austrian Competence Level Catalogue. Students document and self-reflect their performed predefined tasks in a logbook and portfolio.

To assure good quality of education in this unprecedented situation, all involved parties received extensive instruction.

Summary of Work: The objective of this work is to evaluate what amount of time students are effectively spending on various tasks needed to achieve the defined assignments and to identify possible lacks in the implementation.

By the means of a voluntary online questionnaire students gave feedback about their clinical work day.

Summary of Results: Preliminary results show that students have spent 61% on patient-related tasks. The majority of them performed most of the individual tasks at least “occasionally” to “very often” and others as “taking a history”, “performing a general physical examination”, “filling out the logbook/portfolio” are stated as being performed “very often”. However, the involvement with some essential tasks, such as “evaluating the result of treatment” and “discussions with the mentor” was not or only seldom present.

Discussion and Conclusions: It can be concluded that the majority of students perform the intended tasks during their clinical practice. The lack of proper involvement with essential tasks in some cases should be counteracted. Mentors play a major role in students’ goal to achieve their competencies and as such they should be properly trained to provide adequate supervision.

Take-home messages: Training of mentors is essential in supporting students to achieve their assignments.
#7GG15 (26223)
Undergraduate medical students’ perceptions about feedback: A study from a medical school
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**Background:** Feedback can have a major impact upon learner’s development and progression. Although medical students receive feedback in different forms during their academic programme, students usually perceive it as insufficient. In 2012, a revised MBChB medical curriculum was introduced at the University of Glasgow. As a result, methods and timing of feedback to students have also changed. The aim of this study was to investigate how undergraduate (MBChB1 and 2) medical students recognise, respond to and utilise feedback in the revised curriculum.

**Summary of Work:** This study was cross-sectional in design and all 480 students of MBChB1 and MBChB2 were invited to take part. The students were asked questions about their attitudes and experience with regard to receiving feedback during the course using both Likert-type questions and open-ended questions.

**Summary of Results:** More than 80% of students took part in the study. While majority of the students (62%) indicated that feedback was useful for their learning, only about 32% of them were satisfied with the quality of feedback they received. The majority of students wanted prompt, constructive and consistent feedback. Students also indicated their preference to have one-to-one and written feedback rather than feedback provided in groups or verbally.

**Discussion and Conclusions:** The majority of students were not satisfied and were confused with the quality of feedback and its lack of consistency. Current provision of feedback is not matching the expectations of students.

**Take-home messages:** To maximise the effectiveness of feedback and match students expectations, different and tailored forms of feedback should be used.

#7GG16 (28300)
Feedback based on videotaped consultations or immediately after direct observation: which is more effective?
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**Background:** Geneva medical school offers the opportunity to medical students to practice clinical skills with simulated patients during formative sessions. These sessions are given in two formats: 1) direct observation of a consultation followed by verbal feedback (direct feedback) and 2) postponed observation of the videotaped consultation by both student and tutor and verbal feedback within the same session (video-based feedback). The aim of the study was to evaluate to which extent content and process of feedback differed between both formats.

**Summary of Work:** During 2013, all 2nd and 3rd year medical students and tutors (clinical supervisors) involved in formative sessions were asked to take part into the study. A sample of audiotaped feedback sessions involving tutors who gave feedback in both formats was analysed (content and process of the feedback) using a 30 item feedback scale (Likert scale 0-5).

**Summary of Results:** 48 audiotaped feedback sessions involving 12 tutors were analysed (2 direct and 2 video-based sessions per tutor). There were significant differences in terms of content and process between both formats: the number of communication skills and clinical reasoning items addressed was higher in the video-based format (respectively 11.29 vs 7.71 p < 0.003 and 3.71 vs 2.04 p < 0.003). Tutors involved more actively students during the video-based sessions than during direct feedback sessions (self-assessment: 4.00 vs 3.17, p 0.003; active problem solving 3.92 vs 3.42, p 0.004).

**Discussion and Conclusions:** Video-based feedback seems of higher quality than direct feedback regarding the content addressed and the processes used to actively involve the students.

**Take-home messages:** Providing students opportunities to receive feedback based on videotaped encounters may be more effective than offering direct feedback during clinical practice, as occurs for example during mini CEX sessions.
Surgical trainees want feedback! Lessons learned from an audit

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**Background**: Surgical specialty training (6 years) in Finland starts with a core surgical training (CST) of 2.3 years. University of Helsinki has a CST agreement with 15 hospitals (six approved for 1-2 years, ten for whole CST).

**Summary of Work**: The quality of education of CST was audited for the first time in 2013-2014. The audit was started with a web-questionnaire. Both supervisors and trainees were inquired about tutoring, educational activities, working conditions, feedback, hospital’s three best educational activities, and the three most important areas in need of improvement. Then, a pair of professor and clinical teacher visited all hospitals, and interviewed educational supervisors and trainees separately.

**Summary of Results**: Sixteen supervisors and 107 trainees completed the questionnaire and nearly all attended the interviews. In supervisors’ opinion, 75% of trainees had a personal training plan but only 19% of trainees were aware of it. Most trainees considered the atmosphere supportive and positive to education (79%) and had easy to access courses (87%). 83% of trainees reported getting no or only irregular feedback of their performance, and 39% had no tutor. Trainees yearned improvement for feedback, tutoring, and a clear personal training plan, and gave the best ratings to positive atmosphere and easy access to courses. Certain hospitals were praised for structured rotation, or quality of educational meetings.

**Discussion and Conclusions**: Supervisors should communicate the training plans more clearly with trainees. Importantly, majority of training hospitals had a positive educational atmosphere, a fertile ground for improving practices of tutoring and feedback.

**Take-home messages**: Trainees value positive atmosphere but need regular feedback.

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Single-day ultrasound course in undergraduate medical education: a pilot study

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**Background**: There is increasing evidence that undergraduate ultrasound education is beneficial for medical students in terms of knowledge and skills. Our study aims to assess the usefulness of teaching basic ultrasound skills with a single-day course.

**Summary of Work**: The course comprised of pre-test and post-test of knowledge with multiple-choice questions (MCQ), lectures, hands-on training in small groups and an evaluation, with 72 participants from all years of study. An objective structured clinical exam (OSCE) of long-term knowledge and basic skills was performed 39 days after the course with 20 participants.

**Summary of Results**: Students scored a mean of 13.6 points out of 15 on both the pre-test and post-test. Mean score on OSCE assessment was 10.1 out of 12 with results ranging from 5 to 12 and a median of 11. On a Likert scale from 1 to 5 students expressed they are motivated to improve their skills (4.91) and confident to perform a bedside exam (4.20). We found no difference between OSCE score and year of study or self-evaluation of their confidence level to perform a bedside exam (Mann-Whitney U-test p=0.536 and p=0.711, respectively).

**Discussion and Conclusions**: Our study was limited by a small sample of participants and the absence of a control group. We were able to assess short-term knowledge with MCQ tests and long-term skills with OSCE. A single-day ultrasound course is an effective way of teaching ultrasound basics at all levels of undergraduate study.

**Take-home messages**: A single-day ultrasound course offers a first-step towards an integrated undergraduate ultrasound curriculum.
#7GG19 (27912)
Listen to your stakeholders: Medical Students’ Reflections in Paediatric Rotation

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Background: The major goal of paediatric clerking is to provide requisite knowledge and skill to Medical students (MS) from Nottingham medical school who spent ten weeks at King’s Mill Hospital (KMH) in Paediatrics in CP2.

Summary of Work: We performed a qualitative study and analysed questionnaires filled by the MS at the end of each rotation from July 2011 till Nov 2014. The MS were asked to answer questions related to the quality of teaching from consultants, Registrars, junior doctors, outpatient clinics, inpatient ward, paediatric surgery, paediatric therapeutic, community. The MS responded to each question using a 7-point Likert Scale.

Summary of Results: Total 114 MS (91%) returned the questionnaire at the end of each rotation. Consultant teaching was graded as excellent by most of the MS (90%) followed by junior doctors (80%). Teaching for paediatric therapeutic was graded very high. Some MS (30%) suggested spending more time in outpatient. Most of the MS (60%) complained about lack of engagement from the Registrar/F1/F2 while on call at surgery rotation at QMC. The facilities at hostels were found to need improvement.

Discussion and Conclusions: The department had made major changes in the organisation of clinical clerking after reviewing the feedback from the MS. The two-week induction in the beginning of rotation was revamped with involvement of multidisciplinary professional covering core topics. Dedicated sessions were arranged each week for teaching clinical skill and clinical reasoning skill with case-based MCQ. We are analyzing the data taken from the software ROGO for the same cohort of MS for psychometric testing.

Take-home Messages: Clinical teachers should have more protected time to provide adequate teaching in all aspects of paediatrics during short duration of clerkship in Paediatrics during CP2.

#7GG20 (27052)
Perfect Bedfellows: Why Assessment Should Join Teaching at the Bedside

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Background: A variety of teaching methods are employed during medical students’ clinical placements. These include ward-round and dedicated bedside teaching and a mix of small and large group teaching sessions. In addition, many universities now require students to complete work-based assessments (WBAs).

Summary of Work: We surveyed a group of 50 3rd and 4th year medical students on their preferred format and style of teaching session while on clinical placement.

Summary of Results: The majority of students stated a preference for dedicated bedside teaching. Sessions including the opportunity to complete WBAs were also popular. Lecture-based sessions were the least popular.

Discussion and Conclusions: Students prefer teaching sessions where their clinical skills can be directly observed and formally assessed. This prompts the question as to whether teaching on clinical placements should be adapted to better support an assessment-driven model of learning. Bedside teaching, delivered by tutors trained in assessment, would provide students with the opportunity to receive valuable feedback on their clinical ability and can also be used as the basis for completion of WBAs.

Take-home Messages: It is important to employ a variety of teaching methods during clinical placements, and adapt teaching styles to meet the evolving undergraduate curriculum. Increased provision of bedside teaching, twinned with the completion of WBAs, supports a culture of assessment-driven learning while also satisfying the preferences of the student population.
How Do Clinical Competency Committees Make Decisions About Internal Medicine Residents’ Achievement of the Milestones? A pilot study using a grounded theory approach

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Background: Clinical competency committees (CCCs) are required to rate residents’ achievement of the milestones biannually. CCC faculty may not be well versed in compiling large amounts of assessment data (obtained over the course of various learning experiences and created by a variety of faculty and peer raters) in order to make determinations as to a given resident’s competence. How do these CCCs make decisions about residents’ achievement of the milestones?

Summary of Work: All 16 CCC members (except this author) were invited to participate in the study. Using Schon’s reflective practice as a conceptual framework, they completed a questionnaire about their experience providing milestones ratings during the first reporting period to the ACGME. Using constant comparative analysis, the data was coded to identify themes until thematic saturation was reached. An outside expert reviewed the coding procedure. Member checking was performed.

Summary of Results: 7 of the 16 invited CCC members chose to participate. 9 themes were identified resulting in the first draft of a conceptual framework in response to the study question. The ability to generate milestones ratings for residents involves the following factors: 1) faculty comments 2) knowledge of the milestones and assessment methods; 2) the “hidden curriculum” e.g. “hearsay” from other colleagues and 3) contextual influences e.g. ACGME expectations, workload etc.

Discussion and Conclusions: Our CCC unanimously agreed on the usefulness of comments provided by faculty on end-of-rotation assessments and the “hidden curriculum” as opposed to numerical ratings.

Take-home messages: This study underscores the importance of understanding the culture of CCC committees prior to engaging in faculty development.

Swedish internship ranking as a consistent indicator of quality

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Background: The Swedish junior doctors association (SYLF) performs an annual ranking of the Swedish hospitals providing internships. The ranking is widely used as an indicator of quality of internships. The ranking is based on the junior doctors own comprehensive grade of their internship. SYLF has performed an in depth analysis of the 2014 internship ranking to identify which factors effect the grade.

Summary of Work: The internship ranking is based on a web-based questionnaire sent to all un-licenced or recently licenced members of SYLF. 1717 junior doctors responded in 2014 giving a response rate of 71%. Using regression analysis the association between the comprehensive grade and other factors such as the grades of individual clinical placements was analysed.

Summary of Results: Our analysis shows that the grades of the individual clinical placements and grading of the ability to influence the work environment explain 75% of the comprehensive grade. When including introduction, education, supervision and collegial support 85% of the comprehensive grade is explained.

Discussion and Conclusions: This analysis shows that the comprehensive grade given by the junior doctors is based on factors that are relevant to the internship and can be improved by the hospital rather than factors outside of the reach of the hospital. The ability to affect the work environment is together with the quality of the individual clinical placements most important for the overall perceived quality of the internship and therefore most important to improve.

Take-home messages: Junior doctors are consistent when grading their internships and the ability to affect the work environment is crucial to the perceived quality.
Using reflective narrative as a strategy for curriculum reform and faculty development in emergency medicine training

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Background: Reflection is a cognitive process to help emergency medicine (EM) trainees identify what is meaningful in their learning process. We aim to analyse the reflective narrative of postgraduate year-one (PGY1) residents and undergraduates to explore and compare their learning gap.

Summary of Work: Reflective narratives for the EM curriculum are required at the end of trainees’ EM rotation. PGY1 residents and undergraduates are required to reflect the disparity between learning outcome and expectation. They must also record what they consider to be the essential content as well as which assessment tool is helpful for their EM training.

Summary of Results: For the expectation survey, 22.7% of the undergraduates and 9.7% of PGY1 residents did not achieve their learning goal. Undergraduates complained about performing too many basic procedural skills, inadequate approaches to treating new patients and inadequate provision of teaching time. PGY1 residents suggested that the program could be enhanced by introducing a better teaching model with improved content and offering students more opportunities to develop their advanced procedural skills. Trainees in both levels considered competence of emergency care, pattern recognition and clinical reasoning to be the essential core contents. Moreover, PGY1 addressed communication skill while undergraduates emphasized procedural skill practice in managing emergency patients. PGY1 preferred Mini-CEX while undergraduates preferred the e-portfolio as an assessment tool.

Discussion and Conclusions: Analysis of the reflective narratives of junior EM trainees in rotation is helpful for understanding their learning gap and can help facilitate strategy making for curriculum reform and faculty development.

Take-home messages: Reflection analysis could be considered an effective tool in EM education.

No expertise without experience; how many acute medical cases should a year one trainee doctor clerk?

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Background: Previous work suggests that UK Foundation trainee doctors cite lack of experience in acute admissions as a key concern in the structure of their training. There exists little quantitative data regarding this key area of inpatient medical training.

Summary of Work: We present a retrospective analysis of 4 years of data comprising every medical admission by Foundation Year One Doctors (FY1s) at one District General Hospital. Data was collated using the eWhiteboard electronic admissions system.

Summary of Results: 131 FY1s admitted 8373 patients, out of a department total of 45279, (18.9%). FY1s undertook either one or two four month medical placements, admitting an annual mean of 63.9 patients. The most prolific saw 150 and the least prolific 16. Thirty six trainees (27%) admitted fewer than 40 medical patients in a year.

Discussion and Conclusions: Our data suggest that experience of medical admissions is very variable, with the least experienced trainees completing few admissions. The Foundation Programme has no mandatory minimum number of admissions in medicine or other specialties, and there is no requirement for trainees to log their experience of acute admissions. Whilst working patterns differ across the country, our analysis, in many cases, bears out concerns that FY1 training in acute admissions is limited. We hope it will inform discussion and planning of future training structures.

Take-home messages: Acute admission numbers were highly variable between different FY1s in our hospital. One quarter of trainees completed fewer than 40 acute medical admissions in their first year of postgraduate training.
Old school vs new school: do graduate medical trainees really benefit from the change?

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Background: A new ACGME-styled residency training system was introduced in 2011 to phase out the traditional medical specialist training modelled after the UK system to address the problems of poor training structure, insufficient trainee supervision and protected training time.

Summary of Work: A survey was conducted to compare the perception of the trainees of their respective systems in relation to their educational experience. A 6-part questionnaire (5-point Likert scale) on program experience, faculty quality, evaluation and feedback, training environment / resources, and personal well-being was sent to 20 Advanced Specialist Trainees (ASTs) under the traditional system and 20 Senior Residents (SRs) under the new system.

Summary of Results: More SRs (65% vs 44%) felt that they had a positive educational experience. The majority of SRs (90% vs 78%) also felt that they received effective training and close supervision, in a conducive environment. Despite having more protected time, only 35% of SRs agreed that they had sufficient time for research (vs 15% ASTs). Only half of the ASTs (vs 88% SRs) were satisfied with the performance evaluation and feedback methods. Despite measures to enhance resident well-being, similar rates of burnout (50% SRs vs 55% ASTs) and poor work-life balance were reported.

Discussion and Conclusions: The general satisfaction of trainees in the new system may have risen but there remains room for improvement in areas of personal wellness and research activities.

Take-home messages: A new training system may have addressed the need for more effective training but a holistic approach will optimise the overall program experience.

Implementation and results of internal educational audits of Post Graduate Medical Education (PGME)

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Background: Complying with external regulations in the Netherlands we implemented educational audits by peers as part of a comprehensive institutional program for quality improvement (QI) and quality assurance (QA). Audits occur under the governance of the institutional Central Council for PGME.

Summary of Work: To date, 22/37 programs participated. Satisfaction with the procedure was evaluated with an electronic survey among 104 participating program directors and residents. Using a qualitative approach, 22 audit reports were analysed concerning issues quoted as calling for improvement. Data were grouped and coded into categories and subcategories based on applicable directives.

Summary of Results: Respondents (40%) rated their overall satisfaction with the procedure 8 (range: 6-9) / 10 points. Responses indicate a safe atmosphere during the audit conversation, perceived as an opportunity to learn from peers. Qualitative analysis of audit reports (n=22) revealed 12 categories with overall 41 subcategories of separate improvement issues. Most frequently named were: participation in courses covering general competencies (10/22), structuring and enhancing meaningful feedback (9/22), transfer of expertise from consultants to residents (i.e. during morning reports) (5/22), documenting and accomplishing intended improvements (8/22).

Discussion and Conclusions: Internal educational audits created a suitable setting to identify needs for improvement of individual programs. Analysis of all audit reports show common issues potentially calling for generic support on the institutional level.

Take-home messages: Internal educational audits encourage continuous evaluation and renewal of individual residency programs, simultaneously identifying issues suitable for shared approach.
Clinical Audit as an educational tool in Dental Foundation Training works best if you teach in the ‘Goldilocks Zone’ – findings from a qualitative evaluation study using focus groups

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**Background:** This study reports on an evaluation of Clinical Audit pedagogy and service delivery outcomes in a Dental Foundation Training (DFT) programme. Although previous studies have evaluated the service delivery elements of audit, few have examined its use as an educational tool in Foundation Training. The aim was to evaluate the Clinical Audit module in a DFT scheme, from the perspective of Foundation Dentists (FDs), to find out what they think about Clinical Audit, how their learning affects their clinical practice, and any suggestions for improving the Clinical Audit teaching.

**Summary of Work:** A qualitative research methodology was used. Digital audio recordings of semi-structured Focus Group interviews with two groups of Foundation Dentists (FDs), to find out what they think about Clinical Audit, how their learning affects their clinical practice, and any suggestions for improving the Clinical Audit teaching.

**Data Analysis Software:**

**Summary of Results:** FDs report considerable learning and behaviour change. However, TPDs have doubts about the long term effects on service delivery. There can be substantial learning in the Clinical, Managerial, Communication and Professionalism domains and development of time management, organisational and team-working skills. Information is provided about use of resources and interaction with teachers and colleagues.

**Discussion and Conclusions:** Clinical Audit provides learning opportunities not produced by other educational activities which include “difficult conversations” with team-members in the context of change management and providing feedback.

**Take-home messages:** Suggestions for improvements to resources and teaching support include working in the “Goldilocks zone” of optimal trainer intervention, “not too hot or cold, but just right” within the learner’s zone of proximal development.

Will short break cause delay for off-duty or improve work and learning efficiencies? Four years experiences in the Southern Taiwan leading/largest medical center

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**Background:** Fatigue is the major cause for resident doctor involving in medical lawsuits. PGY students shall have a short break after duty. However, most student worry this system might delay off-duty time, thus distorted the original good purposes.

**Summary of Work:** During 8/1/2013 till 7/31/2014,159 PGY graduated who participated and enrolled this system, anonymously handout a consensus forms during the first and last weeks. Analyses and compare the discrepancies between for future improvement. Effective consensus forms were 58 which covered the previous and current forms [(reliability) Cornbach α 0.73,(validity) 0.9].

**Summary of Results:**
1. A short break after on-duty can significant reduce degree of fatigue (p: 0.03).
2. We strongly suggest that hospital shall apply this system. (previous vs current results in participated student were 30:32, respectively).
3. Our results showed that a longer delay (p: 0.105) in short break to general subjects and other major specialties (p < 0.001).
4. The possible explanation was that the medical center were under review, staffs share extra preparations, loading.

**Discussion and Conclusions:**
1. Student tended to finish the works sooner to avoid delay off-duty is the most important factor. (previous vs current results in participated student were 30:32, respectively).
2. The teaching activity shall arrange proper resting time, because most of the activities are conducted before noon that it might interfere with student off-duty. (previous vs current results in participated students were increased from 18 to 30).
3. To avoid the interference, we believe that the rest scheme will provide the positive learning efficiency to reach the goal of early off-duty.

**Take-home messages:** Worry delay off-duty time is human natural. Therefore, to arrange the course properly, avoid shifting courses without earlier notices, assist student suitable learning planning schedule. Ultimately let the student find the balance between physical conditions and learning efficiency is our biggest goal.
Mazes of Clinical Supervision

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Background: Clinical supervision has vital role in residency training programmes. Clinical supervision has been least investigated in medicine. There is limited evidence on supervision practices, models based on theoretical perspective with dearth of resident’s perspectives. Few multispecialty reviews exists in literature, no study was found regarding nature and adequacy of residents’ clinical supervision. Study explored ‘what are the needs of residents’ regarding clinical supervisor’s roles at Aga Khan University (AKU), Pakistan aligned to literature’, proposing model for clinical supervision based on Bandura’s Social-Cognitive Learning Theory.

Summary of Work: Mixed method approach (quantitative cross section survey, qualitative content analysis of focus group discussions) using sequential explanatory strategy was used allowing the results from both sets of data to be converged to draw inferences. All the residents at AKU were surveyed. Descriptive analysis of the quantitative part and thematic coding of the qualitative part was done. Exploratory factory analysis was done to identify underlying constructs

Summary of Results: Overall response rate N=329/456 (72.1%). Residents rated the roles of the clinical supervisor very highly (Mean = 4.43-5.85, SD = 1.21-1.86). Two component factors were yielded by exploratory factor analysis: specialist skills and role modeling skills. These findings were supported by residents in the focus group discussion.

Discussion and Conclusions: The relevance of clinical supervision to the residents’ needs and literature in defining the roles of the clinical supervisor was supported by the findings. The expected roles of a supervisor from the resident’s perspective and aligned to literature led to the development of the Socio-Cognitive and Skill Based Model of clinical supervision.

Take-home messages: The role of Clinical Supervisor is important in resident training. It’s relevance to their needs, supported by literature defines function, process and attributes of a clinical supervisor.

Junior doctors in difficulty: evaluating support services for newly-qualified doctors

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Background: Making the transition from medical student to Foundation year one doctors (FY1) can be challenging, but there are many sources of support available. Our aim was to evaluate the need, access, and quality of support services offered to FYIs in the West Midlands.

Summary of Work: A SurveyMonkey questionnaire was emailed to the 648 FY1 doctors in the West Midlands deanery January 2015.

Summary of Results: A response rate of 16% (n=103) was achieved. 65% of FYIs reported wanting formal support at least once, with 19% having accessed foundation/trust support services (mostly clinical/educational supervisor). FYIs primarily turned to family (80%), friends before qualification (65%), and their partners (60%) for their support needs. Of those who accessed formal support, >80% “strongly agreed/agreed” that they were satisfied with the support provided. The largest barriers to seeking support were time constraints (66%), feeling the problem was not significant enough (38%), and feeling uncomfortable asking for help (38%).

Discussion and Conclusions: Many FYIs report wanting support but not obtaining it. Barriers to support demonstrate hesitation at seeking help alongside time constraints. Furthermore FYIs primarily turned to informal sources for the majority of their support needs. When FYIs did access support they were satisfied with the service. Support services are crucial in helping FYIs through one of the most turbulent transition phases in their career. We should work to minimize barriers to make support services more accessible.

Take-home messages: We must encourage FYIs to seek support when needed and work to minimize barriers to access.
#7HH11 (27648)
Defining resident remediation: walking a fine line between informal "coaching" and a process with potentially serious consequences

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Background: Studies of trainees within various medical specialties estimate that between 6-10% will be categorized as a “problem resident,” or “resident in difficulty” at some point during their training. These terms stem from the identification of deficiencies within the realms of medical knowledge, patient care or professionalism, and are typically reported by supervising faculty and staff via evaluations and verbal complaints. An important question that arises in attempting to correct deficiencies is when informal feedback or “coaching” crosses the line into a formal process.

Summary of Work: Although numerous reviews and case reports on this topic exist, there is no standardization with regard to terminology used to describe this process, the steps taken to correct deficiencies, and the point at which the informal/formal threshold is crossed. We propose a standardized, multi-step protocol for trainee remediation.

Summary of Results: Remediation is an intermediate step between “coaching” and probation, which precedes termination.

Discussion and Conclusions: Essential to this protocol is a clear definition of remediation; we propose that remediation be instituted when three separate informal “coaching” sessions to address a deficiency fail. Remediation is a formal, official process that is documented in the resident’s permanent file, although the trainee will not need to answer affirmatively to questions on credentialing and licensing documents regarding disciplinary action.

Take-home messages: The cornerstones of this protocol are: extensive written documentation for remediated residents, immediate feedback, trainee due process, close follow-up, and utilization of appropriate institutional resources (e.g. legal counsel, behavioral health specialists) to generate the best possible outcome for all involved parties.

#7HH12 (28312)
Quality of Health and Stress in Mexican residents

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Background: Physician stress has possible negative impact on physical and psychological health. It is a priority to identify stressful events for residents and better support their specific needs.

Summary of Work: Ethics Committee of 2 public hospitals approved this survey, 70 subjects signed informed consent and answered Vital Events & Stress Rating (RVES) that adds up all the events in the last twelve months and the General Health Questionnaire (GHQ-28) and on Exposure of violence questionnaire.

Summary of Results: 33 women and 37 men, 28 years old, answered RVES; 40 (57.1%) had minimal stress; 5 (7.1%) severe stress; mild 13 (18.6%) and moderate 12 (17.1%). Stressful vital events most frequently were: work more than 12 hours (n = 42, 60%), aspire to great personal achievement (n = 32, 46%) working rotating schedules (n = 28, 40%) and have sleep disorders (n = 32, 28%). Physician in the second grade, had had higher health problems 18.75 (SD ± 19.63) and lower residents with 9.5 (SD ± 12.14) for the last academic year. The women expressed greater stressors than men and if there was a history of abuse was most affected their health.

Discussion and Conclusions: The greatest stress is presented in the second academic year. History of abuse and being female was associated with higher stress. Also, work more than twelve hours a day, aspire to great personal achievement, rotating shifts and suffer sleep disorders.

Take-home messages: It is required by academic administrators consider these results to improve the opportunity for greater quality of life of physicians, in addition to considering institutional programs with spaces for personal or group therapy during residency.
What are the current patterns and practices in educational supervision in postgraduate medical education in England?

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Background: Educational supervision plays a key role in postgraduate medical education in the UK. However, it remains an under researched aspect of clinical teaching, from the point of view of trainees and supervisors. This highlights the clear need for a detailed study of the patterns and practices in educational supervision in order to inform developments in supervisory practice.

Summary of Work: This mixed methods study aims to gain a detailed understanding into the key aspects of educational supervision. Educational supervisors and trainees, working within a large London Trust were surveyed online about their experiences of educational supervision. In addition, observations of supervision sessions with a small group of supervisor and trainee pairs followed-up by semi-structured interviews were conducted.

Summary of Results: Data revealed some clear patterns in what is working well in educational supervision, and what needs changing so that trainees can benefit more from this supervisory process.

Discussion and Conclusions: Whilst most junior doctor and supervisors value the ideal of educational supervision as a process for engaging in mentoring dialogues; it can become a tick box exercise, devaluing its usefulness and purpose.

Take-home messages: Educational supervision is intended to provide a framework for meaningful discussions about the overall educational development between junior doctors and their seniors. The number of mandatory tasks required of both the junior doctors and supervisors when meeting can detract from this educational aim.

The SPRINT programme - structured programme of induction and training for novice endoscopists

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Background: Certification in upper GI endoscopy (UGIE) requires 200 completed procedures (e-portfolio plus 10 DOPS assessments) and mandatory course attendance. Trainee surveys indicate problems performing requisite case numbers, difficulty accessing courses and lack of lesion recognition training (LRT).

Summary of Work: We designed a fast-track programme for early endoscopic skills development - SPRINT programme (supported induction, simulator training, LRT, hands-on training) and report on the pilot phase evaluating feasibility and training outcomes [recorded e-portfolio data, learning diaries, semi-structured interviews, evaluation scales]. Milestones were compared with an historical control (HC) group.

Summary of Results: All medical and surgical trainees in Wales deanery requiring UGIE training agreed to participate. SPRINT group achieved faster progression to 50 [mean 10 weeks (range 7.5-13.5) and 100 cases [mean 20 weeks (range 14.5-29.5)] compared with HC group - 50 cases: 22.5 weeks (15.3-29.3) [p=0.002 for difference, Chi-squared test], 100 cases: 45 weeks (26.5-48) [p=0.002]. Mean Likert evaluation scores (0-10) were simulation 7.8, face-to-face LR 9.4, online LR 9.2 and ENTS 8.8. Qualitative data highlighted peer support and high level of trainer feedback as important benefits and identified key stages in cognitive framework evolution.

Discussion and Conclusions: Learning curves for SPRINT trainees were shortened. Sign off at 9 months is achievable [historical cohort 14 months (10-18)]. Simulators are most valuable in early training. LRT was highly valued if linked to structured feedback. Novices valued peer support highly; learner isolation and training fragmentation were counteracted by SPRINT. Key stages in cognitive framework evolution were identified providing insights to inform further programme adaptations.

Take-home messages: Programmed training for novices learning UGI endoscopy on a national basis can effectively shorten time to certification, is achievable within current faculty constraints and offers promise for increasing longer term service delivery.
Clinical Learning during Night Call versus Day Work: Perceptions of Interns

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Background: Clinical learning during night call has been shown to be less efficient and effective than during the day among residents. Strategies are needed to address the gap between night-time and day-time learning. We conducted a survey study to examine perceptions of night compared with daytime learning among Internal Medicine interns, and asked for suggestions to address this gap.

Summary of Work: This is a cross-sectional survey study conducted on a single class of 47 interns from Singapore General Hospital in December 2013. Interns anonymously completed a modified previously published 25-item survey. Twenty-three items asked for ratings of learning during the day vs the night using a 5-point Likert scale. The remaining two open-ended questions invited respondents to suggest improvements for teaching and learning. Analysis was done by descriptive statistics for the Likert-scale items; and thematic coding by two coders for narrative responses.

Summary of Results: Response rate was 70% (33/47). Interns rated learning during the day more positively than during night call for 23 of 23 (100%) items, with 22 out of 23 items showing significant difference. Among the 33 respondents, 20 provided narrative responses. Three major themes emerged: increasing manpower, allowing patient follow-up after night call, and more time on bedside teaching in the daytime.

Discussion and Conclusions: Our study confirms that learning during night call is perceived as less effective than during the day. We further extended this finding to offer alternate strategies to enhance clinical learning among interns.

Take-home messages: Enhance clinical learning experience during night call.

Illuminating the Nightshift: Quality Management Out-of-Hours

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Background: Health Education East Midlands (HEEM) has been enhancing its approach to the quality management of education and training. Its quality management visits are now multi-professional in nature, assessing the quality of postgraduate medical education provision as well as the other healthcare professional placements it funds (for example, nursing and midwifery). The visit teams now also visit clinical areas. Annual visits to local education providers (LEPs), as well as other targeted visits have traditionally taken place during weekday, daytime hours. However, the feedback obtained from these visits, as well as local and national survey data, often point to concerns relating to out-of-hours working, including the range of training opportunities, supervision and patient safety.

Summary of Work: HEEM has embarked on a series of night visits to LEPs. To date, this has involved visits to hospitals, sometimes ’unannounced’, where the team observes the evening handover and then spends time in specific departments or with the hospital at night team. Activities include observation, speaking to doctors and other healthcare professionals and shadowing individuals.

Summary of Results: The visits have enabled the visit team to highlight specific problems and their causes and to help LEPs with detailed action planning. A number of case studies demonstrate improvements occurring as a result of the visits.

Discussion and Conclusions: The visits have helped to both confirm and, more interestingly, challenge what learners have reported during daytime visits and via surveys.

Take-home messages: Night visits allow issues related to out-of-hours working to be explored. Resulting improvements demonstrate their value. Extending visits to weekend periods in being considered.
#7HH17 (25292)
Residents' perception of sleep and education with new standards of duty hours

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Background: Background – Long hours of work and lack of sleep is common during residency. The Accreditation Council for Graduate Medical Education (ACGME) further restricted resident’s duty hours in 2011.

Summary of Work: Objective – This study evaluates residents’ perception of sleep and education with new standards of duty hours.

Material and Methods – We surveyed our residents for their sleepiness and educational experience before (2011) and after implementation of new standards in 2013. We used Epworth Sleepiness Scale (ESS) to compare residents’ sleepiness.

Summary of Results: 50/93 (54%) medical residents responded to our survey in 2013. Average Epworth sleepiness score was 10.34 in 2013 compared to 9.51 in 2011. Average ESS for PGY1 was 11.8 compared to 9.96 in 2011. Majority (84%) of residents showed satisfaction with their education. 94% residents showed readiness for next level of responsibility.

Discussion – Average ESS score 10 or above is associated with sleepiness. Increase in average ESS score from 9.51 to 10.4 shows that our residents are sleepier with restricted duty hours. Call day was changed to shift of 12-16 hours for PGY1 after implementation of new standards. The average ESS score for PGY1 increased from 9.96 to 11.8. Increased sleepiness with restricted duty hours could be related to other factors like personal, social or family activity.

Discussion and Conclusions: Our study shows that new standards of duty hours do not improve residents’ sleepiness. New standards have no negative effect on residents’ education.

Take-home messages: shift work does not improve residents sleepiness.

#7HH18 (23346)
Older doctors and progression through specialty training in the UK: a cohort analysis of General Medical Council data

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Background: More mature medical students are entering university to become doctors and while there is some data to suggest they do better than their younger peers during study, very little is known about how they fare as junior doctors.

Summary of Work: This population study reviewed the outcomes for 38,308 doctors’ annual progression assessments (ARCP/RITA) over a 3 year period from 2009 to 2012 and determines if age (and other potential confounding variables) are a factor in the likelihood of progression.

Summary of Results: Mature junior doctors (≥ 29 years at graduation) were more likely to have problems with progression on their ARCP/RITA than their younger colleagues (Odds ratio 1.34, 95% CI 1.22, 1.49, p<0.001). This association was, if anything, even stronger (Odds ratio 1.57, 95% CI 1.41, 1.74, p<0.001) after adjustment for gender, ethnicity, type of University and specialty. The same was true when only looking at the most extreme ARCP outcome (4) which is being asked to leave their specialist programme (Odds ratio 1.81, 95% CI 1.34, 2.44, p<0.001).

Discussion and Conclusions: Mature doctors are a growing part of the medical workforce and they are likely to broaden the spectrum of doctors by bringing different life experience to the profession. These results suggest that they are more likely to have problems with progressing through their specialist training programme.

Take-home messages: This important study highlights that mature junior doctors have problems with progression through their specialist training programme compared to their younger counterparts. This needs to be acknowledged by the postgraduate education and training organisations and further research is required to determine the reasons behind these associations and how mature doctors can be supported both in choosing the best training programme and in coping with the complex demands of higher training at a later stage in their lives.
Session 8: Simultaneous Sessions
Tuesday 8 September 2015: 1400-1530

#8A Symposium: Generalism in Medical Education
Location: Clyde Auditorium

Rachel H Ellaway*, Northern Ontario School of Medicine, Canada
Lisa Graves*, University of Toronto, Canada
Charlotte Ringsted*, University of Aarhus, Denmark
Cynthia Whitehead*, University of Toronto, Canada
Joanna Bates*, University of British Columbia, Canada

Generalism is a comprehensive approach that can span multiple disciplinary perspectives to be able to work with problems that are diverse, undifferentiated and complex. We teach generalism as an approach to practice and we graduate generalists who can go on to any specialty. However, principles of generalism have not necessarily translated to the scholarship of medical education and arguably this has limited its ability to address the major issues in medical education, many of which would seem to require a generalist approach. This symposium will explore the principles of generalism in medical education scholarship, its presence in existing perspectives such as systems and realist inquiry, and what rigorous generalist scholarship can and should look like in medical education. By engaging in this debate participants will gain an appreciation of the issues in generalist scholarship in medical education and be invited to help shape this emerging approach to enquiry.
Group interaction in problem-based learning tutorials: a systematic review

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Background: This review aimed at identifying studies on group interaction in problem-based learning (PBL) and elucidate methods used, factors affecting group interaction and the relationship between interaction and student's learning.

Summary of Work: PubMed, EMBASE, PsycINFO and HighWire were searched (January 1999 to June 2013) using a combination of pre-specified search terms. The search words were also used in searching nine journals in dental and medical education. Also edited research books on PBL were searched. Both qualitative and descriptive studies of group interaction were selected and critically appraised.

Summary of Results: Finally, 42 of 10,606 papers were included (35 journal articles and seven from research books). The materials used in assessing group interaction varied depending on the methodology design. Forty-three percent of the studies used video recording to evaluate group interaction. Other studies used indirect approaches such as focus groups, interviews and questionnaires. Factors affecting group interactions were students' and tutors' perceptions, tutor's subject-matter expertise, training students, tutor's group dynamics. There was no conclusive evidence about the impact of interaction in PBL on learning. Most studies were from medicine (64%), and 35 papers were published in the last 10 years. The majority of studies were conducted in Europe, North America and Asia.

Discussion and Conclusions: Although there is a progressive increase in publications on PBL group interaction during the last 10 years, there are knowledge gaps and deficiencies in this area and most studies are lacking solid theoretical basis and are descriptive.

Take-home messages: There is a deficiency in the literature in this area from dentistry and other allied health disciplines.
Supporting self-assessment in Problem Based Learning: a validation of an Active Learning and Critical Thinking Scale

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Background: There have been a number of 'signs of erosion' in the way students experience the original PBL process, negatively impacting learning processes, and outcomes. One potential solution is to encourage self-assessment in the tutorials. There are few appropriate measures. We developed a Self-assessment Scale for Active Learning and Critical Thinking (SSACT) to address this gap and wished to explore its reliability and validity.

Summary of Work: In a mixed methods approach, we developed items from a qualitative study, a literature review, and consideration of previously existing tools. An initial pool of items was subsequently reduced by a process of validation. We used structural equation modelling to undertake a confirmatory factor analysis of the SSACT and Cronbach's alpha to investigate the reliability.

Summary of Results: The 14 item SSACT scale has two sub scales; ‘active learning’ and ‘critical thinking.’ The factorial validity of the SSACT was evidenced by all items loading significantly on their expected factors, a good model fit for the data, and good stability across two independent samples. Each sub scale had good internal reliability (>0.8), with a strong relationship between active learning and critical thinking.

Discussion and Conclusions: During the group presentation contest, students demonstrate what they have learned in the PBL classes. Group presentations encourage cooperation among students and provide a chance for students to learn from other groups.

Take-home messages: Medical students are creative and thoughtful. Group presentation contests arouse students’ interests and enhance their learning.
#8C5 (27235)
Ethics integration into an existing PBL curriculum: Impossible or Possible?

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**Background:** Integration of ethics into a science based medical curriculum is complex and demanding. Whilst given credit for its importance for clinical decision making, in reality ethics is often considered the very “junior” partner. The complexity of ethics, links to medical legal considerations, and the intention for true integration are critical features. Engagement with students and making ethics challenging, relevant and real is demanding to curriculum designers and academic tutors and lecturers.

**Summary of Work:** Since 2012 and through action based research, a previous separate ethics module has been re designed and integrated in second year. This task has necessitated the move towards an integrated set of topics with an already existing PBL based course model. Key tasks included the need to maintain the integrity/depth of previous ethical topics and learning objectives, the appropriate group learning methods and the link to main medical legal topics.

**Summary of Results:** Initial survey and focus group results suggest that the integration is a “work in progress”. Students report that readings are too long and too complex. That there is a perceived need for greater clarity between the everyday PBL cases and the ethical theory presented. Generic medical tutors have stressed need for further ethical training and development.

**Discussion and Conclusions:** True integration into an existing PBL based medical curriculum is challenging and complex. It has required clear communication between various disciplines and the ability to work towards a common purpose. Agreement on key ethics curriculum topics and the need for training of PBL based tutors has been on going requirement.

**Take-home messages:** Ethics integration requires:
1) Clarity of communication/expectations between key designers and academic tutors
2) Need for strong relevance of ethics topics within the selected PBL cases
3) Development of seminars to complement student and tutor understanding and development.

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#8C6 (28237)
Integrating pathology into a problem based learning curriculum

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**Background:** Problem based learning (PBL) has been introduced into many medical schools over the past twenty years. ‘Old school’ medical practitioners imply that current medical students do not have a sufficiently rigorous grounding in basic clinical sciences such as anatomy or pathology.

**Summary of Work:** Pathology teaching at the University of Notre Dame School of Medicine, Fremantle is integrated across all four years. Normal processes and their failure, explored in first year, result in pathological changes that are studied in second year in a systems approach. Regular clinicopathological conferences are held in addition to macro pathological specimens and histopathology. Students attend coronial autopsies in the clinical years. Twelve pathologists with differing specialities contribute to the pre-clinical teaching.

**Summary of Results:** Pathology pass rates and graduate pathways have been analysed for the ten years since the School’s inception. A significant proportion of graduates have/are undertaking specialist training in pathology on completing their internship.

**Discussion and Conclusions:** Pathology is a vital component of a medical course. It can be highly motivating when integrated and clinically relevant in pre-clinical years with follow-up in the clinical years.

**Take-home messages:** Students can be motivated to the study of pathology as part of a PBL curriculum.
getting the right answer during a Twenty Questions examination.

Discussion and Conclusions:

Performance on the Twenty Questions game at medical school entrance predicts clinical performance near graduation.

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Introduction: This study is based on the premise that the Twenty Questions game tests the knowledge people acquire through their everyday lives and how well they organize and store that knowledge so that they can effectively retrieve, combine, and use it to address subsequent environmental challenges. As such it may be a useful indicator of how effectively medical student applicants will organize and store knowledge they acquire during medical training to support the work that they will do as doctors. The goal of this study was to determine whether Twenty Questions game performance at entrance into medical school predicts performance on a standardized patient based clinical performance examination near graduation.

Methods: This prospective, longitudinal, observational study involved all students in one medical school class playing a game of Twenty Questions on a non-medical topic during the first week of medical school. Near graduation these students completed a 14 case standardized patient based clinical performance examination. Performance on the twenty questions task at entry into medical school was compared to performance on the standardized patient examination.

Results: The 24 students who exhibited a logical approach to the Twenty Questions task performed better on all senior clinical performance examination measures than did those 26 students who used a random approach. Approach to the twenty questions task was a better predictor of senior examination diagnosis justification performance than was the Medical College Admissions Test (MCAT) Biological Science score and accounts for a substantial amount of score variation not attributable to a co-relationship with admissions test performance. Getting the right answer on the Twenty Questions task did not predict high performance on the clinical performance examination.

Discussion and Conclusions: It is no surprise that getting the right answer during a Twenty Questions game failed to predict high performance on a clinical performance examination near the end of medical school as only a small number of participants got the right answer. What was a surprise was the degree to which participant approach to a single 15-minute Twenty Questions Game predicted performance on all four senior clinical comprehensive examination measures. The study should be replicated to assure that the results transfer across medical schools and classes. Conceptually, the Twenty Questions task is a measure of know how rather than just knowledge. It measures students’ effectiveness in processing and storing knowledge acquired in their everyday lives and their facility in retrieving and organizing knowledge to address subsequent environmental challenges. It provides information about how well applicants have profited from earlier instruction and learning encounters and how well their knowledge is organized to support real work.

Conclusion. Twenty Questions may be a useful predictor of how medical student applicants will process knowledge acquired during medical training. It adds value to MCAT results and can be fitted easily into one slot of a Mini Medical Interview as part of the admissions process.

#8D2 (23701)
Revisiting the D-RECT tool: validation of an instrument measuring residents’ learning climate perceptions

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Introduction: A supportive learning climate in graduate medical education is important for promoting resident learning and well-being as well as patient care quality. In order to best inform quality improvement activities, evaluation of the learning climate requires the use of valid and reliable tools. The Dutch Residency Educational Climate Test (D-RECT) has been developed to evaluate the learning climate [1], yet it has not been tested in its final form and on the actual level of use – the department. Our aim was to investigate the internal validity and reliability of the D-RECT at the resident and department levels.

Methods: Departments from Dutch academic and non-academic hospitals that used the D-RECT in 2012-2013 were included. After reviewing the practical importance of each item, the structure of the original 50-item questionnaire was assessed using an exploratory factor analysis on the resident level followed by a confirmatory factor analysis on both resident and department levels. Internal validity was further evaluated using inter-scale correlations and corrected item-total correlations. Reliability was
assessed using Cronbach’s α and generalizability theory.

**Results:** In total, 2306 evaluations representing 291 departments were included. Exploratory factor analysis showed a 9-factor structure containing 35 items: teamwork, role of specialty tutor, coaching and assessment, formal education, resident peer collaboration, work adaptation to residents’ competence, patient sign-out, educational atmosphere and accessibility of supervisors. This structure explained 65.5% of the total variance. The fit was acceptable for the department level (CFI=0.89, TLI=0.88, SRMR=0.06, RMSEA=0.04) and acceptable to good for resident level (CFI=0.92, TLI=0.91, SRMR=0.04, RMSEA=0.04). Inter-scale correlations ranged from 0.32 to 0.52 for the resident level, and from 0.37 to 0.66 at the department level. Corrected item-total correlations ranged from 0.41 to 0.75 at the resident level, and 0.53 to 0.84 at the department level. Cronbach’s α for subscales ranged from 0.71 to 0.86 at the resident level and from 0.80 to 0.91 at the department level. Three resident evaluations were needed to assess the overall learning climate of a department and a minimum of eight residents to assess the subscales.

**Discussion and Conclusions:** Overall the new D-RECT structure reflects the original questionnaire. Seven themes from the original questionnaire remained similar. Two new constructs (educational atmosphere and accessibility of supervision) emerged due to the rearrangement of the initial constructs. Statistical analyses showed that the instrument is internally valid and reliable on both the resident and department levels. The D-RECT remained multi-dimensional, which was appreciated when planning quality improvement activities. Furthermore, the D-RECT constructs can be fitted within a broader theoretical framework, covering the affective, cognitive, and instrumental facets of climate.[2] This study provides evidence of the reliability and internal validity of the D-RECT in measuring learning climate in residency training on both resident and department levels. Due to a reduction in items and the updated structure, the instrument is more accessible for practice and better suited for smaller departments. Future research could continue to provide validity evidence, including the response process and relationships with other variables.

**References:**

**#SD3 (23706)**

The relationship between outcomes on a non-academic entrance test and medical degree programme exit outcomes: a prospective UK-wide cohort study

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**Introduction:** Although being a doctor is not just about academic performance, the traditional methods of assessing non-academic factors in medical school selection have been heavily criticised (e.g., Cleland et al., 2012). To address the need to assess non-academic factors in medical school selection robustly, non-cognitive tests were included in the UK Clinical Aptitude Test (UKCAT: http://www.ukcat.ac.uk/). We investigated the relationship between performance on these non-cognitive tests with performance during and on exit from medical school.

**Methods:** This was a quantitative study grounded in post-positivist research philosophy. We sampled all medical students from the 30 UKCAT consortium schools who graduated in 2013. We included the following in our analysis: candidate demographics, UKCAT non-cognitive scores, the Educational Performance Measure (EPM: medical school performance data) and UK national exit situational judgement test (SJT) outcomes. Data were compiled and analysed using SPSS 22. Pearson’s or Spearman’s correlations and ANOVA, Kruskal-Wallis or Mann Whitney as appropriate were used to examine the relationships between variables and SJT and EPM scores. Multilevel modelling was used to assess relationships between variables and adjust for confounders.

**Results:** 6294 students with UKCAT, EPM and SJT data were entered into the analysis. There were four types of non-cognitive test: 1) libertariancommunitarian, 2) NACE - including narcissism, aloofness, confidence and empathy, and NACE total score, 3) MEARS resilience score: self-esteem+optimism+control+self-discipline+emotional-nondefensiveness (END)+faking domains, 4) an abridged version of 1 and 3 combined. Multilevel regression showed that, after correcting for demographic factors, END predicted SJT and EPM decile. Interestingly, both aloofness and empathy in the NACE negatively influenced the SJT score.

**Discussion and Conclusions:** This is the first national study examining the relationship between performance on the UKCAT non-cognitive tests and that on medical school exit assessments. The emotional non-defensiveness (END) part of the MEARS test seemed to be the most useful test. However, the data reveal a pattern of relationships
between non-cognitive factors and medical school performance which do not fit neatly with theoretical expectations. Further research is required to scrutinise these relationships further.


#8D4 (23716)
Communication-related anxiety in UK undergraduate medical students and help seeking behaviour

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**Introduction:** Clinical communication training is an integral part of medical education in the UK and often involves experiential workshops. Previous research has found year of study, gender and social anxiety influence attitudes towards such training[1]. This study examined factors influencing attitudes towards clinical communication training and help seeking for communication-related anxiety.

**Methods:** This research study used a mixed methods approach. All medical students at participating UK medical schools (n=15) were invited to complete an online questionnaire containing the Communication Skills Attitudes Scale (CSAS), Social Interaction Anxiety Scale (SIAS), Perceived Stress Scale (PSS), Alcohol Use Disorders Identification Test (AUDIT-C), a Stress and Anxiety Support Seeking Behaviour Scale (SASSBS) and demographic questions. Analysis focused on determining associations between any of the variables and attitudes towards clinical communication training. Semi-structured telephone interviews explored any anxiety experienced by participants or their peers during clinical communication training and when communicating with real patients and how they coped with this anxiety. General help seeking behaviour amongst medical students for anxiety or stress was also examined. The interviews were audio recorded and transcribed. Thematic analysis uncovered themes relating to sources of communication-related and help seeking behaviour.

**Results:** A total of 482 participants completed the questionnaire. Year of study and gender were found to impact upon scores in both the positive (PAS) and negative (NAS) subscales of the CSAS. Participants who reported being very nervous if they had to speak to fellow students, simulated patients or real patients had significantly higher scores in the negative subscale of CSAS (NAS). NAS was also significantly positively correlated with SIAS, PSS and SASSBS subscale scores. Seventeen participants (11 female, 7 male) from eight institutions took part in the semi-structured interviews. Sources of communication-related anxiety during clinical communication training included;

performing in front of observers, the perceived level of communication difficulty, perceptions of it being a ‘fake’ situation, whilst different sources were reported when talking to real patients; patient distress, personal distress, or a wish to not ‘bother’ patients. Reported coping strategies included; ignoring observers, taking a time out to discuss the situation, observing peers struggling with similar situations or removing themselves from the situation. Seeking help from peers or staff in a formal way was seldom reported.

**Discussion and Conclusions:** Medical students do experience anxiety relating to communication training and to clinical communication but the sources of this anxiety differs between the two contexts. Negative attitudes towards clinical communication training were associated with higher levels of perceived stress or social anxiety, difficulty in expressing anxiety to peers or within medicine and lower help seeking behaviour. This could suggest that students who would benefit most from support with communication-related anxiety are the least likely to seek such support. These results chime with medical student perceptions regarding mental wellbeing difficulties as a sign of weakness within medical culture[2]. This study highlights the role of communication-related anxiety in medical student attitudes towards clinical communication training. Medical schools should aim to create an environment whereby all students are confident in seeking support for such anxiety.

#8E1 (26367)
Student learning during longitudinal, community placements in under-served, deprived areas

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Background: There are national UK general practitioner (GP) shortages, particularly in deprived areas, and an insufficient number of medical students intend to become GPs. Medical students currently have limited time in settings that provide care for deprived communities and the ageing population with increasing numbers of co-morbidities. This research investigates student learning during the Difficult and Deprived Areas Programme (DDAP), an innovative pilot programme which places fourth year students in general practice and community settings in post-industrial, under-served, deprived UK areas for 14 weeks.

Summary of Work: A triangulated qualitative approach using semi-structured interviews was conducted with: DDAP students (n=9) before, during, and end of placement; GP supervisors (n=13), and patients (n=12). Comparison interviews with peers taking alternative placements to the DDAP (n=16), and students taking an established rural programme (n=6) were also completed.

Summary of Results: The DDAP enhanced student knowledge about psychosocial determinants of health, developed compassion, and reinforced clinical skills. Learning was facilitated through independent time with patients, which promoted deeper learning about the role of the doctor. The integrated and immersive DDAP structure gave students an understanding of complex deprivation issues.

Comparative placement experiences highlighted the importance of nurturing support and active roles in the healthcare team during the placement.

Discussion and Conclusions: There is increasing evidence for clinical placements in rural and remote communities but little in relation to other under-served, deprived areas such as post-industrial, inner-cities, and urban areas. This research explored medical student learning during an innovative placement in such settings.

Take-home messages: The research provides critical insights into medical student workplace learning and longitudinal, community placements, which can inform scholars in the application to other settings and contexts.

#8E2 (26339)
Exploring Learning Mechanisms in Longitudinal Integrated Clerkships

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Background: Longitudinal integrated clerkships (LICs) are a widely used to deliver clerkship curricula. LICs emphasize continuous care environments and cross-disciplinary learning instead of discipline based block rotations. While LIC training is known to be effective at fostering clinical reasoning and patient centered care, the mechanisms (continuity, preceptor feedback, inter-disciplinarity etc.) that facilitate learning are poorly understood. This exploratory study interviewed students and faculty at the University of Toronto to identify critical mechanisms for further investigation.

Summary of Work: Semi-structured interviews of LIC, block students and preceptors at an urban hospital site were conducted. Participants were asked to reflect on their experiences of the curriculum, their approach to clinical reasoning, and identify the curricular elements most critical to their learning. Twenty-one participants (7 LIC and 6 non-LIC students, 6 preceptors, 2 staff) were interviewed longitudinally over the academic year for a total of 44 interviews.

Summary of Results: Results suggest that LIC students self-report greater personal autonomy over their learning and place a heavy on relationship building with patients, preceptors, and other health professionals to create learning opportunities. Learners in the LIC espoused a unique, advocacy oriented identity early in training; this appears to be shaped by both the formal and hidden curriculum.

Discussion and Conclusions: LIC training is intended to support a patient-centered physician identity. The results suggest relationship formation to be an important learning mechanism in this process. Further analysis will examine longitudinal changes and triangulate with preceptor perceptions.

Take-home messages: Further study of relationship formation in LICs and subsequent enabling of identity formation is needed.
#8E3 (24465)

Postgraduate outcomes of a longitudinal integrated curriculum

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Background: The positive benefits of longitudinal integrated curricula/clerkships (LIC) have been well documented in relation to academic outcomes. Little has been done to look at the impact after graduation. The University of Wollongong medical program uses a LIC for all students, while other medical schools in the state do not offer such a wide ranging LIC.

Summary of Work: This paper will report on the results of a survey of first - third year residents in the state of New South Wales. The survey is conducted by the Health Education Training Institute and the data are analysed by the presenter.

Summary of Results: The analysis demonstrates a positive benefit in work preparedness and intention to practice in a rural environment. There are negative outcomes in relation to research, but positive outcomes in relation to satisfaction with a career in medicine.

Discussion and Conclusions: The numbers of participants in this study are small so there does need to be some degree of uncertainty to the significance of the differences. It is also not clear that the changes are due to the LIC, although this is the difference that stands out. It could also be due to the novel selection process that UOW undertakes. This study provides some evidence of the continuing positive impact of LICs in medical education.

Take-home messages: LICs appear to have a significant long-term impact. Further research is required into how LICs provide the positive benefits demonstrated in this and other studies.

#8E4 (27175)

The University of Toronto Longitudinal Integrated Clerkship (LInC) - Insights into the admission process through students’ perspectives

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Stacey Bernstein, University of Toronto, Toronto, Canada
Presenter: Raed Hawa*, University of Toronto, Toronto, Canada

Background: In 2013/14, the University of Toronto launched a 51 week urban longitudinal integrated clerkship (LInC). We report on the admission process utilized to select students accepted to the LInC program as well as the themes emerging from their letters of intent (LOI).

Summary of Work: All second year medical students were invited to apply to the LInC program. Those who are interested provided a LOI. This was not considered as a selection criterion. The LOI provided students’ responses to the following 3 questions: 1. Describe your rationale for choosing LInC 2. Describe how the LInC aligns with your medical experience to date 3. Describe how the LInC aligns with your approach to learning. The LInC admission process included 2 steps. First, applicants were assessed with respect to their academic standing. Second, applicants were randomly rank ordered for selection.

Summary of Results: In its second year of implementation, 24 students were accepted and distributed among 5 hospital sites. Common themes emerging from the letters of intent centered on 1. Potential benefits with respect to integrated experience, career sampling and longitudinal experience with patients and teachers, 2. Perceived challenges in terms of limited inpatient surgical and internal medicine experience, and less immersive experience compared to the block clerkship, and 3. Students seeing themselves as new adopters and excited about the newness of the clinical experience.

Discussion and Conclusions: There is paucity of literature about LInC specific admission processes. To refine our admission process for future iterations, we report a review of identified themes in our applicants’ LOIs. We will also provide data from our qualitative exit interviews with the LInC students to further build on these themes.

Take-home messages: Letters of intent provided by students give rich insights into why they choose a LInC program.
#8E5 (28106)
Developing a two-year patient panel in a hybrid curriculum: an educational challenge

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**Background:** ‘Longitudinality’ is a key word in the innovation of the curriculum at the medical school in Utrecht, the Netherlands. Not only longitudinality in supervision, but also in patient contacts. There is evidence that this decreases the so-called ‘ethical erosion’ that takes place during medical school in traditional curricula.

**Summary of Work:** As our medical school enrols 300 students per year, we have modified the concept of the longitudinal clerkship to a curriculum in which students follow four three-month clerkships with continuity, covering several specialties each. To ensure that students can develop a longer relationship with patients, they will follow and coach 4 patients and their families during two years, parallel to the clerkships. A family doctor recruits the patient panel and supervises the student. The educational goals are about understanding the patient’s perspective, building a doctor-patient relationship, teamwork and interdisciplinary collaboration.

**Summary of Results:** In the process of designing this curriculum we have met a variety of educational and practical challenges. Which patients should be recruited? How frequently should the student see the patients? How much responsibility can be given to the student at which stage? Which assignments are likely to contribute to attaining the goals? How can the supervision be close enough to ensure safety and yet not be too time consuming?

**Discussion and Conclusions:** We will present the challenges encountered in designing a patient panel parallel to a hybrid curriculum and will suggest solutions, motivating our choices.

**Take-home messages:** Tips on how to develop an instructive patient panel parallel to a hybrid curriculum.

#8E6 (25926)
Is a large scale international multi-centre study of longitudinal integrated clerkships feasible?

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Ian Couper, University of Witwatersrand, Centre for Rural Health, Johannesburg, South Africa
Roger Strasser, Northern Ontario School of Medicine, Cambridge Health Alliance, Sudbury, Canada
David Hirsh, Harvard University, Centre for Medical Education, Cambridge, MA, USA
Beth-Ann Cummings, McGill University, Montreal, Canada

**Background:** Longitudinal Integrated Clerkships (LICs) are an approach to clinical education that is demonstrating encouraging outcomes in many single institution studies. Members of the Consortium of Longitudinal Integrated Clerkships (CLIC) have formed an international multi-centre research group to explore the LIC approach to medical education in a way that overcomes the limitations of small studies in single institutions.

**Summary of Work:** The aim of this study, the first by the collaborative group, was to test the feasibility of, and pilot suitable methodology for, large multi-centre studies in medical education that may support future comparative and interventional studies. The focus used in the study was the development of a global typology of LICs.

**Summary of Results:** Forty five schools, across seven countries, collaborated in this study. The study protocol was developed using Skype and email over two years by a Methodology Design Group using a modified Delphi process. The data was examined by the wider author group at international conferences and by email. The study successfully identified a novel global typology of LIC programs.

**Discussion and Conclusions:** The study methodology was time consuming to develop, but has resulted in a discovery that would not have been possible using a single institutional approach and has enthused a team of over 50 participants to take on further large scale collaborative interventional and comparative studies to explore new theories and frameworks relevant to medical education.

**Take-home messages:** It is feasible to undertake medical education studies on a similar scale to international multi-centre clinical trials.
Medical students’ perceptions of receiving feedback from their peers in formative long cases

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Background: During peer assessment activities, students are often required to provide feedback to their peers. The quality of such feedback can be perceived by recipients to be superior and better received than feedback given by academic staff. The aim of this study was to investigate students’ views on receiving verbal feedback from their peers during their formative long case examination. The formative long cases are undertaken in preparation for the students’ summative long case examination. The aim of this study was to investigate students’ views on receiving verbal feedback from their peers during their formative long case examination.

Summary of Work: During 2013, Year 4 students (n=48) were assessed on their formative long case presentation and discussion, by a student examiner, alongside an academic co-examiner. The examinee student was then provided with verbal feedback by both the student co-examiner, and the academic co-examiners. To gain insight into students’ views on receiving verbal feedback from their peers during their formative long case examination.

Summary of Results: Of the 48 participants, 35% (17/48) attended focus groups. Students did not like receiving peer feedback during the scheduled examination time, in the presence of the academic co-examiner. They did value peer feedback, but preferred to receive this in a relaxed environment, after the examination.

Discussion and Conclusions: In the formative examination situation, students perceived the feedback given by their peer co-examiner to be less constructive, less accurate and less helpful than the feedback given by the academic co-examiner. These findings may have implications for the feedback process for future iterations of the formative long case examination.

Take-home messages: Our study highlights the value students place on academic feedback during formative clinical assessments.

Enhancing Final Year Medical Students’ Feedback Seeking Behaviour; A Pilot Intervention

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John Sandars, University of Sheffield, Medical Education, Sheffield, UK

Background: Mature learners may actively choose to ignore or act upon feedback. The ideal is that they utilise self-regulatory learning approaches to make judgements on appropriate actions in response to feedback received. However, in reality, medical students’ feedback seeking and recognition is highly variable for several reasons, including individual differences in perceived feedback relevance and quality.

Summary of Work: A pilot educational intervention was designed to enhance the ability of final year students to seek and act upon feedback. The intervention had 3 components: (a) a self-reflection on their action, or inaction, following feedback on clinical performance in previous rotations, (b) interactive lecture, (c) resources aimed to enhance feedback perception and provide strategies for action on feedback. The reflective exercise was voluntarily handed in by 107 students (year cohort n=255).

Summary of Results: An evaluation of 111 students 4 months later after completion of finals identified that 41% had made changes in their approach to feedback that they attributed to the intervention, including enhanced active feedback-seeking behaviour. Free-text comments indicated enhanced recognition of having received feedback and increased action after receiving feedback.

Discussion and Conclusions: We propose further research, with larger studies and elucidation of the impact of the different components of the educational intervention.
What is the relationship between feedback preference and self-efficacy in communication tasks?

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Presenter: JMM (Monica) van de Ridder*, Albert Schweitzer hospital, Dordrecht, Netherlands

Background: Feedback recipient’s personal characteristics, such as self-efficacy (SE) and feedback preference (FBP), influence perception and acceptance of feedback. Knowledge of this relationship enables providers to tailor their feedback to the recipient’s needs. We explored the relation between medical students’ SE and their FBP for internally generated feedback when performing communication tasks in a non-clinical (skills lab) and a clinical (clerkship) setting. Differences related to the task context (non-clinical - clinical) and student’s gender were taken into account.

Summary of Work: Second year medical students without clinical experience (n=216), and clerkship students (n=65) were administered two cross-cultural validated questionnaires with a 5-point agree-disagree response scale. The New General Self-efficacy Scale (8 items) was applied to assess SE concerning doctor-patient communication tasks. The Internal Feedback Propensity Scale (6 items) measured student’s FBP for internally generated feedback. They use a five point answering scale (1 totally not agree - 5 totally agree). Two-way independent ANOVAs were carried out to answer the research question, and effect sizes (partial η²) were determined.

Summary of Results: A significant main effect of gender on student’s self-efficacy score regarding communication tasks (p<.001, partial η² = 0.06) was found. Males had a higher self-efficacy score compared to woman. There is a significant main effect of gender on students preference for internal feedback (p<.001, partial η² = 0.07). Again, males had higher scores on the IFPS than females. We did not find a significant main effect of context for both the scores on NGSE and the IFPS.

Discussion and Conclusions: Students’ SE seems stable over time. Male students prefer reflecting on their own thoughts before they receive feedback more than female students. How this influences the effectiveness of the feedback is an important future research question.

Take-home messages: Male and female students have different feedback preferences regarding communication tasks.

Feedback as a motivation component for medical students to use online learning tools

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Background: The inherent benefits associated with online tools make it really appealing for its implementation in health professions education. However, there is no set of best practices defined yet for the implementation of online learning into health professions education.

Summary of Work: We have developed an Observational practice and Educational Networking (OPEN), and test it as a reinforcement tool for the acquisition of the basic technical skill for medical students. This experiment compared two types of feedback, individual feedback and social comparative feedback, in order to define which would motivate the learner more to use OPEN as a complement to the skill acquisition process. A series of interviews were conducted after participants interacted with the tool.

Summary of Results: The results showed that the type of feedback that would motivate learners to use the tool, is dependant to the stage, within the learning process, that the learner is situated at. In an early stage of the process, learner’s goal is to get better at the skill at hand; therefore, they prefer the individual feedback about their performance. Once the learner has reached a certain level of confidence at performing the skill, they find more interest in the social comparative feedback (i.e., how are they compared to their peers).

Discussion and Conclusions: Our work shows that feedback elements play an important role regarding motivation to use online tools in health professions education. The type of feedback utilized has to be tailored to the stage of learning in which the learner is at, in order to maximize their motivation on using an online learning platform (i.e., OPEN); thus a better learning outcome.
Perceptions of undergraduate medical students of feedback: Importance, Barriers and improving Efficiency

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Mohamed Nour-El-Din Saleh, Qassim University, Anatomy Department, Qassim, Saudi Arabia

Background: Feedback is a key process in learning, providing information on actual operation in comparison to the targeted levels of performance. However, feedback is to some extent practiced as tokenistic to satisfy accreditation purposes and it is considered as a ritual employed by students and staff, which makes its effectiveness questionable. The aim of this study is to have a deeper insight of students’ perceptions about the barriers of the effective feedback in Qassim Medical College (QMC), and suggest an appropriate approach to overcome these barriers.

Summary of Work: Cross-sectional, self-administered questionnaire-based study was conducted at QMC. Questionnaire was constructed after exploration of the common barriers through a focus-group interview with students. Descriptive statistics (mean, standard deviation, and proportion) were used to quantify the quantitative and categorical study and outcome variables. Focus group discussion was conducted to suggest an approach for effective feedback in the college.

Summary of Results: Results of the study indicated that factors related to both learners and faculty contributed to improper effectiveness of feedback. Students’ perceptions about the barriers differed according to gender and advancement in the program. Analysis of students’ comments and focus group discussions helped to come up with a recommended approach to enhance effectiveness of feedback and overcome the barriers.

Discussion and Conclusions: Students perceive feedback as essential for improvement of the quality of education. Systematization of feedback with more orientation and training of both learners and educators to give and receive feedback are needed.

Five key words for effective feedback: A content analysis of excellent written formative feedback

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Shelley Ross*, University of Alberta, Family Medicine, Edmonton, Canada

Background: Formative feedback is essential to learning and teaching; the challenge lies in getting preceptors to phrase formative feedback in the most effective ways. Ende (1983) provided the foundation for current recommendations on effective formative feedback within medical education settings; however, although researchers have identified many factors that contribute to the quality of feedback, there continues to be a lack of consistency in what elements should be included to offer learners the most value. In this study, we examined samples of formative feedback to identify words, phrases, and patterns that distinguished effective feedback from poor feedback.

Summary of Work: We examined documented feedback on assessment forms, collected over 3 years (2010-2013; n = 4807). Feedback was coded using a validated tool called the Formative Feedback Evaluation Tool (FFET). The FFET allows for standardized ratings of feedback; the FFET scores five essential elements (B-F) which make up effective feedback. Based on the FFET quality score, the feedback was divided into poor feedback and effective feedback. Poor and effective feedback groups underwent content analysis. Frequency counts and context analysis were used to identify key words in effective feedback.

Summary of Results: Comparison between word frequency in poor feedback and effective feedback groups showed a fold of five or greater for the words because (7.40), consider (5.78), next time (26.00), recommend (5.22), suggest (6.86) and try (11.80). Additionally, of the five elements used to rate the feedback, element E was seen less frequently used for poor feedback and more frequently in effective feedback. Element F shows a similar pattern as element E.

Discussion and Conclusions: The results of this study will be useful for faculty development. Key words for effective feedback will help cue clinical teachers towards sharing better formative feedback with their trainees.
#8G Short Communications: Entrustable Professional Activities and Competency Based Education

Location: Argyll II, SECC

#8G1 (24803)
When is a Resident “good to go”? Final results from a modified Delphi survey to define and benchmark entrustable professional activities for Family Medicine Residency training

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Background: A new competency-based assessment program was implemented in the Calgary Family Medicine (FM) Residency Program in 2012. The detailed competencies developed were helpful for curriculum redesign but impractical for use in Resident assessment.

Summary of Work: To help address this issue, a set of 23 Family Medicine Entrustable Professional Activities (“EPA’s”) was developed, utilizing 4 rounds of a modified Delphi process. This set of EPA’s describes the training requirements for Residents in the Calgary FM Program and, by defining the expected supervision levels at time points around 10 of the EPA’s, also acts as a proxy measure of progress of each Resident towards unsupervised practice. Analysis of agreement between 5 respondent groups (Calgary/non-Calgary Faculty, Program Leadership and Calgary/Non-Calgary Residents) on the list of 23 EPA’s and the expected supervision levels for 10 clinic-based EPA’s during training was then carried out.

Summary of Results: Analysis shows a high level (>90%) of agreement on 20 of the 23 EPA’s with fair (k=0.220) to almost perfect (k=0.911) agreement between groups. Analysis shows fair (k=0.21-0.4) to almost perfect (k=0.81-1.00) agreement between groups on the expected supervision levels for each of the 10 clinic EPA’s at 5 different time points during training.

Discussion and Conclusions: There is a high level of agreement on a set of 23 EPA’s for FM Residency training in Canada and the associated supervision levels for 10 of them.

Take-home messages: This first set of EPA’s for FM Residency training in Canada can be used both to define the end points of training and as an assessment decision-aid for Preceptors and Residents.

#8G2 (27268)
Using Entrustable Professional Activities (EPAs) in a GP Training Program: why, which and how?

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Christopher Starling, General Practice Training, Valley to Coast, Newcastle, Australia
Tony Saltis, General Practice Training, Valley to Coast, Newcastle, Australia

Background: We are three years into the exploration, development and implementation of EPAs in a GP vocational training program. They were chosen as a promising way of addressing practice-based assessment of registrar competence.

Summary of Work: This presentation reports how we chose our final eleven EPAs and why we chose this representative sample. It describes how the EPAs function within a broader framework of In-Training Assessment (ITA) and how they relate to the pre-existing curricular statements and standards of both generalist colleges.

Summary of Results: The EPA list was selected following literature review and a ranking process in three focus groups of medical educators and supervisors. The first two EPAs were trialled in the first half of 2014 and feedback was collected. Two more were introduced in the second half of 2014 and the remaining EPAs have been introduced in 2015. Having been chosen on the basis of importance in practice, the EPAs were then mapped against the over-arching curricula for training.

Discussion and Conclusions: Debate about the function of EPAs within the training program continues. This is particularly important given the structure of training in Australia is subject to recent changes in government policy and funding. Their success also depends on supervisor engagement at a time when practices are being asked to do more formal assessment than previously. Implementation of such work-based assessments faces additional challenges when the context is one of private practice.

Take-home messages: EPAs need to be implemented in a way appropriate to their context.
A First Look at ACGME Milestones Data: When Do Residents Achieve Entrustment Targets?

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Background: Milestone performance data provide one element in the Next Accreditation System to determine whether residents are sufficiently progressing. The Milestones represent performance targets within each specialty for all 6 ACGME core competencies. The goal of each residency program is to enable attainment of these targets by time of graduation from the program.

Summary of Work: In our initial investigation of the Milestones dataset, we looked for patterns that might explain differences within or between specialties, curricular challenges to expected attainment of Milestones, and other validity issues concerning data collection and scoring. The data presented here represent 2014 academic year-end ratings from Clinical Competency Committees within each PGY-level by several selected specialties, including Internal Medicine (n=23,902), Pediatrics (n=8,834), Neurological Surgery (n=1,253), and several others.

Our main outcome variable was the percentage of residents who attained the entrustment target across all programs within a specialty.

Summary of Results: The percent of senior-most residents who attained the entrustment target varied by specialty (e.g. for Patient Care, this percentage varied from 52% for Pediatrics to 77% for Urology and Internal Medicine). There was also wide variation in target attainment by competency within specialty (e.g. for Neurological Surgery, 92% of senior-most residents attained entrustment targets for Professionalism, while only 54% had attained those targets for Patient Care). Patient Care and Medical Knowledge show different patterns of achievement than the other 4 competencies.

Discussion and Conclusions: For each specialty, the observed variation in attainment of competencies could be due to a variety of factors, including variation in scoring by raters or by the Clinical Competency Committees, underlying differential skill development, or variation in exposure to certain disease categories.

Take-home messages: Such information will be of value to help improve assessment of competencies and/or modification of curricula nationally.

Faculty-based development of end of undergraduate medical training EPAs

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Background: A new competency-based undergraduate medical program has been implemented in a faculty-wide process at the Charité - Universitätsmedizin Berlin. The aim of this study is to develop and content-validate a set of “Entrustable Professional Activities” (EPAs) as integrated, end of training outcomes for the curriculum.

Summary of Work: A Delphi-study is conducted among 45 faculty physicians of various medical specialties who were actively involved in the curricular development process. In the first round, 36 participants (80% response rate) and in the second round 35 participants (78% response rate) rated 12 EPAs on their titles, content descriptions and meaning of entrustment. The third round includes definitions of relevant knowledge, skills and attitudes per EPA. Consent is achieved when a Content Validity Index (CVI) of 80% or more is reached.

Summary of Results: In the first Delphi round, six EPAs received a CVI higher than 80%. Based on participants’ feedback, EPAs were revised. In the second round, 10 EPAs received a CVI higher than 80%. These range from “taking a medical history, physical examination and providing a structured summary”, over “developing a treatment plan and initiating implementation” to “giving and receiving a patient handover”. The EPAs “performing medical procedures” and “informing and consulting a patient” received a CVI higher than 70%.

Discussion and Conclusions: Faculty supports and accepts EPAs as end of undergraduate medical training outcomes.

Take-home messages: Faculty involvement is vital when developing valid EPAs and important for their successful implementation in the workplace.
Introducing EPAs in undergraduate medical education: critical issues to consider

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Olle ten Cate, University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands

Background: Entrustable Professional Activities (EPAs) are tasks that contribute to health care and that trainees are trusted to execute with less than full supervision. Implementation of these EPAs in undergraduate medical education faces critical issues that must be dealt with.

Summary of Work: Based on USA core EPAs for Entering Residency and other sources, EPAs for undergraduate medical education in Utrecht (a six year curriculum with students entering directly from high school) were developed in iterative discussions with curriculum developers and clinicians and with input from partners in an international EU-funded project.

Summary of Results: The resulting framework includes EPAs for 3rd, 4th, 5th and 6th year students. Critical issues discussed were (a) distinguishing ad-hoc entrustment to start practicing with limited supervision from summative entrustment as formal permission to act with limited supervision, (b) decreasing supervision levels from “formal permission with qualified personnel present in the room” (year 3) to “formal permission to act with only indirect supervision” (year 5), (c) discipline-specific contributions to general EPAs and (d) varying breadth, e.g. “conducting simple medical procedures” (e.g. taking a smear, venous and capillary blood withdrawal) in year 3, as a nested EPA within “conducting general medical procedures” in year 5.

Discussion and Conclusions: Restructuring workplace education in medical school using EPAs before MD certification seems feasible, but requires consideration of a number of critical issues.

Take-home messages: Implementation of an EPA-based curriculum in undergraduate medical education requires extensive discussion.

Competency-based education and assessment: program evaluation five years post-implementation

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Michel Donoff, University of Alberta, Family Medicine, Edmonton, Canada
Shirley Schipper, University of Alberta, Family Medicine, Edmonton, Canada

Background: In 2009, we developed a teaching and assessment framework founded in the concept of “assessment for learning” which uses continuous formative feedback to inform summative assessment. The key feature of the Competency-Based Achievement System (CBAS) is that assessment is not unidirectional: both advisor and resident review cumulative evidence of the resident’s competency demonstrated across a variety of clinical settings. From this evidence review, advisor and resident come to a mutual understanding of the strengths and weaknesses of the resident. The intent of CBAS is to facilitate student-centred learning by giving the resident the tools for accurate guided self-assessment.

Summary of Work: Methods: Mixed methods. Quantitative data (frequency counts and descriptive statistics of documented observations in the CBAS online portfolio; surveys) were elaborated upon and clarified by qualitative data (focus groups and interviews with preceptors, residents, and program directors).

Summary of Results: Quantitative data revealed that residents receive regular feedback across all CanMEDS roles. There is a greater range in summative ratings than with previous assessment frameworks. Residents and preceptors report more frequent feedback. Qualitative data reinforced the idea that feedback is more frequent, across multiple domains. Program directors reported that residents in difficulty are identified sooner.

Discussion and Conclusions: CBAS provides our learners, teachers and administrators a powerful tool to guide and assess both the curriculum and individual residents in our programs. CBAS is proving to be a highly effective assessment framework that is spreading in application from its roots in resident training to student, faculty and practicing physician application.

Take-home messages: Competency-based assessment tools are proving effective.
Unseen but Influential: A Literature Review of Hidden Curriculum in Undergraduate Medical Professionalism Education

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Background: The ‘hidden curriculum’, as defined by Hafferty (1998), has an important influence on the learning of professionalism in medical education. Few studies have focused on exploring its potential effects. This study aimed to explore the influences of the hidden curriculum on contemporary undergraduate medical professionalism education.

Summary of Work: We conducted a systematic literature review to identify and analyse the experiences and perceptions of students that influence their learning of professionalism. An electronic database search using keywords and medical subject heading (MeSH) terms yielded a total of 21 articles that met inclusion and exclusion criteria. These articles were analysed in depth.

Summary of Results: Reviewed studies showed eleven themes of experienced and perceived professionalism entities. We categorised them into five main thematic dimensions: role model, clinical learning experience, interprofessional learning, ethics manifestations, and professional and self-development. Challenges and remediating potentials were also identified.

Discussion and Conclusions: The hidden curriculum has positive and negative impacts on undergraduate medical students and most likely affects how they perceive medical professional identity. Our findings also indicate the presence of case-based factors, which may differ in each institution that could nevertheless influence the hidden curriculum in medical education worldwide.

Take-home messages: Acknowledging and monitoring the hidden curriculum is essential in modern professionalism teaching and learning.


Classifying student responses to reports of unprofessional behavior: a method for assessing likelihood of repetitive problems

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Background: Our school uses an Early Concern Note (ECN) program to identify, counsel, and intervene when students with unprofessional behavior are reported. Previous authors have suggested student maturity, insight, propensity for reflection, or receptiveness to feedback might be predictive of future behavior. We hypothesized that classifying students with a first ECN based on their response to the report rather than the action that prompted it would be predictive of repeat ECNs.

Summary of Work: Review of ECNs from previous years showed that student reactions varied widely, from shock and embarrassment to denial and resentment. Others were difficult to classify, especially if burdened by internal/external stressors. For this study, all ECNs were prospectively classified based on students' (1) level of recognition that their behavior was inappropriate; and (2) degree of acceptance of responsibility for the behavior.

Summary of Results: Students who recognized their behavior was inappropriate and accepted responsibility received subsequent ECN’s at substantially lower rates than students who disagreed or were resistant to accepting responsibility (13-17% vs. 27-57%). Students who acknowledged personal challenges (life stressors, substance abuse, and/or mental health) were also at high risk (60%).

Discussion and Conclusions: Student reactions to reports of their unprofessional behavior may be useful in assessing risk of recurrent behaviors. Students with diminished capacity to recognize behaviors as unprofessional or to accept responsibility for them appear to be at higher risk of receiving future ECNs.

Take-home messages: Intervention for students with personal challenges appears to be particularly important to help this subset of students succeed.
With forked tongue: speaking compassion modeling detachment

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Background: Although no one would question the centrality of professionalism, components of it may contradict each other causing confusion for learners and teachers. Standards of and guidelines for professionalism generally state that medical trainees should demonstrate empathy and compassion. Learning environments and supervisors’ messages can be less clear, muddied by pressure to just keep working and avoid immobilization by compassion. What do we expect of our learners when compassion overwhelms their ability to provide care? Should they ‘soldier on’ and suppress their distress or do we convey support for their humanity and recognize the limits to caring?

Summary of Work: Having heard too many anecdotes from trainees who felt their compassion was construed as unprofessional behaviour by supervisors, I decided to investigate. Residents from two Canadian universities listened to a short narrative then responded individually to questions about how they should and would want to behave in response to the series of medical disasters described.

Summary of Results: Findings will be presented for the first time at the conference as they will have just been collected and analyzed.

Discussion and Conclusions: I anticipate dissonance between participants’ personal responses of compassion for patients and for the script’s narrator (also a resident), and the valour and superhuman characteristics expected of them by themselves and their teachers. I also suspect that expectations of oneself and the narrator, and assumed expectations from preceptors will vary depending on whether the narrator or respondent is a man or woman.

Professional conduct of clinician educators: perspectives of medical students

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Background: Personal and professional development (PPD) of medical students is greatly emphasized in the medical undergraduate training in UKM. Clinician educators and faculty are expected to role-model appropriate professional behaviors.

Summary of Work: An online survey was conducted among UKM final year medical students batch 2013/2014, to determine how much professional conduct was emphasized during clinical teaching sessions, as well as to briefly describe incidents where excellent as well as inappropriate conducts were demonstrated.

Summary of Results: A total of 94 students completed the survey (44.8% response rate). Majority (85.1%) indicated that emphasis on professional conduct by their clinician educators was frequent enough as they had expected, while 11.7% claimed that professional conduct was infrequently emphasized. 53.2% agreed that their clinician educators required more PPD training. Role-modelling was selected as the best PPD teaching-learning method. While 71.8% indicated to have witnessed excellent professional conduct by the clinician educators, 28.2% claimed that they had never witnessed such excellent conduct. On the other hand, 26.7% indicated to have encountered inappropriate professional behaviours of their clinician educators. Inappropriate conduct was mainly observed in doctor-patient interactions, clinical decision-making and confidentiality issues.

Discussion and Conclusions: The objectives of PPD module to produce medical graduates with appropriate professional conduct could never be achieved if the main agents of change (clinician educators) are not displaying excellent professional conduct for learners to emulate.

Take-home messages: Dear clinician educators, Mind your professional conduct. The learners are watching you!
Quality of life, motivation to learn and professionalism in higher education: Implications for the design of the medical curriculum

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Marcus Henning, University of Auckland, Centre for Medical and Health sciences Education, Auckland, New Zealand

**Background:** Increasing interest in motivation to learn and quality of life in higher education have coincided with recognition of the importance of professionalism in medical practice and education. It is timely to consider how interaction between these three concepts should influence the design of future medical curricula.

**Summary of Work:** Based on professional experience and a literature review interventions to increase the motivation and quality of life in medical students are proposed. The evidence supports the view that quality of life and motivation are linked with the notion of professionalism. To be a professional, doctors and students need to be cognisant of their own quality of life and need to be motivated to continue learning throughout their professional careers.

**Summary of Results:** An outline of how the proposed interventions could be embedded in medical curricula are described. Assessment methods to measure the impact of these interventions on individual students and how to evaluate the effectiveness of these changes on graduate outcomes are recommended.

**Discussion and Conclusions:** It is anticipated that by addressing both motivation and quality of life, curricula will continue to have constructive effects on the professional behaviour of graduates. The potential educational outcomes for students in the undergraduate medical curricula is that motivation and quality of life can be measured and these measures can be further linked to the development of professionalism.

**Take-home messages:** Ongoing evaluation of how curricula can synthesise motivation, quality of life and professionalism in different educational environments will assist the development of best practice guidelines.
### #8I Short Communications: Scoring an OSCE

**Location:** Alsh 1, SECC

#### #8I1 (28285)
The use of Borderline Regression Analysis in an online OSCE Marking Tool for improved decisions about pass or fail students

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**David Cunningham**, Qpercom Ltd, Research & Development, Galway, Ireland

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**Background:** Skills examinations use a static or dynamic cut-off score to separate good from bad performing students. A fixed cut-off score is only associated with students ability to pass exams. The difficulty of the exam or variability between examiners in marking student’s performance is not being taken into account. The Online Marking Tool developed within our School of Medicine incorporates various Global Rating Scales (GRS) marking professional competence as Pass, Borderline, Fail, Good and Excellent and incorporates flexible cut-off scores according to Borderline Regression Analysis.

**Summary of Work:** The Online Marking Tool contains an OSCE Management Tool to plan and execute Objective Structured Clinical Examinations (OSCE). It consists of an OSCE station bank and a Result Analysis tool including a fully fledged Borderline Regression Analysis pack (Excel export pack). Individual ‘blinded’ scores of examiners at item level are correlated with the GRS of Fail, Borderline, Pass, Good and Excellent or variations of this GRS (Borderline Fail and Borderline Pass; Fail, Borderline, Pass).

**Summary of Results:** Borderline Group Average, the average mean score of those students being marked as ‘Borderline’ is compared with Borderline Regression Method 1 and 2 (Borderline Fail e.g Pass) to determine a flexible cut-off score. Twelve prestigious universities are currently using this unique online marking tool for clinical skills assessments. Over 200 OSCE were successfully administered and analysed using this software solution.

**Discussion and Conclusions:** Approximately 19% more students fail after introducing a flexible cut-off score in clinical skills assessment due to introducing Borderline Regression Analysis. Nevertheless despite the increased percentage of failing students due to their scores, we suggest to introduce a minimum amount of stations that needs to be passed as well.

**Take-home messages:** An online OSCE Management Information System is cheaper, faster and more reliable than a paper based solution.

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#### #8I2 (26047)
Identifying ‘borderline’ students in performance assessments – what does the empirical evidence say?

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**Godfrey Pell**, University of Leeds, Leeds Institute of Medical Education, Leeds, UK

**Richard Fuller**, University of Leeds, Leeds Institute of Medical Education, Leeds, UK

**Background:** The ‘borderline’ group is a key concept in standard setting and medical education discourse more generally, but what can analysis of OSCE outcomes say about its existence or otherwise across the whole assessment?

**Summary of Work:** Using modern latent variable techniques (latent profile analysis), we analyse checklist scores in a range of OSCEs to classify students into groups based on their performance profile across all stations.

**Summary of Results:** The model fit and classification into 2-3 groups is good. In junior OSCEs, there is evidence of a weaker group, particularly within longer, more integrated, stations. In senior OSCEs, there is a weak group and a strong group across the whole assessment. Importantly, when comparing with station level passing standards, there is no evidence of an identifiable ‘borderline’ group despite the existence of candidates either side of the overall pass/fail boundary.

**Discussion and Conclusions:** Grouping students into groups based on the score profile provides useful insights into student strengths and weaknesses - for example, indicating potential areas for remediation. In individual stations we can quite easily identify the borderline group – based either on comparing checklist marks with appropriate standards, or those with borderline global grades. However, across the OSCE as a whole this identification is more problematic, and our work suggests that it is not in general possible.

**Take-home messages:** This study shows that the borderline group is a questionable concept at the whole test OSCE level. More work is needed to consider the full implications of this finding, including how best to make pass/fail decisions across the exam as a whole.
#813 (26814)
How students respond to simulated patients’ emotional cues and concerns – Using the Verona Coding Definitions of Emotional Sequences (VR-CoDES) in an OSCE setting

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Background: Dealing with patient’s emotions is a challenging task. However, most patients do not express emotions directly but give cues and concerns (CC) as hints to potential underlying emotions. The challenge is to detect these CCs and provide space to elaborate on them if patients wish to. The VR-CoDES were developed to code patient’s CCs and provider responses. Zhou et al. firstly used them for coding student-simulated-patient (SP) encounters in an OSCE setting and concluded that the VR-CoDES can be applied in these settings. In line with these conclusions, we were interested in applying and correlating VR-CoDES with standard OSCE rating scales to collect evidence for the validity of VR-CoDES.

Summary of Work: 88 students from different study years were asked to participate in a voluntary OSCE with four stations. Student-SP encounters were videotaped and then analysed with the VR-CoDES, content-specific checklists, Mini-CEX, and the Berlin Global Rating Scale (BGR) measuring communication skills.

Summary of Results: SP’s gave between one and 15 CCs during the interview. Students’ most popular responses were: ignoring, back channelling, content exploring, and information advice. Of the 1,219 responses, 216 (18%) were empathetic or acknowledging. The ratio between total number of responses and providing-space-responses correlated lowly to moderately with other OSCE ratings (BGR, Mini-CEX, and Checklists).

Discussion and Conclusions: As findings are preliminary, further analysis is needed.

Take-home messages: Coding OSCE stations with the VR-Codes was feasible but highly time consuming. This may be an obstacle for using them for routine assessments.

#814 (27668)
Does the presence of outliers in high stakes OSCE examinations unduly affect the pass mark?

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Background: The borderline regression approach for setting the pass mark for OSCE’s is an increasingly popular one, but should only be conducted after an interrogation of the data and assurances that assumptions of regression analysis have been met. Whilst much is published on the use of borderline regression methods, there is very little about what/if any diagnostics were undertaken, their impact, and the steps taken to rectify any violations of assumptions.

Summary of Work: Diagnostics were conducted to check for violations of assumptions on the MRCPsych’s 16 station OSCE in Jan 2015 (N=405), where Borderline regression is used to standard set, with particular attention to identifying outlying cases with standardized residuals with absolute values greater than 3, as these represent cause for concern (Field, 2013). 14 such standardised residuals ranging from -3.5 to +4.6 were identified. Borderline Regression analysis was conducted including these outlying cases, and again after substituting values with predicted values. Resulting station level and exam level cut offs and pass rates were compared.

Summary of Results: The differences in station level cut scores ranged from -0.6 and +0.3. This resulted in an additional 19 station level passes and 8 station level fails, and one additional exam level pass.

Discussion and Conclusions: Results show the impact of outlying cases on station and exam level scores. Whilst the impact on the MRCPsych examination was minimal, the impact on smaller examinations and cohorts, or when using new examiners, may be larger.

Take-home messages: Detecting and addressing outlying cases in borderline regression is an important yet often overlooked step in medical assessments.
Hawks, Doves and Rasch decisions. Using Many-Facet Rasch Modelling (MFRM) to understand the overall impact of “examiner-groups” on OSCE scores

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Background: Ensuring fairness of Objective Structured Clinical Examinations (OSCEs) is important. Unwanted score variability can arise from examiners, content, examination site and cycle timing. Whilst recommended procedures help to ensure acceptable reliability, it can remain unclear what overall impact such variability has on students’ scores.

Summary of Work: We used Many-Facet Rasch Modelling (MFRM) to analyse undergraduate students’ scores from a 16 station, multi-site, multi-cycle summative OSCE. Facets were: students, stations and site plus a novel facet: “examiner group”: the combined influence of 16 examiners within a given cycle of the OSCE on students’ average scores.

Outcomes were “fair-average” scores and logit-scale-based standard errors of measurement (SEM) for each facet.

Summary of Results: Data comprised 235 students, 16 examiner-cycles, 4 sites and 16 stations. “Observed averages” in examiner-cycles suggested potentially unfair differences (i.e. average scores of 5.2 vs. 4.6 out of 7.0 in different examiner-cycles) but “fair averages” indicated differences are substantially attributable to real differences in students’ performance: mean score 5.11, (logit scale0.10,SEM+/0.08 logits) vs. 4.80 (logit scale-0.20,SEM/-0.06). The effect of exam site was trivial. Stations varied moderately in difficulty. Using fair rather than observed averages altered the pass/fail decisions of 2 students(<1%).

Discussion and Conclusions: These OSCE procedures achieved good fairness which can be further enhanced by MFRM derived “fair average” scores. The logit scale-based standard error of measurement (SEM) provides an individualised margin of error for each candidate.

Take-home messages: We use these findings to illustrate potential benefits of MFRM and recommend that the “examiner group” be considered as a means to understand the fairness of OSCE exams.

Fixing the Rubber Band: Calibration of Communication Skills items in OSCE checklists

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Brian Stewart, National University of Ireland Galway, Galway, Ireland
Jan van Dalen, Maastricht University, Netherlands

Background: Communication skills are commonly measured through ‘communication-items’ in OSCE station-checklists. Our aim is to calibrate the communication component of OSCE station checklists according to the MAAS-Global.

Summary of Work: The term ‘calibration’ is used to rate how close items in station checklists correspond to an accepted standard. Three raters independently compared checklists of 4 departments with 17 items of the MAAS-Global. G-theory was used to analyse the reliability of the calibration procedure.

Summary of Results: G-Kappa was 0.8. For two raters G-Kappa is 0.72 and fell to 0.57 for one rater. 46% of the checklist items correspond to section three of the MAAS-Global (i.e. medical content of the consultation), whilst 12% correspond to section two (i.e. general communication skills), and 8.2% to section one (i.e. communication skills for each separate phase of consultation). 34% of the items were not considered to be communication skills.

Discussion and Conclusions: This research confirms a reliable and valid procedure for calibrating OSCE CS item checklists using the MAAS-Global. Such calibration will enable comparison of results of CS assessments between and across students. We strongly suggest that such a procedure is more widely employed to arrive at a stable judgment of the communication component of the doctors’ behaviors.

Take-home messages: Calibration of different OSCE checklist’s is possible and calibrating with 2 raters was found to be reliable. Future research is needed to compare clinical skills assessment outcome.
Teaching and learning of empathy in undergraduate medical education: An exploration of faculty understandings and perspectives

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John Muir, Dalhousie University, Division of Medical Education, Halifax, Canada
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Background: Empathy is widely regarded as important to effective provider-patient relationships. Health professionals require the ability to ‘put themselves in their patients’ shoes’ and to communicate empathic understanding. Studies show that empathy often declines during education among student physicians and residents. While students’ perceptions have been investigated, studies of teachers’ perceptions of teaching and learning empathy are lacking.

Summary of Work: Our purpose was to understand teachers’ perceptions about teaching and learning of empathy. We conducted individual semi-structured interviews with faculty who had at least one year’s experience teaching third year students in clinical settings. We explored participants’ definition of empathy, views of how empathy is currently taught and learned, barriers and enablers, and their own experience and strategies.

Summary of Results: Eleven participants were from all major clerkship experiences across clinical sites, including men and women and a range of experience. Team members read transcribed interviews individually, and discussed themes and coding. Three overarching themes emerged: a) Empathy is difficult to define and therefore goes unnamed and undiscussed in the clinical setting; b) its relative invisibility and implicit nature present challenges in assessment and providing feedback to learners; c) notwithstanding barriers to effective teaching and learning, faculty have insights and strategies that contribute to strengthening the learners’ experience. Role modeling was universally seen as an important teaching strategy.

Discussion and Conclusions: Faculty have rich experiences and insights about empathy; they recognize its importance and are thoughtful about teaching it.

Take-home messages: Exploring faculty perceptions can facilitate development of a shared understanding of how empathy might be more explicitly taught and assessed.
Teaching empathic communication skills to nursing students

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Background: Empathy plays an essential role in nurse-patient interactions. This study examined how local and culturally and linguistically diverse (CALD) nursing students expressed empathy in role plays with simulated patients.

The aims of this study were to observe and analyse the patterns of interaction between student nurses and patients by applying the ‘Model of Empathic Communication’ (MEC) (Suchman, Markakis, Beckman, & Frankel, 1997), to them, and comparing the performances of local and CALD students.

Summary of Work: Each student took part in an interview with a simulated patient. A nurse educator and an applied linguist used the MEC to analyse the patterns of interaction in the transcripts of 30 recorded interviews.

Summary of Results: Results indicate CALD students used more limited empathic responses than local students. Although local students did better in using empathic responses to enhance their rapport with simulated patients, there were still areas for improvement in many of their interactions.

Discussion and Conclusions: Our current study and teaching experience suggests that CALD students may offer such responses because they are processing patient information more slowly, translating in their heads, searching for the right phrasing and/or encountering culturally challenging ideas from patients. The reasons why CALD students may offer such responses require further exploration.

Take-home messages: The results have provided an empirical base for creating tangible examples which can be used to improve the teaching of empathic communication skills in nursing programs.

Using Movies to teach Empathy: Phenomenological study

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Background: There is a demanding need to introduce empathy to medical students, as the traditional medical curriculum focuses on the biomechanical model results in graduating doctors poor in professionalism and communication skills but competent in diagnosis and treatment, forgetting the patient lived experience of the disease, which is essential for doctor-patient relationship.

Summary of Work: First we introduced the concept of empathy, using the traditional lecture followed by watching three clips from famous movies which embodied the patient experience of illness. After watching, they discussed these movies through focus group strategy and after finishing the task, they debriefed the outcome of their experience.

Summary of Results: It was a transformative experience for the students; they discovered the relevance of Cinema/media to their life as a person and doctor. They discovered the pivotal role of empathy in making the clinical encounter therapeutic. Their framework of medicine is transformed; they stopped seeing themselves as cure provider, now they are care provider. Human is not a machine which can be repaired and restored to its factory state.

Discussion and Conclusions: The definition of medicine as an art and science became reality for them. Medicine is a bridge between humanity and natural science, between culture and nature. It becomes clear for them why most of the health systems in the world are directed toward patient centered medicine. The patient becomes partner, client not just passive recipient of therapy. They understand the limitation of the medical view which reduces the person to just a medical case (it), fragmented from the whole person (thou). So they understand the importance to shift from “I-it” relationship, in which our patients are objects, to an “I-thou” authentic human encounter.

Take-home messages: “...treat people with understanding when you can, and fake it when you can’t until you do understand.” — Kim Harrison
Conducting medical ethics lessons using medical student diaries

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Background: The study of medical ethics is often difficult, boring and sometimes, even scary! The use of Medical Student Diaries simplifies the teaching and learning process as students reflect on their individual and personal experiences. This method also promotes a deep insight into the realm of medical ethics for students.

Summary of Work: 93 medical students (45 males / 48 females) were included for the purpose of this study. Medical student diaries were collected from 93 Critical Incident Reports and edited in January 2014. All medical students were assigned to read medical student diaries by reflective guide in June 2014. Five medical ethics lessons were selected for discussion and review during the Staff Medical Ethics Conference in August 2014. Kirkpatrick’s Evaluation Model was applied at the conclusion of all these activities.

Summary of Results: Level 1 Reaction
* Writing Critical Incident Report 1 paper/year was Great (mean 4.56)
* Writing Critical Incident Report had no adverse effect on the students’ work was Okay (mean 2.77)
* Reflective reading of student medical diaries was Good (mean 4.22)
* Staff Medical Ethics Conference review was Good (mean 4.16)

Level 2 Learning
* Medical students had more confidence when communicating with patients (3.96)
* Medical students had more confidence in treating end-stage patients (3.94)
* Medical students had more confidence working with other medical practitioners (4.11)
* Medical students experienced more empathy towards patients (4.20)

Discussion and Conclusions: Writing Critical Incident Reports, Reflective reading of medical student diaries and Staff Medical Ethics Conference are simple and easy ways to conduct medical ethics lessons. These methods also promote insightful ethics learning and produced Great results in Reaction (Level 1) and Good results in Learning (Level 2) as evaluated using Kirkpatrick’s Evaluation Model.

Take-home messages: “This Reflective Ethics Learning Model applying the students own personal and individual experiences is a simple yet effective method of teaching medical ethics!”
Simulation-based ‘ward calls’ course improves undergraduate student readiness for interprofessional learning

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Background: Modern healthcare is delivered by multi-disciplinary teams and inter-professional (IP) healthcare training has widespread recognition. At the University of Auckland, undergraduate students participate in a 2-day simulation-based IP course known as ‘WardSIM’, focusing on patient management during ward calls (unplanned inpatient reviews). Participants engaged in simulated ‘ward calls’ scenarios that require application of clinical expertise and effective IP teamwork. We prospectively evaluated its impact on participant readiness for collaborative IP training.

Summary of Work: An anonymous 16-item participant questionnaire, adapted from the Readiness for Interprofessional Learning Scale (RIPLS), was distributed immediately before and after WardSIM. Pre- and post-course responses were compared using Mann-Whitney U and Kruskal-Wallis tests with post hoc Bonferroni corrections. Written responses from an end-of-course open-ended questions survey underwent qualitative analysis.

Summary of Results: In 2014, 421 students attended WardSIM and 610 questionnaires were collected (288 pre- and 322 post-course; response rates 68% and 76%, respectively). Respondents were enrolled in medicine (51%), pharmacy (27%), and nursing (22%). Comparison of pre- and post-course data found global improvement in readiness for IP training across all disciplines after WardSIM. Pharmacy students, however, reported significantly less positive pre- and post-course responses compared to medical and nursing students. Written responses suggested uncertainty among all participants regarding the role of pharmacy students in scenarios involving acutely unstable inpatients.

Discussion and Conclusions: WardSIM improved its participants’ overall readiness for collaborative IP training. However, uncertainty about discipline-specific roles and responsibilities during simulated scenarios may have adversely affected participant attitudes.

Take-home messages: Readiness for IP training in undergraduate students improved after a simulation-based course focused on ‘ward calls’.

Interprofessional teamwork and its impact on clinical reasoning: 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: 14 resident-nurse team performances were observed during an urgent internal medicine high-fidelity simulation scenario. Each participant was then interviewed using stimulated recall to explore reasoning and perceptions during the simulation. Using a consensus-based assessment of effectiveness and collaboration with a qualitative, grounded theory approach, three investigators (two doctors, one nurse) coded and extracted common themes, iteratively comparing and contrasting the transcribed audio and video data.

Summary of Results: 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 team diagnostic clinical reasoning and patient management.

Take-home messages: Our results support the novel notion of team reasoning, which depends on both individual and teamwork characteristics for its efficiency.
#8K3 (27930)
Interprofessional simulation-based team training for medical and nursing students

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Jan Frich*, University of Oslo, Oslo, Norway
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Background: Interprofessional team work is necessary for high quality care. The purpose of this presentation is to report students’ outcomes of participating in a one day program using simulation in interprofessional student teams to learn and increase awareness to skills such as communication, leadership and teamwork.

Summary of Work: We developed a one-day interprofessional simulation-based course for final year medical, nursing and nursing anesthesia students using scenarios from emergency medicine. The course was evaluated with a mixed method approach using students’ feedback reports, supplemented by the facilitators’ evaluation of the students’ performance.

Summary of Results: 310 students (medical students, nursing students and nurse anesthesia students) and 16 facilitators took part in the evaluation. The qualitative analysis identified main themes relating to the course, such as emotional activation and self-awareness. Four themes relating to leadership, teamwork, communication and emergency medicine were identified. The quantitative analysis of the students reported increased knowledge and performance in team skills. Facilitators reported improved students’ performance at the end of course.

Discussion and Conclusions: We found that an interprofessional simulation based course with a focus on leadership, communication and teamwork was feasible to teach on a regular basis for large groups of students. The course improved the students’ team skills.

Take-home messages: We believe our model of interprofessional simulation-based training could be expanded to other areas of medical education.

#8K4 (26307)
CST (Complex Situation Training): Improving multidisciplinary collaboration between medical specialists using practice based interprofessional education

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Background: Due to rising complexity of health care effective multidisciplinary collaboration between medical professionals is becoming increasingly important for quality of care. However, in practice cooperation between specialists is often suboptimal. Training of interprofessional skills, knowledge and attitudes can be effective for improving multidisciplinary collaboration. We developed a training model to endorse these competences using practice based interprofessional education.

Summary of Work: As theoretical frameworks we selected CRM (Crew Resource Management) and Kolb’s learning cycle. We selected Insights discovery as an instrument for participants to gain insights in their behavioral preferences. Complex multidisciplinary collaboration cases that are both relevant and recognizable for each group of participants are used as a starting point for the training. Participants analyze these complex situations and define interactive skills that can be improved. Aided by a presented method to improve effective communication they practice in role-play.

Summary of Results: Three trainings were conducted as a pilot. Twenty-nine participants enrolled: 17 medical specialists, 9 residents, 2 nurses, 1 other health professional. The average rating was 7.9 on a 10-point scale.

Discussion and Conclusions: We present CST (Complex Situation Training), a practice based interprofessional training model for improving skills, knowledge and attitudes in multidisciplinary collaboration for medical specialists.

Take-home messages: CST is a new practice based training method for improving multidisciplinary collaboration between medical specialists.
The TeAMS-program: a multidisciplinary interprofessional training program for medical professionals

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Background: Health care is increasingly becoming complex, requiring expertise from various medical specialists and other health professionals simultaneously. To improve and optimize medical care, interdisciplinary and multidisciplinary teams are formed routinely. Although this warrants the availability of all necessary expertise, the application of this expertise to improve patient care in a team setting, is a process that is vulnerable for mistakes.

Summary of Work: VUmc has developed a training program for all medical specialists: TeAMS (Training & Assessment Medical Specialists) in a multidisciplinary interprofessional setting. This program aims to improve non-technical skills necessary for teamwork: leadership, decision making, situation awareness and communication. Three training forms were developed: Acute situation training, complex situation training, regular multidisciplinary consultation training. It was developed based on two main principles: a) Train the team that works together b) Train the clinical scenarios that are relevant for those teams.

During the pilot (2013-2014), we examined the quality, feasibility, applicability and appreciation by the participants.

Summary of Results: In 28 training sessions 125 medical specialist of 17 disciplines participated. One-hundred-thirty-nine other healthcare professionals (nurses, residents) participated as well. They were trained by a group of 15 medical and nine behavioral trainers. Participants assessed the training for satisfaction and learning with an average between 7,3 and 8,4.

Discussion and Conclusions: Training multidisciplinary interprofessional existing teams with relevant clinical scenarios has added value for communication and collaboration and thus functioning of the medical teams.

Take-home messages: Get ready to design training in non-technical skills for all medical teams.
#8L Short Communications: Research in Medical Education
Location: Boisdale 2, SECC

#8L1 (25141)
Understanding the Cultural Impact of an Academy of Medical Educators on a Campus

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Background: During the last two decades in the United States, Academies of Medical Education (AMEs) have proliferated as formal organizations within faculties of health professions education to recognize teaching excellence, support faculty development, and encourage scholarly activity. AMEs have been effective at rewarding faculty for educational excellence and providing faculty development. However, the impact of an AME on campus culture remains unclear.

Summary of Work: This mixed methods study asked: How has AME shaped campus culture on the University of Colorado Anschutz medical campus? A strategic sample of 26 AME members and non-AME campus faculty were interviewed, transcribed, analyzed for themes. The results were triangulated with quantitative analysis of AME program evaluation and membership data.

Summary of Results: The most significant theme was "AME as a home for educators", a virtual home whose impact ripples out through the community of Educators. This impact is tempered by a campus focus on clinical and research missions. A second important theme was "raising the bar" of Educational quality and evidence on campus. The third theme, "Challenges", specified three obstacles (visibility, time and leadership) to making continued impact on campus.

Discussion and Conclusions: While limited to a single case, this study adds significant insight into AMEs by providing a rich understanding of organizational impact, limitations and challenges of an AME on a health sciences campus.

Take-home messages: The core AME activity of developing faculty ripples out to create culture change through creating a community of educators who raise the quality of education on campus.

#8L2 (25593)
Undertaking a PhD in medical education – by thesis or compilation?

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Background: In Australia and New Zealand, traditionally a doctorate of philosophy is submitted in a classic format that roughly follows introduction, methods, chapters, discussion and conclusion. However, the past ten years have seen an increase in submissions that follow more common European practices, of including published articles, reports and even datasets.

Summary of Work: We compared the processes associated with constructing a traditional thesis with a thesis by compilation at two leading universities: the Australian National University and the University of Auckland. We undertook ethnographic analysis with people involved in medical education, population health, and health services research; coupled with literature and policy review. The focus concerned both student and supervisor experience.

Summary of Results: Several practical implications of the shift from traditional thesis to compilation arose for students and supervisors. Pragmatic concerns involve the PhD budget for publishing fees associated with open access journal publication, and the influence of impact factors in decision-making about which journals to publish with.

Discussion and Conclusions: These concerns feed into the wider issue for both students and supervisors of establishing how much is enough – how many publications are needed and how the metaphorical weight of each published work compares with that of an overall thesis. (A thesis by compilation also brings with it added difficulty in establishing an overall thesis narrative or argument, such that the examiner does not get lost along the way).

Take-home messages: There are number of factors to consider when undertaking a PhD. Both students and supervisors should be fully aware of the process involved with conducting a PhD by compilation. We therefore highlight the importance of training in this area, so all parties involved have the required knowledge to undertake the PhD, with confidence that they have chosen the right path for them.
We sought to evaluate the CONSORT statement. We screened 9,009 titles and abstracts to identify 180 relevant trials published between 2008 and 2014. Several domains recorded less than a 5% prevalence of reporting. Domains for ‘important changes to methods after trial commencement’, ‘changes to trial outcomes after the trial commenced’, ‘explanation of interim analyses & stopping guidelines’, ‘description of similarity of interventions’, ‘dates defining periods of recruitment and follow-up’, ‘why the trial was stopped’, ‘harms’, ‘binary outcomes’, ‘where the full protocol can be accessed’. Trial registration was woefully absent. Risk of bias was determined to be ‘unclear’ for most trials due to a lack of information present within reports to make clear determinations.

Discussion and Conclusions: Reporting of trials is inadequate currently within health professions education trials. Risk of bias is an emerging construct researchers and consumers can use to help determine the extent the research is ‘trustworthy’.

Take-home messages: Both the CONSORT and Cochrane Risk of Bias tools are highly relevant to trials within health professions education contexts. Understanding the extent to which they are currently used and any perceived barriers to uptake will be important next steps.

Feasibility of ensuring construct validity of questionnaires for evaluating Junior Medical trainee supervision in local institutional contexts

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Background: Feedback of supervision quality is essential for improvement processes at a local institutional level. This paper investigates the feasibility of evaluating the internal construct validity of a medical-trainee supervision evaluation questionnaire (MSEQ) for use with small sample sizes. 

Summary of Work: The item source was training program accreditation questions, with further content validation by junior doctors and alignment with the Australian National Clinical Supervision Competency Framework.

The population was a nonprobability purposive anonymous sample of all interns (n=48) attending a teaching session. SPSS, v20.0 and Mplus v7.1 were used for reliability and validity testing of internal consistency, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) with model-fit analyses.

Summary of Results: Item correlation and sampling adequacy indicated adequacy for EFA. Three factors were identified with ≥3 items. All internal consistency coefficients >0.88 including Cronbach’s alpha on split halves, with whole questionnaire Cronbach’s alpha=0.948. The ICC demonstrated low correlation between single measures indicating heterogeneous items. Alpha for 3 factors were 0.914, 0.918 and 0.881 for a “Feedback and Contact” construct (8 items), a “Hospital systems to provide adequate supervision” construct (5 items) and a “Supervisor organisation” construct (3 items). CFA performed well with all item loadings >0.60 differing reliably from zero (p < .0001), indicating all 3 factors are well defined by the items with standardised estimates between the factors < 0.800. Unreliable items with an R-square < 0.400 on the first CFA model run and items with major overlap of factor loadings were removed. Repeated CFA demonstrated the parsimonious 3 factor model gave the best model fit indices.

Discussion and Conclusions: The nascent questionnaire has good psychometric properties, internal construct validation and model-fit indices making it suitable for further evaluation.

Take-home messages: Construct validation of locally developed opinion-based questionnaires with small sample sizes is a feasible exercise using standard validation methodology.
Random versus convenience samples: differences in survey results

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Background: There is some doubt in medical education studies as to whether applying random or convenience samples can interfere with their validity.

Summary of Work: In a multicentric, cross-sectional study including 22 medical schools, our aim was to compare a random sample of 1350 with a convenience sample of 1237 students. Both groups assessed a web survey about quality of life (QoL), emotional competences and educational environment applying several questionnaires.

Summary of Results: The random group was older than the volunteer group (p=0.046) due to a slightly greater number of students from the last years of the medical program. Volunteers showed more negative perceptions of QoL self-assessment (p<0.001). They also showed lower scores in VERAS-Q (time management, physical health, psychological, p<0.001) and WHQOL-BREF domains (physical health, p<0.001; psychological, p=0.002; social relationships, p=0.002; environment, p=0.001), lower scores of Maslach’s Burnout Inventory depersonalization (p=0.007) and personal accomplishment (p=0.007), lower total resilience score (p=0.008), and lower DREEM total score (p=0.009). On the other hand, volunteers presented greater scores on Epworth Scale for daytime sleepiness (p=0.031), Beck’s Depression Inventory (p<0.001), and both, trace (p=0.003) and state (p<0.001) aspects of anxiety in IDATE.

Discussion and Conclusions: We found a clear difference when volunteers and random group were compared. Therefore, our data suggest that students from convenience samples may be biased as to have a more critical view or are those facing greater difficulties along the medical course when compared to randomly sampled students.

Take-home messages: Decisions regarding the sampling must take into account what are the motivations of volunteers and how it can affect the final results.
Learning Global Health: exploring the social determinants of health through the patient-based case report tool

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**Background**: Students begin their first pre-clinical year at the Medical School of International Health with the Introduction to Global Health and Anthropology course. The course is based on two interconnected components: practical experience and complementary lectures.

**Summary of Work**: Students were assigned a patient with a chronic health condition or challenging social circumstances. They visited them at home twice every month for 3 months. Structured case reports were completed in a novel format that focus on analysis of the social determinants of health, and Global Health problems at the patient level through local ethnographies and projected to a world view through review of the literature. Complementary lectures focussed on the anthropology and health needs of these communities, field note-taking and literature search.

**Summary of Results**: All students (28) were placed with local multi-ethnic communities. Global Health problems studied included: aging, refugee health, rights for migrant workers, ethnicity, mental health, chronic pain, managing chronic health conditions in the workplace and end-of-life care.

**Discussion and Conclusions**: The patient-based case report is an effective tool for the analysis of Global Health problems through projection of the determinants of health of individual patients.

**Take-home messages**: There is a need to find practical, patient-based methods for the study and assessment of Global Health.

### Difficulties in teaching Social Sciences in medical school

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**Rafael A. Silva**, University of Campinas, Collective Health, Campinas, Brazil

**Background**: Teaching Social Sciences (SS) in medical schools has changed from "nice to know" to "need to know" in recent decades, however the literature reports ongoing difficulties in different aspects.

**Summary of Work**: In the medical course of University of Campinas SS has been developed in the third and fourth semesters, totaling 120h. From the assessment carried out in the 8th week, out of 15, in the first semester discipline, we found the students’ perceptions about: lectures, reading material, videos used as support and teaching-learning techniques in classroom. Assessment tool consisted of four Likert scale questions and space for comments and suggestions, encouraging individual student assessment. Data from 107 students, out of 115, were collected in the classroom and subsequently treated with descriptive statistics and qualitative thematic analysis.

**Summary of Results**: The results showed three students’ profiles: the first group registers broad rejection regarding to the SS in the medical course; the second accepted the presence of the SS in the curriculum, without understanding exactly their importance; the third pointed the importance of the SS knowledge to their medical education.

**Discussion and Conclusions**: The peculiarity of each group allows seeing "a plurality" of the student body, with diametrically opposed assessments and the impossibility of defining a single profile of "medical student". Furthermore, the positive reviews, related to contents, and negative, associated to readings’ language and structure, challenge us to new didactic/pedagogical experimentation, in order to build ecology of our SS’s knowledge with the students’ knowledge/skills.

**Take-home messages**: Since there are different student profiles we must make medical school curriculum changes.
#8M3 (24226)  
Teaching public health in UK medical schools – the challenges of the vertical strand

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**Background:** Policy initiatives in the UK have emphasised public health teaching within the undergraduate medical curriculum and the medical workforce. We describe teaching input into medical curricula, identify challenges in the delivery of public health teaching and make recommendations.

**Summary of Work:** Cross-sectional survey of teaching leads of public health in all 32 UK medical schools, based on a previous survey from 2005. Questionnaires were supplemented by telephone interviews. Themes drawn from the questionnaire and interviews are presented together.

**Summary of Results:** 24/32 medical schools replied. 11 interviews were carried out. Health informatics is the learning outcome least frequently offered as part of core teaching. 92% of schools offer students a project in public health. 54% offer some form of public health placement. Public health is summatively assessed in particular years and/or finals in all schools. 96% use MCQs to assess public health. Other assessments include poster presentations (46%), OSCEs (41%) and project work (38%). Factors affecting the long term sustainability of public health teaching delivery: 61% said staff levels/staff availability, 22% identified adequate funding, 13% the need for research productivity on teaching commitments, and 8% expressed concern about the possibility of NHS changes to public health impacting on the delivery of their courses.

**Discussion and Conclusions:** There is a need to increase the supply of well-trained and motivated teachers and combine the best traditional teaching methods with more innovative, clinically relevant approaches.

**Take-home messages:** Public Health teaching struggles to maintain an identity within a crowded integrated curriculum. Resource problems exacerbate this.

#8M4 (23765)  
Physical Activity Knowledge and Participation in Australian Postgraduate Medical Students; MEDx

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**Background:** Are medical students prepared for the growing burden of non-communicable diseases? This ongoing study explores the perceptions and knowledge levels of postgraduate medical students towards exercise as medicine and evaluates their activity levels. This is particularly pertinent as evidence indicates that role-modelling and physicians’ exercise habits greatly influence their exercise prescription.

**Summary of Work:** A longitudinal biannual survey of postgraduate medical students at Deakin University (Australia) was undertaken with regards to their personal exercise habits as well as their perceptions and beliefs surrounding exercise. Also investigated was their knowledge of physical activity guidelines and current evidence in the clinical setting.

**Summary of Results:** Few surveyed students met or exceeded the current Australian physical activity guidelines, despite the majority believing that practitioners exercise prescription and personal health affect their patients’ health. Of concern is that almost half of participating students believe medical school hinders their exercise. If exercise levels increased since beginning medicine, over 70% of students cited mental and/or physical health as a driver. If it decreased, over 95% cited time and or university commitments as the reason. Very few students correctly reproduced the physical activity guidelines or answered the knowledge questions.

**Discussion and Conclusions:** There is a clear discrepancy between the views and beliefs of students and their exercise-related actions and knowledge. It is clear that medical school is negatively impacting physical activity and that it should address this. The curriculum clearly lacks exercise as medicine content.

**Take-home messages:** Current medical graduates are not being adequately prepared to prescribe exercise despite a clear need for this knowledge.
Guidelines: Methodological Competence in Gender Medicine

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Background: Skills imparted in medical training can be divided into knowledge and understanding, methodological skills and social skills. When the relatively new discipline of Gender Medicine was initially implemented the question arose what these three skills mean in Gender Medicine and how they can be covered in medical training. In addition to defining the content of each of these three fields and developing a gender-specific anamnesis questionnaire, we needed to provide methods and tools for our students to help them integrate Gender Medicine aspects into their scientific work.

Summary of Work: Between 2012 and 2014 guidelines for students, young scientists and instructors were drawn up. They include definitions, background information on methodology and didactics and illustrate the "gender-specific research cycle." In each guideline a checklist shows how Gender Medicine aspects can be comprehensively integrated into scientific research, grant applications and teaching.

Summary of Results: These guidelines have been distributed to all students and young scientists since 2013, and since 2014 to all course instructors. The number of diploma and PhD theses dealing with gender-specific questions is given in the intellectual capital report of the Medical University of Innsbruck.

Discussion and Conclusions: By teaching Gender Medicine in all study programs at our university, offering a course in interaction with patients and providing guidelines as a methodological tool a complete package is available that integrates Gender Medicine into all levels of university work.

Take-home messages: The new course offerings in Gender Medicine impart knowledge and understanding, methodological skills and social skills.

Does cultural awareness education have an impact on students’ attitudes?

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Background: All over the world people are conducting cultural awareness programs in an effort to educate health professionals about working in a culturally safe way with their patients, in an effort to improve health outcomes. However there is little evidence that any of these programs have a long term impact on the cultural safety of the students practice once graduated. In fact recent research indicates that training programs have been largely ineffective in improving doctors cultural skills, their behaviour or health outcomes. In fact there is anecdotal evidence that some approaches to cross cultural education are having the reverse effect and creating hostility and racism.

Summary of Work: Since 2012 Bond University has been conducting an award winning three year structured program Aboriginal and Torres Strait Islander health program with its undergraduate medical students. Alongside this program they have conducted 5 year longitudinal study to measure the impact of these cultural awareness activities on student’s attitudes and behaviours using a validated cultural awareness and cultural competence scale survey. The survey is administered pre and post immersion at year 1, in year 3 and year 5.

Summary of Results: The early results of the first three years of the cultural awareness study (n=280) indicate that there is an attitudinal and behavioural shift in several areas as a result of the educational program.

Discussion and Conclusions: This paper will report on the initial outcomes of this longitudinal study for the first time. Sharing this initial information will assist others who are teaching into these programs.

Take-home messages: Cultural awareness education can have a lasting impact on student attitudes.
#8N Short Communications: Faculty Development 2

Location: Carron 2, SECC

#8N1 (24039)
Assessing competency in distance learning master programs in medical education: A qualitative analysis of programs in UK and Pakistan

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**Background:** Master’s programs in health professions education have recently increased in number and popularity across the globe. Outcome product of these programs is a qualified medical teacher. This study aims to investigate assessment tools used to assess the level of competency and to find the variability in assessment in these programs.

**Summary of Work:** It is a qualitative case study designed to provide an insight into the type and level of assessment tools used in MHPE programs. The study method chosen was archival research. Purposive and convenient sampling method was used to select 08 programs, 04 each from UK and Pakistan. Master’s programs in medical education using the blended technique were included, as programs in Pakistan only offer this type. The data was collected from the websites of the program.

**Summary of Results:** Manifest conventional content analysis of the data was done using NVIVO 10. Common assessment tools used to assess competence in all the programs were assignments and dissertation submission. Programs in UK also used portfolios whereas in Pakistan summative examination using MCQ, SEQ’s and OSTE was employed instead. All programs in the study assessed student at ‘shows how’ level except 02 programs in UK which assessed meta competency.

**Discussion and Conclusions:** Distant learning blended programs employ a variety of assessment tools to assess competency at different levels of competence. This results in variability of level of assessment and hence affects the eventual outcome.

**Take-home messages:** A uniform method of assessment should exist for master programs in health professions education to ensure uniform learning and outcome.

#8N2 (24985)
Medical education in the digital age: the role of MOOCs in faculty development

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**Background:** In the UK, all postgraduate medical trainees are required to have named, accredited clinical supervisors in every placement from July 2016. Given the time pressures, difficulties of geographical access, and the national drive for professional standards for clinical educators, there is a need to identify appropriate solutions for faculty development. Massive Open Online Courses (MOOCs) have made online learning on a plethora of topics accessible to learners worldwide with several MOOCs suitable for postgraduate medical training offered by USA-based platforms eg. Coursera and EdX; faculty development via MOOCs is negligible. Our 2-week FutureLearn MOOC (March 2015) offers clinical supervision training for faculty development. This study will assess the potential role of MOOCs for faculty development.

**Summary of Work:** Data will be sourced from course analytics, discussion boards, learner feedback, and educators. The MOOC will be evaluated using a published framework for e-learning in health.

**Summary of Results:** Course analytics provide a rich source of quantitative and qualitative data (geographic reach, participant roles, motivation to undertake MOOC, etc). Samples of discussion board content will be used to illustrate specific points.

**Discussion and Conclusions:** This work will enable us to assess the role of MOOCs as a vehicle for faculty development. Clinical educators need to maintain and refresh their skills, to maximise patient safety. Could MOOCs provide a potential solution?

**Take-home messages:** There are significant time and other pressures on busy doctors resulting in a need to identify potential solutions for faculty development. MOOCs have potential to be an efficient solution by enabling learning, sharing and co-constructing knowledge without geographical boundaries.
Workplace community enhancement by a comprehensive Faculty Development program at the department of Family Practice specialty training

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Background: A major curriculum change required commitment and contribution to the new plans from all staff members of the training institute. Based on the needs of the department to promote collaboration and exchange between teachers, a comprehensive FD program was designed for the department of Family Practice specialty training.

Summary of Work: A needs assessment among all teachers was completed to recognize performance gaps and instructional problems. The framework of O’Sullivan and Irby (2011) had inspired to identify the goals and formats of the FD program, tailored to the needs of the staff.

Summary of Results: A coherent FD-program, mainly based upon workplace learning, was implemented. It comprises several components: 1. Monthly meeting of teachers to discuss and decide upon educational topics, e.g. how to improve workplace learning; 2. Team work to exchange teaching strategies and to improve curriculum content; 3. Workshops to address teacher skills and competencies, e.g. mentoring skills; 4. Coaching session to stimulate reflection and support professional development by the use of a personal development plan.

Discussion and Conclusions: The program has stimulated personal growth as well as a more open climate to share ideas and collaborate more intensively regarding the new curriculum. Evaluations, to be held next summer, will provide more detailed outcomes.

Take-home messages: A comprehensive FD program integrated in the daily work of teachers established a positive learning climate of staff members in a department and promoted the implementation of curriculum change.

Who is my community? Academic leaders’ conceptions of their social network

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Background: The dynamic context of academic health sciences begs for excellent leaders. Increasingly, conceptualizations of leadership as a social process are showing promise for the understanding of leadership impact; yet more knowledge about their utility within the academic health sciences is needed. In this study we begin to address gaps in knowledge about social networks and leadership in the academic health sciences context.

Summary of Work: The context for this research was the New and Emerging Academic Leadership (NEAL) program,a year-long faculty development program aimed at enhancing academic leaders’ in the health sciences effectiveness. We conducted pre- and post-program social network mapping interviews to elicit rich descriptions of leaders’ understanding of their social networks. We analyzed interview transcripts and social network maps using an interpretive qualitative approach, first conducting inductive coding and next applying social network leadership theory as a sensitizing concept.

Summary of Results: In pre-program data, leaders’ broad conceptions of connections with others fell into two categories: compulsory relationships, and voluntary relationships. Leaders’ relational approaches included: pursuing relationships purposefully and strategically, maintaining or strengthening relationships over time, and managing or minimizing difficult relationships. Leaders described a variety of reasons for discerning which approach to take to these relationships, including access to resources or fulfilling formal roles. In post-program data, leaders’ approaches to these relationships shifted in terms of how they categorized particular relationships and their rationalizations for their shifting perspective.

Discussion and Conclusions: This research begins to address the gap in the academic health sciences knowledge base of academic leaders’ understanding of social networks. Importantly, these findings contribute theory-building knowledge about how leaders understanding may shift over time through formal leadership development.

Take-home messages: A network perspective on leadership development is a promising direction for faculty development, moving beyond an individualistic focus toward systemic impact.
Reflecting on and developing leadership skills for postgraduate students in a clinical-experimental medical sciences programme: Can Health Professions Education be the key?

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Background: An ongoing debate is considering the role of postgraduate programmes in faculty development beyond the usual training of researchers and experts in the various fields of knowledge. Only few experiences in masters and doctorate programmes in health sciences properly explore faculty development.

Summary of Work: Three 30 hours elective modules were inserted on an educational track of a Postgraduate Programme in Medical Sciences, aiming to develop researchers-leaders. Core competences presented included evidence-based strategies for educational practices in multiple settings; needs assessment for contextualized and interdisciplinary learning experiences; collaborative educational models in clinical settings, besides learning assessment in professional environments.

Summary of Results: The appropriation and application of covered concepts were high, as appeared on the intervention projects designed by students. Participant feedback revealed high influence of experiential educational methods, and from peers, on individual and group learning. Most participants recognized the educational strategies and leadership skills as relevant tools to change in professional practice, and 90% of the class chose to enroll the following module.

Discussion and Conclusions: Despite their focus on research, it is undeniable the role of graduate students on leadership development in the health field, regardless of assuming teaching functions in the future. Training in education for the health professions during the academic education can predispose to durable competences development, which gives meaning to technical training and allows disruptive innovations in health and social organizations through educational interventions.

Take-home messages: We strongly believe that empowerment of postgraduate students with concepts, methods and experiences of education can lead to better faculty but also transformative leaders for health communities.
#8O Short Communications: Social Accountability

Location: Dochart 1, SECC

#8O1 (27109)
What are medical schools doing about social accountability? A systematic literature review

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Background: Medical Schools are increasingly viewing themselves as being accountable to wider society rather than just to their students/stakeholders. The aim of this review is to systematically assess how social accountability is currently defined/delivered and how interventions are evaluated.

Summary of Work: A literature search was conducted in multiple databases using the keywords “social accountability”, “social responsibility”, “medical education”, “medical curriculum” and “medical schools”.

All items identified were systematically reviewed by title, abstract and the full paper against set inclusion and exclusion criteria. 1813 papers were screened to produce 26 papers for review. The remaining literature was coded using an initial framework to perform thematic analysis. More themes were developed inductively and papers were coded a second time. Weighting of evidence of each paper was based on quality appraisal and a hierarchy of methodology.

Summary of Results: Definitions for social accountability varied slightly, though the majority used the World Health Organisation definition from 1995. The most common reason given for pursuing socially accountable activities was to help the medically underserved and vulnerable populations. Themes revolving around interventions and activities to increase levels of social accountability focused on curriculum changes, placements, recruitment and community engagement. Despite a lack of longitudinal data, measurement of progress shows a heavy reliance on student opinions through surveys, with a lack of community involvement.

Discussion and Conclusions: A number of medical schools have recognised their obligation to actively engage with the communities they serve and address social issues to improve healthcare for all. Future research on social accountability should use a contemporary consensus definition as a framework, measuring impact using more quantitative, longitudinal methods, ensuring community members are involved in this measurement.

Take-home messages: Medical schools appear to have recognised their obligation to actively engage with their community and related social issues to improve healthcare. However, how this engagement is defined and measured appears to be diverse.

#8O2 (23789)
Meaning of Social Accountability in a New Medical School in a small Argentine Community

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Héctor Alejandro Barceló, Barcelo Medical School, Buenos Aires, Argentina
Ricardo Juan Rey, Barcelo Medical School, Internal Medicine, Buenos Aires, Argentina
María Cristina Rilo, Barcelo Medical School, Science and Investigation, Buenos Aires, Argentina

Presenter: Axel Barcelo*, Barcelo Medical School, Buenos Aires, Argentina

Background: In 1999, The Foundation H.A. Barcelo, planned the creation of a new Medical School in a rural area located in Santo Tome North-East of Argentina.

Summary of Work: It is about the social results of the foundation of a New Medical School on a small community. Such as: economic and social impact in the Community, Hospital complexity, Primary Care Centers, Rural activities, Research Work and Pedagogical Results and Challenges.

Summary of Results: Starting the New Medical School, the population of Santo Tome was 14,000 inhabitants and nowadays after 16 years of academic work the population is 25,000 inhabitants. More than 4,000 new houses have been built, over 150 shops have opened since 1999. New Hospital wards were built. Areas for Emergency, the Coronary Unit, and Critical Care were created. Seven centers for Primary Care were built in the periphery of the town so now all the ambulatory medical care takes place in these centers. The Teaching Hospital covers the distant areas with 4 ambulances. All the students perform primary care in the small villages. Medical research was performed by investigators and medical students work on Endemic Yellow Fever, Dengue, Malaria and Leishmania Disease using suitable laboratories. So far there are 500 graduates: 87% Argentines and 13% from foreign countries (Brazil and Paraguay).

Discussion and Conclusions: The foundation of a new and unique Medical School in this rural area with influence in Brazil, Paraguay and Uruguay, has had a notable social and sanitary impact. It has been the response to the challenge of teaching Medicine in the North-East of the country.

Take-home messages: We tried to point out the meaningful impact to improve a small community because of the creation of a Medical School.
#803 (23823)
Research on Accountability Practices in Brazilian Medical Schools

Izabel Coelho, Faculdades Pequeno Principe, Medicina, Curitiba, Brazil
Amanda Luz, Faculdades Pequeno Principe, Medicina, Curitiba, Brazil
Rosiane Mello, Faculdades Pequeno Principe, Ensino e Pesquisa, Curitiba, Brazil
Alexa Marchioratto, Faculdades Pequeno Principe, Ensino em Saúde, Curitiba, Brazil
Edilceia Ravazzoni, Faculdades Unibrasil, Nutrição, Curitiba, Brazil
Ivete Zagonel, Faculdades Pequeno Principe, Enfermagem, Curitiba, Brazil

Presenter: Vera Andrade*, Faculdades Pequeno Principe, Pesquisa, Curitiba, Brazil

Background: Social accountability of medical schools has been the subject of considerable discussion in recent years.

Summary of Work: Research was carried out by the school’s coordinators on 242 medical schools in Brazil to understand how they manage social accountability practices. Increasingly it is expected that the educational approaches of the health professional are directed to real social needs. The methodology is exploratory research, starting with a semi-structured interview sent by e-mail.

Summary of Results: The material based on the perceptions of the schools coordinators on the social accountability practices will be submitted to analysis, and the results will show the long term strategy used by the school to improve the health conditions as a whole, working with social responsibility and alongside the communities surrounding the campuses.

Discussion and Conclusions: Once the results are analysed, the best activities and management formats will be presented and that will allow the development of accountability practices on medical schools and on the communities in the surroundings, aiming to provide a better health service to all who were involved in the research.

Take-home messages: Encourage critical thinking on how medical schools can magnify their influence on the communities they are a part of and promote citizenship awareness with accountability practices in a political, social and subjective way.

#804 (27026)
Health Advocacy training promotes General Practice trainees’ social accountability

Marie-Louise Schreurs, Maastricht University, Family Medicine, Maastricht, Netherlands
Tonnie Van Kessel*, Maastricht University, Family Medicine, Maastricht, Netherlands

Background: Health advocacy training is addressed mainly indirectly as part of medical educational programmes or linked to peer-discussions about current topics. Due to changes in the role of the general practitioner in the Health system in the Netherlands a more explicit training in advocacy is needed in the curriculum for GP’s.

Summary of Work: A two session program was designed to promote active exploration of the role of the general practitioner and to sharpen the view of the GP trainees towards health advocacy. The program was tested and evaluated in a group of GP-trainees.

The GP-trainees had to fulfill a couple of workplace assignments, among others to visit a community centre. Involvement of the GP-trainers at the workplace was encouraged by informing them about their role in the training.

Summary of Results: GP-trainees undertook a diversity of actions. Especially the visit to a community centre has functioned as an eye-opener. Also the discussion with the GP-trainers was valuable. Not only GP-trainees but also their GP-trainers reported more awareness and responsibility for social issues due to the program.

Discussion and Conclusions: Health advocacy training supports the development of personal views of the role the general practitioner in health oriented social issues. The involvement of GP-trainers served as an appreciated role-model for the trainees.

Take-home messages: Health advocacy should be explicitly addressed in GP-training, supported by a modelling GP-trainer.
Impacts of a new medical school on a remote Brazilian region

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Nádia Veronica Halboth, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Medicina, Diamantina, Brazil  
Luciana Fernandes Amaro Leite, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Medicina, Diamantina, Brazil  
Juliana Augusta Dias, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Medicina, Diamantina, Brazil  
Leida Calegário de Oliveira, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Farmácia, Diamantina, Brazil

Background: Jequitinhonha Valley is a remote and poor region in Brazil, which had no Medical School until 2012 and no local physician was involved in clinical teaching. Through efforts of the Federal University of Jequitinhonha and Mucuri Valleys and local community a school was created in Diamantina in 2013.

Summary of Work: The Medical School was implemented in February 2013, with residence in different areas. In March 2014, 30 undergraduates begun their studies. The innovative community based curriculum aims to prepare this students to work in primary health care and deal with the needs of local population. It is founded on a partnership between university and public health system. Students act as members of health care teams, performing functions that grow in complexity over the course. During the first two years, each group of ten students works within the same community under supervision.

Summary of Results: The program already had a positive impact on the medical community: now 38 local physicians are involved in teaching in classes for undergraduates, as primary heath preceptors or precepting residents. Students production, as epidemiological information, is also important and useful for the activities carried out by health teams.

Discussion and Conclusions: This new Medical School had a positive impact on the activities of the health units and medical community contributing to enhance the involvement of the educational institution with local community.

Take-home messages: The responsible insertion of an educational institution in local public health system is an important factor for the success of community based curriculum and reaffirms the social accountability of the Medical School.

A new medical school developed by the community for the community in Northeastern Pennsylvania, USA

Janet Townsend*, The Commonwealth Medical College, Family, Community and Rural Health, Scranton, USA  
Diana Callender, The Commonwealth Medical College, Clinical Sciences, Scranton, USA  
William Lobst, The Commonwealth Medical College, Clinical Sciences, Scranton, USA

Background: The Commonwealth Medical College was envisioned by a group of community leaders in 2004 to provide medically underserved Northeastern Pennsylvania (NEPA) with well-trained physicians. Goals include increasing access to care, reducing disparities and creating a national model for community-based medical education.

Summary of Work: State and local funding was obtained and a state-of-the art building opened in 2011. The admissions process prioritizes accepting students from the region. The curriculum includes a three-week community immersion in years one and two, including a family centered-experience and mandatory community health research projects. Third and fourth year students are embedded in regional campuses. Third year ambulatory longitudinal integrated clerkship and community physicians as four-year continuity mentors deepen community involvement.

Summary of Results: TCMC graduated its 1st class in 2013 and became fully accredited in 2014. Applicants to the program increased from 1291 to 7284 between 2009 and 2014. The 2014 admitted class is 78% Pennsylvanian with 36 % from NEPA and has an average GPA and MCAT of 3.5 and 30 respectively. Students have performed at, or slightly above, national averages on standardized assessments and have placed in competitive academic and community-based medical centers nationally. Approximately 30% and 2% of 126 graduates matched in residencies within Pennsylvania and NEPA respectively.

Discussion and Conclusions: A novel community-based school can provide quality medical education. However, given that residents frequently practice in regions where they train, robust graduate medical education opportunities within NEPA must be created.

Take-home messages: Novel models of medical education aimed at meeting community needs can be successful but must address retaining graduating physicians.
#8P Conference Workshop: A beginner’s guide to peer reviewing health education systematic review: A Best Evidence Medical Education (BEME) collaboration workshop (23889)  
Location: Dochart 2, SECC  

Morris Gordon, University of Central Lancashire, Preston, UK  
Madalena Patricio*, Lisbon, Portugal  
Antonio Vaz Carneiro*, Lisbon, Portugal  

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: Intermediate  

#8Q Conference Workshop: Advanced Presentation Skills - Going From Good to Great (24121)  
Location: Castle I, Crowne Plaza  

Lawrence Sherman*, Prova Education, Educational Strategy, Melville, USA  

Background: Medical Educators are often led down the path of teaching and presenting, but never receive formal training in the art and science of presentation skills use. Even the most experienced presenters mention that they are always happy to learn of innovative and creative techniques to improve their style and substance! This workshop is aimed at experienced presenters where they can share with and learn from their presentation peers.  

Intended Outcomes: Participants will be better able to use the skills discussed in their future presentations  

Structure: Participants will be guided through an enjoyable session in which a trained facilitator will help guide the group through assessing best practices in content design, voice projection, body language and positioning, eliminating the use of connectors (uh, um, er) and audience engagement  

Who Should Attend: This workshop would benefit presenters with experience preparing and delivering presentations to all audience types and sizes.  
Level: Advanced
#8R Conference Workshop: Implementing Entrustable Professional Activities in UME: Lessons from the Core EPAs for Entering Residency pilot in the US (24607)

Location: Castle II, Crowne Plaza

Maryellen Gusic*, Association of American Medical Colleges, Medical Education, Washington, USA
Vivian Obeso*, FIU Herbert Wertheim College of Medicine, Internal Medicine, Miami, USA
Kim Lomis*, Vanderbilt, General Surgery, Nashville, USA
Meenakshy Aiyer, University of Illinois at Chicago, Internal Medicine, Peoria, USA
Karin Esposito, FIU Herbert Wertheim College of Medicine, Psychiatry, Miami, USA

Background: Last spring, the Association of American Medical Colleges (AAMC) published the Core Entrustable Professional Activities (EPAs) for Entering Residency, describing 13 EPAs that all graduating MDs should be able to perform on day one of residency without direct supervision, regardless of specialty. Similar efforts are underway in Canada, the Netherlands and Germany to identify the EPAs for the Undergraduate-to-Graduate Medical Education transition. The AAMC has convened a consortium of 10 schools to pilot implementation of the Core EPAs over the next four years. Specifically, these schools are identifying/developing curricula and assessments, delineating pathways to entrustment and creating tools to address needs in faculty development for use of the EPAs. In this workshop, we will discuss lessons learned in translating the EPA framework from the GME to the UME space, and enlist participants to explore solutions to challenges that have arisen in our work.

Intended Outcomes:
1) Explore the use of an EPA framework in UME
2) Identify/Explore key elements of curriculum/assessment (relevant to the EPAs) that could lead to an entrustment decision (eg: applying Harden’s 4 dimensions for progressive assessment of learners – breadth, complexity, application/integration, proficiency)
3) Define challenges to the EPA approach in UME
4) Identify solutions to the challenges that can be brought back to their home institutions

Structure: We will begin with a review of EPAs, their relationship to competencies and milestones, and an introduction to the 13 Core EPAs for Entering Residency. We will engage in a discussion of the challenges that have arisen in translating the EPA concept to UME. Participants will work in small groups to identify potential solutions. We will close with a large group discussion of innovative solutions shared during these conversations.

Who Should Attend: Educators on either end of the UME to GME continuum interested in EPAs as a framework for assessment in UME.

Level: Intermediate

#8S Conference Workshop: The Small Group Experience: Strategies to Improve Your Performance as Facilitator (26446)

Location: Castle III, Crowne Plaza

Carol F. Capello*, Weill Cornell Medical College, Academic Affairs, New York, USA
Norma S. Saks, Rutgers Robert Wood Johnson Medical School, Education, New Brunswick, USA
Thanakorn Jirasevijinda*, Weill Cornell Medical College, Pediatrics, New York, USA

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 curriculum

Level: Intermediate
#8T Conference Workshop: Standard setting: why it matters and to whom (25424)
Location: Gala 1, Clyde Auditorium
Nathalie De Bruycker*, Leiden University Medical Center, Center for Innovation in Medical Education, Leiden, Netherlands
Adriaan Norbar*, Leiden University Medical Center, Center for Innovation in Medical Education, Leiden, Netherlands
Karen Stegers-Jager*, Erasmus University Medical Center, Institute for Medical Education Research Rotterdam, Rotterdam, Netherlands
René Tio*, Center for Research and Innovation in Medical Education, University of Groningen and University Medical Center Groningen, Groningen, Netherlands

Background: Standard setting in medical education is crucial. For the student it means passing or failing a test and in the end getting a degree. For medical educators it also reflects the quality of education. Good standard setting is essential, because “it is the process of determining how much is good enough” (Bandaranayake, 2008).

All medical schools use standard settings methods that are either norm-referenced, criterion-referenced(e.g. Angoff) or a compromise method (e.g. Hofstee, Cohen-Schotanus). However, most medical educators and students are not aware of the consequences of these methods.

Intended Outcomes:
• Being able to explain differences in and consequences of different methods of standard setting from the perspective of educators, directors and students.
• Based on this understanding: being able to choose a method (directors and some educators) or being able to understand the choice your institution made (educators and students)

Structure:
• Real case scenario: a completed test
• Short presentation on different types of standard setting
• Short stations where participants will experience the consequences of different standard settings based upon the test results and provided cases. Participants will take the perspectives of medical educators, students and administrators.
• Plenary discussion where participants report insights based on their experiences

Who Should Attend: Medical educators, medical school directors and students interested in methods of standard setting and their consequences.
Level: Intermediate

#8U Conference Workshop: Driving student learning through developmental assessment: Designing faculty development for workplace based assessment (26690)
Location: Gala 2, Clyde Auditorium
James Kwan*, School of Medicine, University of Western Sydney, Medical Education Unit, Sydney, Australia
Subha Ramani*, Harvard Medical School, Department of Medicine, Brigham and Women’s Hospital, Boston, USA

Background: In competency-based medical education (CBME), learner-centered outcomes should direct curricular design and trainee assessment. However, not all clinical teachers perform meaningful and comprehensive assessments of learners required by a CBME approach. Despite availability of multiple assessment methods, clinical teachers play a vital role in direct observation of learners and judging their fitness to practice in patient-care settings. They need to determine whether a learner is on an appropriate “trajectory” and provide feedback to guide their learning and development. Moving towards a developmental assessment system requires comprehensive faculty development for teachers to learn about existing models and understand what competence should look like at various stages of training.

In this workshop, we will discuss the challenges of learner assessment in the clinical environment, apply key principles of a developmental approach to assessment and describe practical strategies for faculty development in workplace based assessment.

Intended Outcomes:
(1) Brainstorm key challenges of performance assessment in the workplace and generate potential solutions; (2) Discuss a developmental approach to workplace assessment in clinical settings; (3) Practice strategies for effective observation of clinical learners and providing behavioural feedback; (4) Describe practical strategies for faculty development in workplace assessment.

Structure: Mini-didactics - review principles of CBME; Large group interactive discussion - challenges of learner assessment in the workplace; Videotape review - practice direct observation and feedback; Small group discussion - design faculty development for workplace assessment of clinical trainees

Who Should Attend: Faculty who assess learners in inpatient or outpatient clinical settings; Educators who are responsible for faculty development in workplace based assessment.
Level: Intermediate
#8V  Conference Workshop: How to develop a superb postgraduate faculty team (24598)
Location: Staffa, Crowne Plaza

Alan Cook*, Severn Postgraduate Medical Education, Health Education England, Educational Development, Bristol, UK
Davinder Sandhu*, Royal College of Surgeons in Ireland, Bahrain Medical University, Bahrain

Background: Effective postgraduate medical education requires highly skilled individual trainers and educators who can utilise a range of coaching, teaching and developmental skills in one to one, small group and larger audience sessions. They are also most successful if they have an understanding of how organisations and teams work best together and of how systemic dynamics can both enable or damage healthcare provision and patient safety. Faculties of educators need to work well together as integrated and complementary teams with high levels of innovation and creativity and active resolution of the inevitable conflicts and challenges that arise in providing excellent medical education

Intended Outcomes:
• Understanding of the factors that create successful faculties and educational teams including contextual and cultural aspects and establishing and maintaining a positive working environment
• Exploration of ways to establish and communicate educational standards and competencies for educators and trainers and options for developing individuals to achieve these
• Action plan by each participant to develop their faculty teams and members to improve their individual and collective effectiveness

Structure:
1. Introductions and focus on key issues
2. Presentation on educational context, culture and organisational climate
3. Individual reviews and discussion
4. Input on content of standards and competencies, means of engaging faculty in a cooperative way and how to monitor skills development
5. Individual action plans
6. Plenary discussion

Who Should Attend: Educators who hold responsibility for developing, leading and managing faculties of trainers and individuals responsible for organising and delivering postgraduate medical education
Level: Advanced

#8W  Conference Workshop: Enhancing team-based learning through the use of a mobile-friendly online assessment platform in-class (24732)
Location: Shuna, Crowne Plaza

Shihab Khogali*, University of Dundee School of Medicine, Medical Education Institute, Dundee, UK
Alisdair Smithies*, University of Dundee School of Medicine, Medical Education Institute, Dundee, UK

Background: Team-based learning (TBL) is an established educational method, which provides opportunities for problem-solving activities and student accountability for engagement with the learning process. The TBL strategy involves a specific sequence of individual and team activities and multiple small groups in a single classroom setting. A platform accessible to students’ in-class via their own internet-ready devices has been successfully used to enhance TBL in the undergraduate medical curriculum at the University of Dundee. The workshop will demonstrate the added educational benefits of adopting this approach.

Intended Outcomes: By the end of the workshop participants should be able to:
(1) Describe the TBL approach.
(2) Evaluate the educational benefits of using a technology-enhanced approach to support the delivery of TBL.
(3) Identify opportunities within their own institution to implement a technology-enhanced TBL approach.

Structure: The workshop will be very interactive and will provide a general overview of the TBL method. Participants will be offered a hands-on experience of using their own internet-ready device (e.g. a tablet, a mobile phone or a laptop) to participate in a TBL process enhanced by technology. The workshop will particularly focus on the educational benefits of using mobile-friendly technology to enhance the in-class individual Readiness Assurance Test (iRAT) component of TBL.

Who Should Attend: This workshop is likely to be of interest to teachers, curriculum developers, curriculum managers, students, and educational technologists.
Level: Intermediate
#8X  Conference Workshop: Is it them or is it us? Re-imagining the undergraduate curriculum through the learner’s eyes (23278)

Location: Jura, Crowne Plaza

James Crossley*, University of Sheffield, Academic Unit of Medical Education, Sheffield, UK
Olle ten Cate, University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands
Glenn Regehr, University of British Columbia, Centre for Health Education Scholarship, Vancouver, Canada
John Sandars, University of Sheffield, Academic Unit of Medical Education, Sheffield, UK

Background: Despite repeated curricular re-design, we still suppress active student learning too often. John Biggs made the obvious but important point that curricula should be aligned to the desired learning outcomes. Consequently, integrated curricula seek to encourage integrated learners; spiral (distributive & progressive) curricula seek to develop meaning-makers; problem-based curricula and student selected components seek to nurture active learners; and competency-based curricula aspire to produce able practitioners. Each of these developments is rational. However, none of them has had a transferable and measurable impact on learning. Perhaps curricula also need to aligned to the learners. The workshop leaders have considered this aspect of alignment from the perspectives of disorientation, entrustability, self-authorship, adult learning theory and supported participation.

Intended Outcomes: Participants will:
- gain a new perspective on curricular design – the learner perspective,
- hear about a range of ways in which the learner’s perspective should affect curricular design, and
- work in groups to apply these ideas to their own curriculum or teaching and learning activity

Structure: INTRODUCTION.
BRIEF PRESENTATIONS:
Adult learning theory and the real world
Disorientation and roadmaps
Entrustability and tasks
Self-authorship and individualisation
Learning transfer and supported participation
INTERACTIVE GROUP WORK:
to consider how these new perspectives can inform learning objectives, educational experiences and assessment in participants’ own institutions and teaching encounters
SUMMARISING PLENARY

Who Should Attend: Teachers and learners with curriculum-development roles.
Face-to-face teachers in classroom or clinical settings.

Level: Intermediate

#8Y  Conference Workshop: Curriculum Mapping – easier than thought (27884)

Location: Barra, Crowne Plaza

Olaf Ahlers*, Charite – Universitaetsmedizin Berlin, Department for Curriculum Management and Department of Anaesthesiology and Intensive Care Medicine, Berlin, Germany
Martin Dittmar*, Charite – Universitaetsmedizin Berlin, Department for Curriculum Management, Berlin, Germany
Jon Carl Becker*, Medical Faculty, University of Muenster, Department of Medical Education, Muenster, Germany
Ina Treadwell*, Sefako Magatho Health Sciences University, Skills Centre, Medunsa, South Africa
Syed Moin Aly, College of Medicine, Taif University, Department of Medical Education, Al-Hawiyah, Taif, Saudi Arabia
Ara Tekian*, College of Medicine, University of Illinois, Department of Medical Education, Chicago, USA

Background: One of the challenges in curriculum development is to make sure that clear objectives for knowledge, skills and attitudes (KSA) are aligned with intended outcomes/competencies, assessment, and lectures/courses/unit/modules – both within and between different departments/schools/faculties. Curriculum mapping ensures this alignment and structures the vast amount of available information in a transparent way which is essential for all accreditation processes. Appropriate web-based platforms for curriculum mapping and management become effective, especially in countries where curriculum designers, teachers and students have to coordinate curricula over long distances or different campuses.

Intended Outcomes: Participants will be able to: outline the initial steps for creating a curriculum map, identify their specific needs for curriculum mapping, conceptualize their own curriculum map(s) to meet their needs, and visualize the relation of the different parts of the respective map.

Structure: The organizers will present a short overview of the experiences with the Berlin “Learning Opportunities, Objectives and Outcome Platform” (LOOOP) used for mapping of different curricula in Germany, South Africa and Saudi Arabia. The structures of the respective curricular maps will also be presented as various examples.

Afterwards, participants will define their own needs for curriculum mapping, conceptualize their own maps and visualize them by adapting the generalizable LOOOP map to the respective needs. Each organizer will supervise a small group of participants during the entire process. The workshop will conclude with examples of maps and take-home packages.

Who Should Attend: Study program coordinators, curriculum developers, curriculum deans

Level: Intermediate
#8Z  Conference Workshop: Creating virtual patient cases that support the development of clinical reasoning (24369)
Location: Orkney, Crowne Plaza

James Barry McGee, University of Pittsburgh, School of Medicine, Pittsburgh, USA
David Fleiszer, McGill University, Department of Surgery, Montreal, Canada
Nancy Posel*, McGill University, School of Medicine, Montreal, Canada

Background: Clinical reasoning requires the translation of pathophysiologic knowledge into practice models to permit hypothesis generation, problem-solving, decision-making, and treatment planning (Eva). Virtual patient cases (VPs) provide realistic, relevant and meaningful clinical encounters to support learning and assessment, permit application of domain knowledge, and opportunities for deliberate practice with immediate feedback (Cook and Triola). In Simulation Centers VPs are used to augment blended educational models, enable mastery learning and enhance individualized competency-based learning (Bell; Zendejas et al.). This workshop will introduce evidence-based strategies and designs that support the development of clinical reasoning using VPs to teach, evaluate, and support the translation of these skills into the practice setting.

Intended Outcomes: At the end of this workshop participants will have acquired the essential virtual patient design skills that support the development of clinical reasoning, reviewed strategies to support the integration of these within VPs, examined the potential of VPs in healthcare education, and explored issues associated with the implementation of these VPs within curricula.

Structure: Facilitated interactive whole group discussions will introduce (a) different VP models, (b) evidence-based strategies to support the development of clinical reasoning (Posel, McGee, and Fleiszer), and (c) specific methodologies to integrate these strategies within VP cases. Participants, working with facilitators will then: Review the clinical reasoning strategies previously introduced Integrate these strategies into an existing VP case Present a VP case to the whole group Discuss how this approach can be used within existing curricula

Who Should Attend: Healthcare educators interested in improving clinical reasoning with virtual patients
Level: Intermediate
#8AA ePosters: Communication Skills
**Location:** Morar, SECC

#8AA01 (28173)
Communication and medicine: developing skills

**Ana Laura Schliemann***, PUC/SP, Psicologia do Desenvolvimento, Sorocaba, Brazil
Sérgio Zaidhaft, Universidade Federal do Rio de Janeiro, Hospital Universitário Clementino Fraga Filho, Rio de Janeiro, Brazil

**Background:** Health communication concerns the study and use of strategies to inform and influence the decisions of individuals to promote health. The information and communication processes are strategically important because they can influence the evaluation, adaptation for drug and behavioral accession.

**Summary of Work:** The training for these skills takes on subjective and experiential processes that require training in intrasubjetivas and dynamic group. The worked skills were empathy, understanding, listening, observation and reflection on history and clinical examination. The course content was communication and human development, as well as emotional aspects of illness. The strategies used were discussing movies, music; Clinical cases; visits and verbal communication training and nonverbal in pediatrics. The objectives of the study were to assess students on the conditions of application of knowledge and develop communication strategies.

**Summary of Results:** The survey was conducted with students from first to sixth year of the course. Most of the participants are female, single, childless and has religion. Of the respondents, about 85% rated the activities appropriate and favored the increase of knowledge.

**Discussion and Conclusions:** Qualitatively, the evaluation is best when the activity is practice. It was concluded that the discussion of these issues develops critical thinking in students for their practice.

**Take-home messages:** The subject must always be addressed and the creation of a communication laboratory is a strategy to discuss doctor’s everyday situations, how to deal with families with serious illness and death.

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#8AA02 (24924)
Translating medical documents into plain language enhances communication skills in undergraduate medical students

Anja Bittner, "Was hab' ich?" gGmbH, III. Medical Clinic, Dresden, Germany
Ansgar Jonietz, "Was hab' ich?" gGmbH, Dresden, Germany
Johannes Bittner, "Was hab' ich?" gGmbH, Dresden, Germany
Luise Beickert, "Was hab' ich?" gGmbH, Dresden, Germany
Presenter: **Sigrid Harendza***, University Hospital Hamburg-Eppendorf, Hamburg, Germany

**Background:** Using plain language is a necessary requirement in physicians’ daily practice when communicating with patients. In 2011, two medical students founded the nonprofit website https://washabich.de. Patients can submit medical documents to this site. German speaking medical students “translate” the documents into plain language. We hypothesize that working as a “translator” for this website increases students’ awareness for using plain language in patient encounters and improves their patient-centred communication skills.

**Summary of Work:** 27 medical students from Hamburg University attended a seminar on patient-centered communication. In the following ten weeks, participants “translated” one medical report every fortnight on the platform http://washabich.de receiving feedback by a near-peer supervisor. A pre- and post-course assignment included a questionnaire on communication skills, an analysis of a medical text with respect to recognizing medical jargon, and the translation of a medical report into plain language.

**Summary of Results:** Students rated themselves in almost all aspects of patient-centered communication significantly higher after the course. After the course they marked significantly (p<0.001) more medical jargon terms in a short medical text correctly (87.7% ± 11.2%) than before the course (51.6% ± 19.9%). In a written plain language translation of a medical report students scored significantly higher with respect to communicative aspects (p<0.05) and medical correctness (p<0.001) after the course.

**Discussion and Conclusions:** Implementing exercises in translating medical reports into plain language in the undergraduate medical curriculum can improve doctor-patient communication. Voluntary work on an internet platform like https://washabich.de might have a similar learning effect for medical students.

**Take-home messages:** Translating medical documents improves communication skills in undergraduate medical students.
Literature and Medicine - a teaching experience

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Background: Nowadays, there seems to be an abyss of mutual misunderstanding between physicians and their patients. During last century, Medicine has undergone impressive technical progress, but doctors seem to lack the human capacities to communicate with their patients and skills in listening and understanding are, no doubt, the weak spot of current clinical practice.

Summary of Work: Considering that a medicine practiced with narrative competence leads to more humane, ethical and effective care, we developed a project to promote narrative and communication skills through the discussion of literary texts. Teachers and students met every two weeks to debate on selected books, supported by a drama teacher. The discussed books were: Every patient has a story to tell, L. Sanders; Ivan Ilitch’s death, L. Tolstoi; Ward nr6, A. Tchekhov; The Alienist, M. Assis; An anthropologist in Mars, O. Sachs. Two months later the students were invited to write their own texts, under the supervision of a literature teacher.

Summary of Results: The students’ texts gave birth to the book “Literature and medicine–a teaching experience” and to a script of a documentary, based in the story of a premature baby and his family.

Discussion and Conclusions: The study of literary texts contributed to enhance the student’s narrative competence, communication skills and critical understanding of individual disease processes. In addition, the supplementary reading activity, drama exercises and writing skills support enlarged students’ general knowledge, helped them to cope with shyness and enhanced their self-esteem and self-assurance.

Take-home messages: Teaching narrative competence is an important goal in medical education and, in this issue, literature is an efficient and enjoyable tool.
Exploring the effect of using real patients’ cases in peer role-play in undergraduate medical interview education: a qualitative study

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Background: Although reality is important for communication skills training in undergraduate clinical education, a peer role-play generally uses scenarios which have the limitation of reality. The aim of this study is to explore how the real patients’ cases with whom medical students encountered in outpatient clinical clerkship affect a peer role-play to learn patients’ perspectives.

Summary of Work: We conducted two half-days of medical interview skills trainings for the 5th year medical students during their clinical rotation at the department of General Medicine. This program consisted of three stages: medical interview in outpatient practice, peer role-play and group discussion. We conducted twelve focus groups after the training session and 63 medical students participated in it. The transcripts of the focus groups were analyzed qualitatively.

Summary of Results: Students who were role-playing patients reflected on their interview in the outpatient practice deeply, comparing the interviews of the role-play with their own interviews. The profound reflection fostered the students’ understanding about communication skills, and the significant understanding about medical communication was shared with other students through discussions.

Discussion and Conclusions: Role-playing based on real cases made students have chances to reflect their communication skills deeply through a peer role-play and discussion.

Take-home messages: Using real cases helps students’ reflection and facilitates to share students’ understanding about communication skills with their peers through discussion. Similar teaching methods will also be applicable in postgraduate education.

Classroom teaching of communication skills made relevant with early patient contact – our experience at a university teaching hospital in UAE

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Background: The Early Patient Contact (EPC) program was introduced as an elective in the communication skills course during the first month of medical school. The objective of the study was to know the first year medical student’s perspective about role of EPC in making classroom teaching of communication skills relevant.

Summary of Work: The study sample included 50 first-year MBBS students of GMU who consented for EPC posting in AY 2010-11 & 2011-12 at GMC Hospital, Ajman. Students’ feedback was obtained at the end of EPC posting based on Likert scales (5-1) (SA Strongly Agree; A: Agree; US: Unsure; D: Disagree; SD: Strongly Disagree). The data was analyzed using PASW 18.

Summary of Results: About 80% of students said that EPC made classroom teaching of communication skills more relevant. 72% and 62% students disagreed that role plays or video in classroom respectively are as effective as EPC to learn communication skills. 48% of the responders found classroom teaching of communication skills and its actual practice in clinical care setting to be different. 46% of students wanted classroom teaching of communication skills in addition to EPC in hospital. An overwhelming 92% of students felt that they would be more comfortable and confident in communicating with real patients in future. 76% recommended EPC to be part of regular curriculum.

Discussion and Conclusions: EPC complements classroom teaching of communication skills to make it relevant as perceived by the fresheners.

Take-home messages: EPC is recommended to be introduced in the first year medical school curriculum to make learning communication skills in classroom more relevant.
Training pre-clerkship students on counselling skills

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Background: Counseling skills are essential skills for a medical doctor. Until 2014, at SQU, CMHS, medical students were taught few counseling skills on an ad hoc basis late in their clinical training. Aims: Expose pre-clerkship students to the principles of counseling so that 1) they may be open to receiving counseling from a counselor and 2) that they may be able to utilize the counseling skills that they have learnt to enable more effective medical practice.

Summary of Work: One Lecture, eight 2-hour workshops, 12-14 students per workshop (76 in total; 61% female) built into respiratory rotation. One video was made of a student interaction. Students completed a three-question evaluation form, Likert Scale (Strongly agree to strongly disagree). An additional question for further comments was included. Data were evaluated through MS-Excel.

Summary of Results: 76 students (100% response rate) completed the evaluation. Of these, 71 (93.4%) answered Agree or Strongly Agree on finding the workshop valuable; 70 (92.1%) on learning new counseling skills, and 73 (96.1%) on the belief that they would use the counseling skills with their patients. Qualitative comments also strongly supported the need for these workshops and skills.

Discussion and Conclusions: Although doctors need counseling skills and these should be taught in depth during their training, it is possible to create a short intervention immediately prior to their clinical training so that they have an awareness and appreciation of the need for these skills. Further research may be able to determine the long-term impact of such an intervention.

Take-home messages: Medical students’ exposure to counseling training in their pre-clinical years is received positively.

An investigation into student perceptions of medical journalism as a learning method for scientific writing during a medical undergraduate course

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Background: MedSaint is a student-run publication at the University of St Andrews which publishes scientific student writing in print and online platforms. We aimed to evaluate student-writers perception to the value of medical journalism as a learning method for medical students during the undergraduate BSc course.

Summary of Work: Application to write in MedSaint was optional, and open to all students. After participation in MedSaint, a survey of writers’ opinion to undergraduate medical journalism was completed using a Likert scale (1 to 5; 5 = strongly agree).

Summary of Results: Overall 8 students completed the survey, all of whom were in year-3. Of the writers, 60% had not written, nor had any previous opportunity to write a scientific article as part of the BSc curriculum. Interestingly, only 38% agreed they were taught how to write scientific articles within the course, although all agreed every student should have experience in scientific writing prior to graduating as a doctor. After writing in MedSaint, 75% of students agreed the quality of their scientific writing has improved, with 75% of writers agreeing that this had boosted their confidence in writing assignments in the course. Importantly, 63% agreed their writing for MedSaint motivated them to read more clinical research articles.

Discussion and Conclusions: This scheme shows students benefited and are more confident in scientific writing after participating in MedSaint. We suggest more medical journalism initiatives should be introduced in medical curricula.

Take-home messages: Medical schools should consider developing MedSaint, or similar student-run publications, as a positive contribution to learning methods during the undergraduate course.
Educating physicians in informing and empowering patients: factors involved in tailoring information to patients' needs and enhancing patient empowerment

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Background: Tailoring information to patients' needs and empowering patients regarding their medication management has been demonstrated to enhance drug adherence and may reduce adverse drug events (ADE’s). When designing education for physicians in how to meet patients’ information needs, knowledge on factors involved is essential. This study aims to identify factors involved and how these relate to empowerment.

Summary of Work: Participating patients visited outpatient clinics of Internal Medicine and related specialties in two academic hospitals in the Netherlands. In-depth semi-structured interviews were performed at their homes. Akin to the principles of grounded theory, interviews were coded and analyzed using constant comparative analysis, to identify factors and investigate their relations.

Summary of Results: Analysis of interviews with nineteen participants (10F:9M, median age 55 (28-88), median no. of medications 8 (5-27)) showed five important themes regarding information needs and empowerment: wanting to be in control, experiencing powerlessness, battling with a basic negative attitude to medication, desiring a trustful relationship with the physician, needing information to be tailored. These themes are illustrated by verbatim quotations.

Discussion and Conclusions: Tailoring provision of information to patients' needs appears to enhance empowerment regarding medication management. Insights in factors involved as described here, are crucial to educate physicians in informing their patients in effective ways aiming to foster drug adherence and reducing ADE’s.

Take-home messages: Knowledge and insight about involved factors is a prerequisite for designing an educational intervention aiming to equip physicians with appropriate knowledge and skills for tailoring information to patients' needs and enhancing patient empowerment regarding medication management.

Learn through feeling: the use of artistic expressions as an instrument to uncover the affective dimension of doctor-patient relationship

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Background: When teaching doctor-patient relationship, excessive focus on communication skills training may induce students to reproduce stereotyped behaviors that do not include patient’s affective dimension.

Summary of Work: Throughout the second year of the undergraduate course, students were invited to reflect on human relations, at first, and then on the doctor-patient relationship. A theme song represented each discussion, and we used paintings to address feelings such as loneliness, impotence, and fear of dying, among others. Students were stimulated to reflect on each artistic expression and to write a descriptive or poetic narrative inspired on it. They shared those works on a Moodle platform forum, and at the end of the meetings, they had time to elaborate the issues while interviewing real patients of our teaching hospital.

Summary of Results: Students accepted the activities very well and participated actively during the classes. More than two thirds of them (68%) chose to produce non-descriptive narratives such as short stories, poetry, cartoons, paintings and drawings. Students demonstrated a growing interest in addressing patients’ feelings and realized the importance of dealing with these issues in a way that the patient would be satisfied.

Discussion and Conclusions: Students understood the importance of communicating affectively with their patients, and artistic expressions were a good instrument that can help them to develop this clinical competence.

Take-home messages: Artistic expressions may help students to take ownership of the affective dimension of the doctor-patient relationship.
A training program for perinatal residents to deliver bad news: feedback from standardized patients can make a difference

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**Background:** Breaking bad news (BBN) to a mother about her baby is a very difficult task for young residents who might feel overwhelmed and frightened with no previous training. The impact of bad news on parents can be disastrous. It is well documented that the ability to communicate can be learned and improved with practice. This project explores if training SPIKES strategy would help perinatology residents to improve their ability to break bad news.

**Summary of Work:** Pediatric and obstetric Y1-Y4 residents from UNICAMP Medical School, Brazil, voluntarily participated. Two well-trained standardized patients (SP) played the role of mothers receiving bad news regarding their babies (fetal death and neonatal death). The encounter and the SP’s feedback, given immediately after, were videotaped. Residents were randomized for training on BBN using SPIKES protocol, based on videotapes, or received SP feedback exclusively, offered for all. Residents returned for a second simulation case after intervention. The control cases were offered SPIKES program after the second simulation.

**Summary of Results:** Sixty-one residents out of 100 were enrolled and 58 (95%) completed the research project. First years comprised 39.6%. The satisfaction rate was 79%. Encounters lasted in average 12 minutes and feedback 5 minutes. Both groups improved from first to second encounters. The difference between SPIKES and control groups was not significant.

**Discussion and Conclusions:** Residents want training on BBN. Simulation with feedback from SP was a potent tool regardless of the training strategy offered. Take-home messages: On BBN, 17 minutes training with SP can make a difference.

Proper Breaking Bad News Practice for Medical Students; A Qualitative Research

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**Background:** Bad news is a sensitive issue and affects both patients and their families. With learning by lecture, medical students could not practice breaking bad news skill appropriately. This study aimed to explore their main problems in practicing these skills.

**Summary of Work:** An action research was conducted among 40-fifth year medical students. The first 20 students were taught breaking bad news by lecture. The second group of 20 students had learned by modified lecture with more contents (perception and feeling assessment, silent technique, and empathy). Both groups had learned by practicing with simulated patients. Focus group was performed to identify problems in their practices. Using triangulation technique (written self-reflection, assessment by teacher, and focus group interview) for data collection, data were analyzed by using Steps for Coding And Theorization (SCAT).

**Summary of Results:** A salient theme that students were concerned with most was lack of skills in real practice including basic communication skills and empathy. Although students had appropriate knowledge, they could not explore patients’ real problems and inappropriate emotion response. Students wished to observe their teachers as a good role model. They also needed to learn by experiencing through practice with simulated patients implemented in clinical year continuously and requested feedback from their medical teachers.

**Discussion and Conclusions:** Inappropriate breaking bad news skills of students might be caused by teaching style that emphasized mainly lecture, and a short period of communication curriculum. Poorly-trained skills of some simulated patients and personality of some students could affect them to deal appropriately with negative emotion. Take-home messages: The curriculum should be modified to promote breaking bad news skills for students.
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. Recently we added this topic to our clerkship curriculum.

Summary of Results: During the last 4 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: This is an important topic, therefore we recently added it to our clerkship curriculum. Communication skills regarding this topic 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.

A difficult conversation – breaking bad news on a simulated ward round

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Background: Evaluation of our FY Simulation course has shown that juniors appreciate the opportunity to “break bad news” in a safe environment. This can still be an emotionally challenging experience. Despite communication skills workshops as undergraduates some still struggle with this necessary skill.

Summary of Work: 28 Simulated Ward Rounds will be run for Year 5 undergraduates in March 2015 – each round is repeated following debrief so total n=56. The round will include a patient planned for discharge whose ultrasound report becomes available suggesting the presence of a possible malignancy. The senior in charge of the ward round will have left by this point and the “patient” will push the student role playing as an FY1 to tell them the scan result. All interactions on the ward round are recorded digitally with prior consent obtained.

Summary of Results: We will present the results of this interaction and any corresponding debrief by reviewing the recordings. During debrief the feelings of the patient will be elicited.

Discussion and Conclusions: There are many definitions of what constitutes “bad news” eg “any information that is not welcome”. Various strategies on how to approach this common occurrence in practice will be discussed during the debrief. We hope to show a benefit in communication skills in those having to break the news of the scan result during the repeat ward round.

Take-home messages: Breaking bad news is never easy but we believe this intervention may help prepare our students by approaching difficult conversations with more confidence.
Considering how healthcare professionals should talk about dying in clinical settings

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Background: Though dying is one of the most important issues for all the people, it has been regarded as taboo to talk about it in healthcare settings for a long time. Therefore many healthcare professionals felt discomfort in discussing it with patients.

Summary of Work: We (a group of general physicians, a chaplain, and social medicine researchers) planned and implemented four off-the-job sessions in a community-based hospital in Japan. Its aim was to provide opportunities for healthcare professionals to discuss how we should talk about dying and end-of-life care with patients. Participants were asked to fill in the Frommelt Attitude Toward Care of the Dying Scale (FATCOD) to assess their attitudes toward providing care to dying patients. In the sessions, participants expressed their values of life and death in group discussions, did role play talking about death with patients, and wrote their own Advance Directive (AD).

Summary of Results: Approximately 30 multi-professional participants joined in each session. From the evaluations, we found participants learned the importance of listening to patients’ narratives and respecting diverse values of life and death. In writing AD, some wanted trustable doctors or family members to decide end-of-life issues and others felt discomfort to verbalize it in written words.

Discussion and Conclusions: We have culturally and historically valued non-verbal communication in Japan, expecting other to read between lines. Healthcare professionals may have to facilitate formulation of nonverbal consensus on end-of-life care. The effect of our sessions may be controversial.

Take-home messages: Non-verbal consensus development may be more valued in end-of-life communication in Japan.
Medical students have a more deep learning approach in basic sciences

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Background: Students’ approach to learning depends, among other factors, on the learning context. Deep learning is associated with an intrinsic motivation to learn with an interest in understanding the subject, linking ideas and concepts while surface learners want to pass with a minimum effort and reproduce information learned by rote. There is a relationship between the strategies students adopt to learn and the curricular level. We aimed to compare medical students’ approach to learning in non-clinical and clinical-years.

Summary of Work: The Study Process Questionnaire (R-SPQ-2F) was applied to medical students of different years after knowledge assessment of different subject area, endocrine and nervous systems in the 1st and 2nd years and endocrinology and neurology in the 4th and 5th years. Means were compared using t-student test.

Summary of Results: In non-clinical years in-depth learning predominates when compared with clinical-years (p<0.001) but there is no difference for superficial study. When we analyze the determinants of these approaches to study, only for superficial study, the strategic approach predominates over the motivational approach, both in clinical (p<0.001) and non-clinical years (p<0.001).

Discussion and Conclusions: Contrary to what might be expected, clinical-years students learn in a more superficial way than in non-clinical years. This may be related to the teaching methods adopted but also to the importance the acquisition of knowledge can have on clinical years, since in these years other competencies are valued. We conclude that students’ approaches to learning are related to the curricular level and the learning contexts.

Take-home messages: We must adopt strategies to stimulate a more deep learning in clinical years.

Improvement of teaching and learning principles for ENT

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Background: Teaching and learning of ENT for the 5th-year medical students was undertaken during the 3-week of the medical course. The main objectives were to improve teaching and learning ENT course.

Summary of Work: Questionnaire was used for comparing the teaching and learning principles of ENT. The methods were composed of lecture course, OR, OPD, and bedside teaching. Considering factors included 1) Knowledge undertaken, 2) simple and straightforward, 3) treatment plan, 4) problem solving, and 5) providing advice to patients and relatives. Analytical Hierarchy Process (AHP) was applied for evaluating the most applicable methods.

Summary of Results: Data was obtained from extern and intern working in Maharat hospital. The problem solving was the most important factor. Four methods were compared. The intern considered that the bedside teaching can provide more knowledge. The most students perceived that the bedside teaching has provide the best treatment plan. It gives simple and straightforward teaching. The extern considered that the OPD can teach the best problem solving skills. The intern perceived that the bedside teaching provide the best problem solving skills. The overall students considered that the OPD well assisting in providing to patients and relatives.

Discussion and Conclusions: The overall students perceived that the bedside teaching was the most effective teaching methods were compared. It was found that the extern perceived that the knowledge can be best acquired from a lecture hod.

Take-home messages: The teaching and learning methods were composed of lecture course, OR, OPD, and bedside teaching. Analytical Hierarchy Process (AHP) was applied for evaluation.
Factors Contributing to Medical Students’ Attitude of being “Good Doctors”

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Background: Buddhasothorn Medical Education Center (BMEC) has been established since 2010, and aimed to produce doctors for rural Eastern Thailand. The importance of producing ‘good doctors’ with good professional performance has been emphasized in our medical curriculum. We conducted a study to explore factors contributing to medical students’ view of being good doctors.

Summary of Work: A cross-sectional survey was administered to the 4th-6th BMEC medical students during their academic year of 2014. We used a Likert scale questionnaire towards attitudes in nine aspects. Attitudes for their future career were compared before and after becoming clinical students. The results were analyzed by linear regression model.

Summary of Results: All 78 students returned their questionnaires with 98.72% completion. Students with higher GPA (above 3.0) reported higher preference scores towards classroom studying, clinical studying and the attachment with instructors got the most scores, more than residents, interns, their senior students (12.4, 7.2, 6.3 & 4.9 times). Some who did not initially aspire to be doctors improved their positive attitudes during these clinical years.

Discussion and Conclusions: Engagement of senior clinical doctors can contribute changes in medical students’ attitudes to being ‘good doctors’.

Take-home messages: Successful medical education should be composed of a multilevel of medical staff to nurture their students in multi-modalities.

Medical students’ reflection on the effect of learning methods and cognitive achievement in congenital heart disease

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Background: Thai medical school curriculum required Congenital Heart Disease (CHD) to be taught in the clinical year of medical school training. There are concerns on the difficulty of teaching CHD in medical students because of its complicated content. This study aimed to assess medical students’ learning methods regarding to CHD knowledge.

Summary of Work: The 6th year medical students at Medical Education Center Chiangrai Prachanukroh Hospital were assessed by multiple-choice question (MCQ) test which focused on CHD knowledge: pathophysiology, physical examination, diagnostic criteria and treatment. Following of each question, medical students were asked to reflect on their learning methods deriving to the answer.

Summary of Results: There were 24 medical students completed the MCQ test. The learning methods that had an effect on medical students evaluated by getting the correct answer of CHD knowledge were bedside teaching(70.59 %), lecture-based learning(68.18 %), on-the-job learning(58.54 %) and self-directed learning (53.85 %). Lecture-based learning and bedside teaching were the most effective learning methods on the subject of pathophysiology, diagnostic criteria and treatment, while bedside teaching and self-directed learning were more effective on physical examination topic. However, the difference between the learning methods for each subject was not statistically significant.

Discussion and Conclusions: Lecture-based learning and bedside teaching were more suitable for CHD teaching for the medical students due to its complicated content. On-the-job learning and self-directed learning were also effective in the different aspect of knowledge.

Take-home messages: Designing of students’ learning methods should be properly arranged regarding to the complexity of the content.
Towards understanding informal learning in networks of healthcare professionals – Results of a qualitative empirical study

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Background: With ever shorter cycles of innovation, most healthcare professionals adopt short-term, self-organised ways of informal learning. Compared to more traditional learning settings, the unstructured, creative and expertise-driven informal learning cannot be designed with standardized management approaches and cannot be easily supported by information and communication technologies (ICT).

Summary of Work: The main goal was to improve our understanding of how informal learning and knowledge sharing currently take place in healthcare and how supportive ICT can look like. Therefore, we conducted an exploratory study to investigate the state-of-practice with the help of 23 interviewees representing six healthcare networks.

Summary of Results: The key findings include detailed network demographics, rich descriptions of 13 informal learning and knowledge sharing practices and in-depth discussions of the results using the lenses: absorptive capacity, knowledge protection, localized learning, challenges and network maturity.

Discussion and Conclusions: Network members engage in multiple, overlapping networks, switch between networks, and create sub-networks in order to connect to other healthcare professionals and gain timely access to valued knowledge. Informal networks are used to complement formal networks and structures while localizing knowledge to the needs of the local healthcare practice. There seems to be a need for work integrated ICT solutions lowering the cognitive load, filtering the most relevant knowledge and ensuring that the high privacy and security demands of healthcare are maintained.

Take-home messages: Informal learning is the dominant way of learning in healthcare, takes place in multiple, overlapping networks and demands new organisational and technological responses.

Effects of squeezing ball to the short-term order memory

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Background: Chewing gum can improve short-term memory by increasing oxygen uptake. We wanted to find a new appropriate way to accomplish the same aim so we investigated squeezing a ball because it’s an exercise and can lead to increasing oxygen uptake.

Summary of Work: (1) Test the hypothesis that squeezing ball can increase heart rate; Recorded heart rate of 30 participants by heart rate monitoring while squeezing ball at baseline, 30, 60, 90 and 120 seconds. (2) The subjects were 60 1st year medical students of Suranaree University of Technology. They were divided into 2 equal groups by score on the short-term memory test. One group squeezed the ball while remembering as an experimental group and the other group didn’t squeeze the ball as a control group. During remembering the word from the paper which take time total 2 minutes. Both groups have to write as many words as possible in 30 seconds. Statistical analysis by t-test

Summary of Results: No different in age, gender, IQ in both groups. Heart rate increased with the time (p value < 0.01). The average number of words that the experimental group and the control group remembered was 13.23 words and 11.23 words respectively, which differ statistically significantly (p = 0.002).

Discussion and Conclusions: Squeezing the ball technique increased heart rate and improved the efficiency of the short term memory. This finding is the choice for improve memory methods in the classroom.

Take-home messages: Should study in other samples.
The Quest for the Holy Grail: Evidencing the impact of learning

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Background: Often considered the ‘holy grail’ of learning, measuring the impact of learning has long eluded educationalists working in healthcare education and training. Evidence suggests that most effective learning takes place outside the classroom – the so called ‘water cooler conversations’ – as medical professionals start to put theory into practice.

Summary of Work: We set out to test if capturing informal learning interventions in an online portfolio could provide the solution to the age old problem of measuring impact of learning and that by providing access to a variety of learning experiences would help improve both the competence and confidence of learners.

Summary of Results: By assessing reactions of learners prior to and after completing a set of formal and informal learning interventions, we demonstrated that 75% of learners moved from being unconsciously incompetent (unaware of their behaviours and lack of knowledge) to consciously incompetent (aware of their behaviours and aware of their lack of knowledge).

Discussion and Conclusions: By capturing the informal learning activities and experiences, it appears that learners have the opportunity to reflect on their learning and demonstrate improved self-awareness. For training departments, this translates into a demonstrable impact of learning.

Take-home messages: Capturing informal learning activities and experiences provides measurable benefits for both learners and training departments.

“To-learn is impossible” if the senses and the brain are not functional, as “not-to-learn is impossible” if they are: a compulsory corollary of basic Neurophysiology

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Background: Learning is an everyday phenomenon that usually occurs without us even noticing. All kinds of incoming information from the senses are processed in the human brain and, after they correlate with a past experience or knowledge, they acquire a specific meaning. The only restriction to this process is self-evident: the senses and cognition are functional. This basic physiology knowledge can also be applied in education. Since mentally healthy students come across the information, receiving and digesting it is inevitable.

Summary of Work: Six groups of 25 third-year medical students were divided in two sub-groups. While the teacher raised his hand, the one group was asked to keep their eyes closed (C) and the other open (O). Group C was asked whether any of them did know what happened; group O whether it was possible for any of them not to know what happened. Then, group O taught group C what happened.

Summary of Results: None of Cs was able to describe what happened; none of Os was able not to know what happened. Teaching verbally, Cs captured a proportion of knowledge, increased by increasing the number of words, but never reached reality, much better approached (not 100%) by repeating teacher’s gesture.

Discussion and Conclusions: In this teaching-learning simulation, students who came across the information (hand’s raising) inevitably learned what happened. Students who never came across the same information inevitably didn’t learn, and it was very difficult to understand after the other students’ teaching. Students concluded two learning axioms: see title.

Take-home messages: It’s impossible that mentally healthy students not learn.
You can lead a horse to water but how does it think?
The study habits of fourth and fifth year Aberdeen university medical students

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Background: The study techniques medical students’ use during private study is poorly understood. By discovering how students use resources, faculties can tailor their revision material.

Summary of Work: Fourth and fifth year Aberdeen university medical students participated. A focus group was carried out. Questionnaires were given to all students. The questionnaire focused on the type of resources used, how students created notes and group study participation.

Summary of Results: 149 of 389 questionnaires were returned. Thematic analysis was carried out on the focus group audiorecording. Students used textbooks, notes, internet and questions most frequently. Video and discussion forums were used uncommonly. Websites used varied, but many used Wikipedia. Students used a variety of note-taking techniques from mind-maps to copying text. Some attributed their study preference to ‘learning styles’ they perceived themselves having although most did not recall being taught study techniques. Group study was popular, but students felt the groups needed to have the right balance of personalities.

Discussion and Conclusions: Private study is an essential part of learning and something tutors have least influence over. Students use similar resources and these should be targeted by faculties wishing to provide additional support. Guidance on reliable online resources may be helpful. Students develop study techniques, most do not remember being taught them and do not feel a study tutorial would be beneficial. However it may be useful for struggling students.

Take-home messages: When considering providing revision aids faculties should consider:
• Guidance on reliable online resources.
• Videos and internet forums used infrequently.
• Struggling students may benefit from revision technique advice.

Student Self-assessment in a PBL Subject, Faculty of Medicine Vajira Hospital

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Background: Project based learning (PBL) is an educational methodology that organizes learning around a project. The teaching method provides all students with 21st century skills which are important for their lifelong learning process. However, among country’s cultural characteristic differences, the outcome of PBL is vary. The aim of this study was to explore the perception of PBL by students.

Summary of Work: The questionnaire was conducted with pilot testing and distributed via e-mail. Seventy-six 3rd year medical students in Faculty of Medicine, Vajira Hospital participated in this study.

Summary of Results: The results from the multiple choice questions-based questionnaire are as follows. 71% agree that PBL urges learners to learn by themselves. 83% agree that PBL urges learners to use their knowledge and experience to search for any information they want know. 52% agree that PBL makes learners to feel more active and inquisitive. 76% agree that PBL supports learners to be confident and skillful in the topic that they search for. 70% agree that PBL enhances learners creativity.

Discussion and Conclusions: PBL is one of the most popular learning method which students gain knowledge and skill by working and completing task with challenging questions. Most learners accepted and gained the PBL objective, but the feeling of active and inquisitive was less than others. Although PBL encouraged students to concentrate as active learners, but they still wanted to know what kind of active teaching methodology will be used in their classroom. Thus, they can prepare themselves to participate in the selected method.

Take-home messages: In order to choose the effective teaching method, lectures should consider students’ outcome.
AMEE 2015 Abstract Book

#8BB11 (27129)
Quiz, the wizz. How to motivate students for progression through prior knowledge

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Background: In courses building on prior knowledge merged from various fields it is important to early clarify gaps and expectations to optimize the learning situation. Thus different ways to obtain information and make it visible is of interest for both parties. The aim was to study a model where prior knowledge was assessed at the beginning of the course.

Summary of Work: A digital introductory quiz was developed. Responses were made anonymous. After completion of the 5-week course the students were asked to respond to a written course evaluation about the use and impact of the prior-knowledge quiz.

Summary of Results: Preliminary analysis of the responses revealed different themes in relation to learning, motivation and feasibility. The students' opinion in general was that it was an excellent way to get an idea of what to expect and also during the course it made them more alert when the questions were discussed. A few of the students thought that it was too extensive or of limited use. The majority experienced the quiz as stimulating for their learning process. The teacher considered this an excellent way to get a "kick start" and improve motivation for the content.

Discussion and Conclusions: Prior knowledge is often invisible. The learning outcomes may function as lighthouses on desired achievement. Still they may be difficult to interpret. Through the work with questions it is possible to make them more concrete and visualize the gaps. An introductory quiz was a feasible way to direct the students attention and motivation.

Take-home messages: Try this at home!

#8BB12 (27603)
The use of competitive learning enhances exam performance: an incentivized ECG teaching session

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Presenter: Robert Batley*, St George's University, Sidcup, UK

Background: Medical students are inherently competitive, often motivated by a desire to achieve more than their peers. Despite this, barriers to learning exist, including demotivation and apathy during lectures. We hypothesised that encouraging competitiveness and stimulating drive to perform would enhance learning outcomes.

Summary of Work: A structured ECG teaching session was carried out on 1st year students at a major London teaching hospital. The same lectures were delivered to two groups with a subsequent examination. A prize was offered to Group 1 for the highest scorer, but not to Group 2. Six ECG topics, consisting of 6 items each, were evaluated: normal ECG, STEMI, NSTEMI, hyperkaelemia, AF and WPW syndrome.

Summary of Results: 114 students (49% male) participated (69 students in Group 1, 55 students in Group 2). Group 1 (19.58 (6.54)) scored significantly higher in total than Group 2 (17.02 (6.19), p<0.05; figure 1), with greater scores on normal ECG (3.8(1.8) vs 2.7(1.9), p<0.0001), STEMI (3.4(1.4) vs 2.7(1.5), p<0.0001), NSTEMI (3.3(1.7) vs 2.7(1.6), p<0.001), AF (3.6(1.4) vs 3.5(1.5), non-significant) and hyperkaelemia (3.4(1.8) vs 3.4(1.4), non-significant).

Discussion and Conclusions: Adding an element of competition to teaching may motivate students to pay closer attention during lectures and perform better in evaluation. This may be more salient in a medical student population who have been through a rigorous and inherently competitive selection process. A difference in test scores exists in incentivised students compared to those to whom no incentive was offered; this may be because of a heightened competitive response.

Take-home messages: Competition could play a greater role in medical student teaching. Utilizing medical students' inherent drive could improve teaching outcomes.
Comparison of CBL and traditional seminar for introduction of complex multidisciplinary concepts in surgical curriculum

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Background: Case Based Learning provides better knowledge retention than a conventional seminar. A new multidisciplinary topic (ERAS, Early Recovery after Surgery) was introduced into our curriculum. The aim of the study was to verify the effectiveness of traditional and CBL format and assess students preferences since preferred learning method depends strongly on cultural background.

Summary of Work: 100 students were randomized into two groups: a seminar (67 participants) and a CBL group (32 participants). All students were asked to answer 10 question MCQ about ERAS before and after the surgery course. We also asked students to provide us with feedback via questionnaire.

Summary of Results: Base-line knowledge was similar in both groups (p=0.45). Mean pre-test result was 3.88 points in the seminar group and 5.59 in the case group. Mean post-test result was result was 6.7 points in the seminar group and 7.8 points in the case group and did not differ statistically (p=0.10). The progression of knowledge was statistically significant in both groups (p<0.001). In the feedback questionnaire 72% of students answered, that CBL stimulates them to prepare better for the classes. 86% of all students wanted more CBL in their curriculum.

Discussion and Conclusions: CBL was confirmed to be an efficient and well accepted by the students way to introduce a new topic in the university curriculum also in Polish cultural environment. Students prefer CBL than traditional seminar, however both ways are efficient.

Take-home messages: CBL is an efficient way of introduction new, complex concept in surgical undergraduate education.

How medical students perceive concept maps as an innovative tool for clinical reasoning teaching and learning process

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Background: Concept maps (CM) are graphical tools that represent knowledge by relating concepts through propositions. The objective of this study is to evaluate the perception of medical students on the use of concept maps as an strategy of clinical reasoning teaching and learning.

Summary of Work: Eighty-six students from second and third years of a medical school in a Northeastern state of Brazil went through an intervention to evaluate CM regarding the teaching of Liver Failure (LF). They were divided into two groups: the first, after a training on CM, solved a clinical problem using CM, and the second using open-ended answer. Then, after the training of both groups on CM, they attended a class on LF and solved another clinical problem using CM. They also evaluated the tool in its strengths and weaknesses.

Summary of Results: CM were evaluated positively in terms of stimulating the interest in the subject, and also by being dynamic and challenging tools which facilitate the learning process. However, the amount of time spent in their confection process was emphasized.

Discussion and Conclusions: Despite their big potential, CM are not used routinely on medical schools. Most of the participants had never tried CM before. Students themselves recognized the importance of CM being used throughout the medical graduation. More interventions like this are proposed in the future, affecting more students by this innovative methodology.

Take-home messages: Concept maps are well accepted by undergraduate medical students and can be used to enrich their teaching-learning process.
Using concept maps to identify subject specific troublesome knowledge and threshold concepts in an undergraduate medical course

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Background: Threshold concepts are transformative, often leading to a more integrated understanding and forming a gateway to new conceptual areas of disciplinary knowledge. They are frequently associated with knowledge that is troublesome in some way for students. It may be useful, therefore, to identify troublesome knowledge and threshold concepts in order to better organise teaching resources and support students. Concept mapping is a powerful and concise knowledge representation tool, and as such could be useful in identifying threshold concepts and the associated troublesome knowledge.

Summary of Work: 24 medical students undertaking a year 2 pharmacology course were asked (after suitable training) to draw concept maps concerning core pharmacological concepts at the beginning and end of the course. Qualitative topological analysis of the maps was undertaken to identify the presence of previously identified morphological classifications that have previously been linked to student learning.

Summary of Results: Core concepts were identified via the frequency of their inclusion in student maps and potential threshold concepts revealed by areas of characteristic high interconnectivity. Potential troublesome knowledge was identified from map content that suggested student misunderstanding/loss of understanding.

Discussion and Conclusions: Topological and content analysis of student concept maps seemed to be able to identify disciplinary threshold concepts and troublesome knowledge. Changes in concept mapping post-course may reveal successful negotiation of troublesome knowledge and threshold concepts acquisition.

Take-home messages: Concept mapping can be utilised to identify subject specific troublesome knowledge and threshold concepts and may provide useful information for supporting students and in course design.

A crash course in metacognition: evaluation of a 5-week study skills programme for students in the first year of undergraduate medical education

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Background: Bridging the gap between secondary education and undergraduate medical education is challenging for many students, this is often reflected by poor performance in assessments throughout the first year of medical school. Ironically, while recent developments in medical education have seen a rise in curricular-level interventions to encourage student-centred learning, support at the level of student learning techniques to cope with this transition has been largely neglected in the literature.

Summary of Work: This study evaluates a 5-week course which aims to improve the metacognitive strategies and study skills of struggling students in the first year of medical school at Barts and The London School of Medicine and Dentistry (Queen Mary University of London). Outcomes are measured both quantitatively, in terms of student performance in summative in-course assessments throughout the year, and qualitatively, exploring student and teacher perceptions of the course.

Summary of Results: Preliminary work demonstrates that students attending the sessions have engaged positively with the course and have begun to adopt suggested metacognitive strategies in their individual studies. Students have also responded positively to measures that enhance the course’s specificity to the medical curriculum.

Discussion and Conclusions: The importance of fostering independent, lifelong learning in undergraduate medical education is well-recognised in the literature. This intervention supports this goal by facilitating medical students’ development of strategies that will allow them to learn effectively and independently throughout their training. It is hoped that this study will be developed longitudinally, to determine whether these positive effects of the course persist over time.

Take-home messages: A ‘crash course in metacognition’ undertaken early on in undergraduate medical education has utility in facilitating students’ workload management and therefore, in encouraging active, self-directed learning.
Distributed Test-Restudy: "Test" Is Not Always A Four-Letter Word In Undergraduate Health Education

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Background: Distributed test-restudy (repeated practice tests, integrated with restudy and distributed over time) has been proposed as a way to increase the durability and efficiency of learning.

Summary of Work: Purpose: to evaluate distributed test-restudy on learning in an undergraduate medicine/dentistry course. Method: 199 MD and DDS students were introduced to respiratory medicine through lectures, labs and problem-based learning. Students completed a pretest (week 3), a lab allowing for restudy of key objectives (week 3), a post-test (week 4) and a post-post-test (week 8). Correct responses were provided after the pretest and restudy lab to allow for formative feedback. Students completed a questionnaire.

Summary of Results: Results: 88% MD. Pretest: average: 50%; standard deviation: 12%; minimum: 17%; maximum: 75%; students achieving a perfect score (mastery): 0%. Post-test: average: 87%; standard deviation: 15%; minimum: 33%; maximum: 100%; mastery: 29%. Post-post-test: average: 90%; standard deviation: 9%; minimum: 75%; maximum: 100%; mastery: 29%. A significant increase in the average score occurred between the pretest and post-test ($p < 0.001$) and the pretest and post-post-test ($p < 0.001$). There was no difference between the post-test and the post-post-test ($p = 0.126$). 44% of students agreed/strongly agreed that the pretest was helpful. 99% agreed/strongly agreed that the restudy lab and post-tests were useful. 99% would recommend this to other students.

Discussion and Conclusions: Discussion: This study is consistent with published outcomes. Distributed test-restudy is acceptable to learners and appears to have a positive and sustained impact on learning.

Take-home messages: Distributed test-restudy has the potential to enhance learning within the health professions.
#8CC Posters: Rural Education
Location: Hall 4, SECC

#8CC01 (27185)
Social Accountability and Memorial’s “Life Cycle” Approach to Medical Education

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Kristin Harris Walsh, Memorial University of Newfoundland, St. John’s, Canada
Mohamed Ravalia, Memorial University of Newfoundland, St. John’s, Canada
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Katherine Stringer, Memorial University of Newfoundland, St. John’s, Canada
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Background: Memorial University of Newfoundland’s Faculty of Medicine’s commitment to social accountability reflects its special obligation to the people of Newfoundland and Labrador (NL), which includes producing quality rural/generalist physicians for the province’s widely distributed population across a large geographic expanse. This study measures the outcomes of Memorial’s “life cycle” approach and its effects on its social accountability mandate.

Summary of Work: The Learners and Locations database at Memorial (admissions data, One45 data, Canadian Medical Directory data) was analyzed with SPSS. ArcGIS was used to produce maps and Statistics Canada population data was used to classify students’ locations.

Summary of Results: Our data shows that of the 182 students who graduated from MUNMED in 2011-2013, 55 students or 30% had rural backgrounds. For graduating classes 2011-2013, 21% of all educational placement weeks that took place in known or electronically tracked locations occurred in small rural communities and small rural cities. Of 297 MUNMED graduates currently practicing Family Medicine in Newfoundland and Labrador, 44 (15%) are practicing in small rural communities and 64 (22%) are practicing in small rural cities.

Discussion and Conclusions: Memorial’s life cycle approach extends the pipeline concept by recognizing the evolution of needs and challenges from medical school to vocational training and throughout practice. Partnerships and involvement with rural communities ensures that rural/generalist physicians respond to the needs of the province, this fulfilling its social accountability mandate.

Take-home messages: Memorial is responding to the needs of the province through its life cycle approach to producing rural/generalist physicians throughout NL.

#8CC02 (25714)
The Scottish School for Rural Health & Wellbeing - a New Venture in Collaboration

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Background: For many years medical education in Highland Scotland has enjoyed an excellent reputation among trainees but before 2000 there was minimal infrastructure to support this. Recently, the development of the Centre for Health Science (CHS) in Inverness has proved to be fertile ground for collaboration between the various academic and educational partners based there. These comprise three universities (Aberdeen, Stirling and Highlands & Islands), NHS Education and several Industry based research interests.

Summary of Work: The Scottish School for Rural Health & Wellbeing (SSRH&W), a structured alliance of these partners has created a forum for exchange of ideas in education, training and research relevant to remote and rural healthcare widening to include a wide range of additional partners. The Institute of Remote Healthcare, interested in healthcare in hostile environments including offshore industrial sites, desert, mountain and polar regions has added a further dimension as has collaboration with the European Space Agency on satellite technology.

Summary of Results: Projects facilitated by SSRH&W include:
- Digitally enabled remote monitoring and diagnostics including in diabetes and in stroke.
- Educational packages for Remote Healthcare Workers
- Satellite mapping of Lyme Disease prevalence
- The Royal College of Surgeons of Edinburgh, academic and industry partners working on credentialing of remote healthcare workers.

Discussion and Conclusions: The rich, diverse and open environment in CHS has allowed new and unexpected dimensions in remote and rural relevant research and education to develop with a range of international partners. SSRH&W has played an important role in facilitating these developments.

Take-home messages: Collaboration results in major secondary benefits.
Accreditation for Rural Medical Educators

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Rebecca Caygill, University of Melbourne, Rural Clinical School, Shepparton, Australia
Julian Wright*, University of Melbourne, Rural Clinical School, Shepparton, Australia

Background: Teacher accreditation for clinicians is important. Graduate programs in Medical Education are popular, but clinicians will not complete such training unless teaching accounts for a substantial portion of their workload. Accessible teacher accreditation programs are required.

Summary of Work: This project aims to develop a framework that allocates points towards accreditation through development activities centred on educational practice and theory. This is particularly important for educators based at rural clinical schools who do not have access to many metropolitan based educator development activities and may be geographically isolated.

Summary of Results: The novel Rural Medical Educators’ Accreditation framework will be presented at the AMEE conference. Activities will include individualised feedback on tutorial sessions, attendance at educator’s meetings, reflective writing with reference to educational literature, and peer review of teaching sessions. Accreditation points awarded will be weighted depending on the activity undertaken.

Discussion and Conclusions: We aim to develop a flexible, rural-specific program of teacher development and accreditation which offers, and recognises, different levels of medical educator expertise. This unique model of accreditation will ensure that rural practitioners have better access to a variety of activities for which they can receive recognition as medical educators.

Take-home messages: There is a lack of teacher training for rural medical educators. Programs must be flexible and meet the needs of rural clinicians. Medical educators in rural areas are more isolated from professional development activities and therefore have a greater need for targeted accreditation programs.

Identifying predictors of physician retention in a Canadian province. Implications for future provincial physician need

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Background: There remains concern over physician shortages in rural communities and retention of graduating physicians in our province. We examined the contribution of the Memorial University (MUN) medical school to physician supply in Newfoundland and Labrador (NL), with a focus on identifying predictors of physicians remaining in NL and practicing in a rural community.

Summary of Work: Data were linked from graduating class lists, alumni and post-graduate databases with Scott’s Medical database to determine 2014 practice locations for MUN graduates (classes 1973-2008). We identified the predictors of working in 1) Canada, 2) rural Canada, 3) NL, and 4) rural NL. Chi-square and multiple logistic regressions were used to identify significant predictors (p < 0.05).

Summary of Results: In 2014, of the 1647 MUN graduates working in Canada, 34.2% were in NL and 4.9% in rural NL. Predictors for working in NL included a rural background, being from Newfoundland, graduating after 2000, completing residency at MUN. Predictors for working in rural NL were a rural background, being from Newfoundland, completing residency at MUN, being a family physician.

Discussion and Conclusions: MUN graduates comprise half the NL physician workforce, but only one-fifth of these physicians work in rural areas in the province. Hence, there is continuing concern regarding physician retention in the province, and a trend toward graduates opting for specialist practice and residency training outside NL.

Take-home messages: Predictors of physician retention may have implications for medical schools in determining where to draw their future applicant pools to best serve the needs of the people.
Impact of undergraduate medical education program for fostering the sympathy to rural medicine

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Background: For Wakayama Prefecture in Japan, shortage of medical doctors in rural areas is a serious problem because the prefecture has many rural districts. Since a sufficient understanding of the rural area and their residents is necessary to resolve the problem, our university started the sympathy to rural medicine program in 2006.

Summary of Work: The program includes: a one-week stay and medical experiential learning at hospitals and one-week stay and training at elderly care homes located in rural areas of Wakayama Prefecture in the first year students of medical school, practical at local welfare facilities for the disabled in the second year, lectures about rural medicine for the fourth year and one-month clinical clerkships at regional hospitals in the prefecture in the sixth year.

Summary of Results: Many of student’s opinions have shown that they recognized the need for rural healthcare. The ratio of graduates from our university who work as residents in Wakayama Prefecture to all graduates increased after implementation of the education program in 2006.

Discussion and Conclusions: This educational program may promote understanding of issues faced in rural medicine, and cultivate empathy toward the local residents. The education program for fostering the sympathy to rural medicine promoted understanding of regional healthcare by medical students.

Take-home messages: The specific education program for rural medicine can be effective in resolution of doctor concentration in urban areas.

Effectiveness of a new medical education center to increase production of rural doctors for sustainable health service in the three south border provinces of Thailand

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Background: Many violent events had occurring in the three south border provinces of Thailand since 2004. The executive director of ministry of public health expected that these events were prolonged in many years and doctors would be insufficient. Yala hospital medical education center was organized within important reason that increased production of rural doctor from local persons was answer for making sufficient doctors. Our curriculum was controlled by faculty of medicine Prince of Songkla University (PSU). All medical students must be passed all three steps of national license exam (NLE) for receiving license for practice from the medical council of Thailand.

Summary of Work: This is an observational study by collection data of NLE result of medical students of Yala hospital medical education center and comparing with PSU and general Thai medical students. Chi-square test was be used for statistical difference. I collected retention rate of medical student who are persistent in rural practice.

Summary of Results: 95% of students can pass all three steps of NLE from 2011-2014. Percentage of students who are successful for the first time in each step of NLE is no statistical difference from PSU and general Thai students. 80% of students who was finishing are sustainable for rural service.

Discussion and Conclusions: Yala hospital medical education center has capacity to produce efficient medical students who can pass all three steps of NLE as same as the others and almost doctors are sustaining for rural service although we have many limitations such as new medical education center, insufficient medical staffs and frequency of violent occurrences.
#8CC07 (24485)
Study of how long doctors graduating from Ratchaburi Hospital Medical Education Center worked in their homeland province

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Background: Nowadays most people in society are materialistic. Therefore doctors like to work in Bangkok or big cities because of a good income and convenience. Ratchaburi Hospital Medical Education Center started the program of recruiting local students to study to be doctors in their homeland since 1999. The Medical Center recruited students from 8 provinces nearby including Ratchaburi and they study in a 6-year M.D. program. After graduation, the doctors were sent to work in their provinces for at least 3 years.

Summary of Work: We studied the doctors that graduated from Ratchaburi Hospital Medical Education Center by contacting the provinces where the doctors worked to get the information as to how many doctors worked in their provinces as they promised for at least 3 years.

Summary of Results: The number of doctors that graduated from Ratchaburi Hospital Medical Education Center since the year 2005 to 2012 was 124. They are 51 men and 73 women, or male doctors 41.1% female doctors 58.9%. They worked in the hospital as they promised for at least 3 years for 108 doctors or 87.1%, 2 years for 9 doctors or 7.3% and one year for 7 doctors or 5.6%

Discussion and Conclusions: The concept that “let the students in the provinces study to be doctors in special recruitment and work in their motherland provinces at least 3 years” was very successful. There was as much as 87.1% that worked in the rural hospital at least 3 years.

Take-home messages: If we can make the doctors work in the area they are born among their families, they can work there happily.

#8CC08 (26392)
Reflection in community fieldwork

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Background: Critical thinking and self-reflection is an important factor for continuity of life-long learning in 21st century. Dilemma from direct experience is a trigger for self awareness. Living in rural community was set as a new learning experience for Thai preclinical medical students who were in urban environmental background. The contrast between rural and urban life style was use as issue to drive awareness on various factors such as people’s health, determinants and self awareness.

Summary of Work: 76 second year medical students were divided into 10 groups and assigned to live with host family in rural community for 5 days. The learning objective is to let the student identify community health determinants. Each group was daily met and discussed with mentor in the topics of living style, behavior, belief, culture, health care system and personal hygiene by using reflective dialogue method. Mentors induced students to think deeply, outside of their frameworks and improve reflective skill to critical level. Reflective diary was assigned to conclude the event and evaluated by mentors.

Summary of Results: 59.2 % of students thought that reflection was appropriate tools for community fieldwork study. Three quarter of students had an insight that reflection can apply to improve their self awareness. 48.7% of students aware that reflective diary is necessary for reflective process. Also, reflective diary can be used to evaluate achievement on reflection levels.

Discussion and Conclusions: Reflection is an important tool for student to improve their understanding in rural learning experience. Most students prefer reflective dialogue in small group rather than reflective diary. All students were highly motivated that they can improve their critical thinking skill in the future by using self-reflection.

Take-home messages: Self-reflection is an importance skill to improve personal and professional skill. Understanding surrounding or personal feeling is not enough, but getting along of both is needed.
#8CC09 (24831)
Sustainable basic training in emergency dental care. Moving to Phase 2: Training the trainer in East Africa

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**Background:** Bridge2Aid, a charitable organisation based in Tanzania, runs dental volunteer programmes (DVP), where UK dentists train rural-based health workers (RHW) to provide emergency dental care to their communities. To date 326 workers have been trained and supplied with basic dental kit, once competent.

**Summary of Work:** A pilot programme aimed at providing senior Tanzanian district dental officers (DDO) with the skills necessary to train RHWs in emergency dental care, was conducted. A curriculum and assessment programme was developed and delivered by senior Bridge2Aid mentors in 2 phases: >2-day pedagogical theory and practical training, using video clips and small group teaching >9-day clinical training delivered to 7 RHWs with one-to-one mentoring by Tanzanian and Bridge2Aid trainers.

A further 9-day programme, training 7 more RHWs was conducted to assess trainer skills retention and programme effectiveness.

**Summary of Results:** 4 DDOs and 2 Bridge2Aid Trainers successfully provided training for 14 RHWs to Bridge2Aid’s standards. Trainers retained sufficient skills to lead the second programme. Feedback was positive from RHWs, patients, trainers and mentors.

**Discussion and Conclusions:** Training the trainers proved effective but it is essential to have full support from local Government to release trainers from clinical duties to attend the course. Despite no previous experience senior dental personnel developed the necessary skills to lead a training programme effectively.

**Take-home messages:** Over 75% of the world’s population has no access to emergency dental treatment. Emergency dental treatment training for medically qualified rural health workers can provide sustainable access for rural communities.

#8CC10 (25115)
Qualitative analysis on written student feedback in developing medical curriculum

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**Background:** Since 1991 the University of Tampere Medical School has sent fifth-year medical students for two week study period in rural health centres as a part of a 9-week general practice/primary care clinical course. The University has collected written feedback for open questions from students since the beginning of this project.

**Summary of Work:** The University has maintained the following learning objectives for this two-week period: 1) To help the students to understand the idea of multi-professionalism within primary health care. 2) To help the students to understand the cooperation between primary and secondary health care.

We analysed written answers to open feedback questions with qualitative methods from the period of 1991-2011 to evaluate how the learning objectives have been achieved from the students’ (N=1219) point of view.

**Summary of Results:** According to our evaluation the students estimated as having achieved the objectives as follows: 1) 50.4 %; 2) 8.1 %. This ratio has stayed rather constant during the time-period analysed.

**Discussion and Conclusions:** To help the students to achieve our learning objectives we need to invest in both of those areas of learning (especially on 2) by following the complaints, ideas and suggestions presented by students in their answers.

**Take-home messages:** Qualitative analysis on written student feedback to open questions gives more detailed understanding on students’ experiences than merely numerical feedback in developing medical curriculum.
Communication skills training in teams at rural hospitals in Norway

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Background: Hospital work in Norway has changed; number of beds is reduced, length of stay is shortened. Insufficient communication between patient and health care workers appears to be a problem in 70% of the formal complaints. Ineffective communication between nurses and physicians are linked to medication errors, patient injuries and patient deaths.

Summary of Work: We developed and implemented a three days communication-training course for teams of doctors and nurses at medical ward in a rural hospital at Helgeland, North Norway. We utilised multiple educational strategies; role-plays within the teams, role-plays with simulated patients, lectures and group discussions. The themes for role-plays were breaking bad news, handling conflicts and other themes defined by the participants. We completed the intervention in one of two similar hospitals in Helgeland. Validated patient satisfaction questionnaires were distributed to the patients within one month following their hospitalization before and after the course.

Summary of Results: Will be available by May 2015 and given in the handouts on the conference.

Discussion and Conclusions: The course may be considered a novel approach to training health care professionals, as we focused on inter-professional teams working in hospitals, rather than on the individual communication style.

Take-home messages: Training teams of nurses and doctors in teams may need further research.

Trend about being the rural doctor of the fourth generation medical students of Walailak medical school in CPIRD of Thailand

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Background: The first generation medical students of the new medical school, Walailak University, decided to attend specialty training 79.2%, which was not the objective of the Collaborative Project to Increase Production of Rural Doctor (CPIRD) of Thailand. This study focused on the attitude of the fourth generation of medical students about being rural doctors after graduation.

Summary of Work: To interview the fourth year medical student about their attitudes on 'Being a rural doctor', 'Future specialty training' and their 'Second career'. All data were analyzed with 'Steps for Coding and Theorization' (SCAT method) and presented in a qualitative report.

Summary of Results: Relating to their attitude about 'The rural doctor', the workplace after graduation is in their rural environment. About 'Being the rural doctor', they all knew the agreement of the CPIRD that sent them to work in their rural environment for 3 years. After that most of them plan for 'Future specialty training' but cannot be specific about the specialty. Almost all want to be only a physician, but some of them have decided to have a 'Second career'.

Discussion and Conclusions: The majority of fourth generation medical students of the new medical school, Walailak University, still want to attend specialty training. Furthermore some was decided to get the second career.

Take-home messages: Most of the next generation of the CPIRD medical students still want to attend specialty training. The curriculum should be more supportive of the attitude of being a rural doctor from the start of medical training.
Climate Learning of Medical Students in Project to Increase Production of Rural Doctors

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Background: Medical curriculum, Suranaree University of Technology (SUT) became a new medical school in 2008 and receives medical students from Nakhonchaiburin region. SUT has a normal track Collaborative project to increase production of rural doctors (CPIRD) and one doctor one district track (ODOD).

Summary of Work: This study was to determine the perception of the learning gap after completion of study in introduction to clinical medicine course in 3rd year. 60 students completed a structured questionnaire in both groups and we analysed the perception of both groups about learning outcomes and satisfaction with the program. The data analysis was done by computer program with T test and bivariate analysis.

Summary of Results: CPIRD 36(60%) and ODOD 24(40%) participants completed the questionnaire. CPIRD medical students had a higher examination score before admission (63.73 ± 3.37 vs 56.76 ±5.22 p<0.05) compared with ODOD group. Grade Point Average after finishing the preclinical year showed no difference between the groups (3.32±0.35 vs 3.23±0.29 p=0.33). All medical students were satisfied with the course, there was no difference in perception of learning outcome (cognitive (p=0.33), interpersonal skills (p=0.67), professional attribute (p=0.25) ethics (p=0.37)) and administration (perception of Learning (p=0.86), teacher preparation (p=0.44), Learning environment (p=0.72), social environment (p=0.64)).

Discussion and Conclusions: Introduction to clinical medicine was analysed from both groups of students’ perceptions. CPIRD students’ perceptions were greater learning outcome than ODOD students’ perception except for the administration domain in learning and social environment but this was not statistically significant.

Take-home messages: The different criteria for recruitment of the medical students for ODOD and CPIRD does not affect learning outcomes.

The Performance of Rural Doctors Graduating from Lampang Hospital, Thailand

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Background: The object of this study is to assess the performance of rural doctors in order to obtain data for curriculum development.

Summary of Work: From Dec 2008 to Feb 2014, in situ follow-up visits were conducted at thirty (30) hospitals in the rural north, in order to assess our doctors one year after graduation. Questionnaires were collected from doctors, from their directors, and from their co-workers. Other questionnaires, inquiring after satisfaction with the doctors under study, were collected from patients and their families. Statistic: descriptive statistic, compare mean score between two groups using Student-T Test.

Summary of Results: Areas of assessment include knowledge and skill in practice, communication, professionalism, attitudes/ethics, and leadership/teamwork. The results of the assessments were: 3.4±/2.0, 4.1+/0.9, 4.1+/1.0, 3.6+/1.7 and 3.6+/1.4 respectively. The results of interpersonal assessment were 3.1+/1.9, 4.2+/1.4, 4.3+/1.3, 4.2+/1.2 and 4.1+/1.5 respectively. The average scores of patients’ satisfaction were 4.1+/0.8.

Discussion and Conclusions: The resulting average scores were fair to high. Comparison between two groups found self-assessment scores to be lower than scores for interpersonal assessment, with the exception of scores for knowledge and skill practice which were higher but not statistically significant. Among other things, these assessment results are important for the development of curricula planning, the improvement of coaching techniques, the teaching of medical ethics, and the management of elective and student activities.

Take-home messages: To be Excellent in Medical Education, assessment is one of the important tools and that should be used annually.
Impact of medical student presence in the General Practice Consultation

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Background: While evidence suggests patients generally accept the presence of a student during a General Practice consultation, there is minimal literature comparing patient satisfaction with and without a student present and the impact of the student presence on the GP's ability to manage the problem and the student's learning experience.

Summary of Work: A cross-sectional observational study was conducted of GPs accepting third-year University of Queensland Rural Clinical School medical students, their patients, and medical students. The GP, the Patient, and if present the student were asked to complete a questionnaire following 5 consultations per week for 4 weeks with a student present and another 5 consultations per week for 4 weeks without a student present.

Summary of Results: Overall, there were no differences in the length of consultations with and without students (81% vs 77% consultation lasting 6–21 minutes, p=0.15), in the GP's self-reported ability to effectively manage the presenting problem (95% vs 96%, p=0.43), in time patient spent in waiting room (p=0.57), patient satisfaction with ability to talk freely (96% vs 91%, p=0.06), GP dealing with the presenting problem (p=0.30), and overall satisfaction with consultation (100% vs 99%, p=1.0).

A significantly higher proportion of patients without students identified issues raised with the GP as being sensitive or personal compared with patients without students (26.3% vs 12.6%, p <0.001).

The student's learning opportunity was found to be satisfactory for a majority (n=214, 83.9%) of consultations.

Discussion and Conclusions: Our study found no significant negative impact of student presence during a GP consultation in terms of the GP's ability to deliver care or patient satisfaction with the consultation.

Take-home messages: Student presence in the GP Consultation is satisfactory for all participants - the GP, the patient, and the student.

Community base Transformative Learning (CBTL): For Sustained in community Hospital

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Background: The availability of doctors in rural areas is important in Thailand. So motivated concept, attitude to the countryside for medical students during the course will be inspired to remain in the community hospital. So Community medicine in Phrae Medical education center, Thailand used principles of Transformative Learning in the Community base Transformative Learning (CBTL) for useful in raising awareness and attitude of medical students.

Summary of Work: A descriptive study. Data were collected from interviews and questionnaires. 35 medical students who go out to the community hospital. On topics related activities. During the course of CBTL. Event Transformative Learning and reflection pulled together to see if any events have contributed to medical students at the end to think that in creating a positive attitude, good attitude to the community.

Summary of Results: The most of comments concluded that Learning as CBTL can result in a good conscience and a good attitude to work in the community. There are some who see that there are other factors.

Discussion and Conclusions: CBTL, it’s something that should do it for the students to the concept by themselves. Compared to the teaching and learning activities in the community which no Transformative Learning may lack of thought or consciousness does not exist in a real sense of community. Conclusion CBTLs very useful. To be used in the teaching of medical students in a better attitude adjustment. As a result, the medical students who go to work in a community hospital. Can adapt and understand the situation in the community will contribute to increases the persistence of the doctors in the community.

Take-home messages: Transformative learning is the way of the wise contributes to the concept, attitude caused by the learners themselves.
Factors Influencing Continuing Education of Medical Graduates

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Background: Currently, after the medical students graduate, most of them prefer continuing education. However, there are a lot of factors associated with the teaching and learning processes which can have impact on their decision in selecting each specialty.

Summary of Work: A total number of fifty-six medical students who graduated in 2014 were recruited and completed the questionnaires. The first three favourite specialties and the first three factors that had impact on reasons of the specialty selection were recorded.

Summary of Results: From fifty-six questionnaires, the first five specialties that medical graduates would possibly choose were Internal medicine (22 persons, 39.3%), Pediatrics (21 persons, 37.5%), Obstetrics and Gynecology (17 persons, 30.3%), Ophthalmology (13, 23.2%), and Anesthesiology (12, 21.4%). The most popular specialties were Internal medicine (10, 17.9%), Pediatrics (9, 16.1%), and Surgery (7, 12.5%) consecutively. The most influencing factors on decision making in specialty selection were the content of the subject (55 persons, 98.2%), impressive mentors (40, 71.4%), interesting procedures (35, 62.5%), possibility of being accepted to a program (14, 25%), and previously high scores in that subject (6, 10.7%).

Discussion and Conclusions: Medical graduates planned to select different medical specialties according to various influencing factors. The most important ones were the content and the procedures including individual impression on mentors of that subject.

Conclusions: The well-organized processes of teaching and learning about the content of subjects, procedures and role model of mentors were the most influencing factors in continuing education of medical graduates.

Take-home messages: The development of teaching and learning processes of each specialty is the important issue that has impact on medical graduates in making decision about continuing residency training.

Trainees need guidance and inspiration to overcome the intimidation of academic medicine

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Background: Academic medicine is central to advances in healthcare and the education of future practitioners. There are significant barriers to accessing academic medicine, especially for junior trainees. The integrated academic training programs aim to make academia more accessible, however, it remains unclear whether juniors are motivated and able to integrate academic work into their clinical training.

Summary of Work: We organised a free national academic medicine conference for students and trainees, consisting of 3 mini-lectures and 5 small-group seminars. We used questionnaires to explore the pre-conference perceptions of the attendees, and assessed whether the conference provided informative and inspirational content.

Summary of Results: 45% of 118 registered participants attended the conference. Evaluation of the pre-course questionnaires revealed that academic medicine is perceived as an enjoyable and interesting career. Trainees felt that time limitations, competitiveness, inexperience and difficulty accessing the career were the most substantial challenges on getting involved in academia. More than 90% of respondents felt more informed, and 87% felt more inspired after the conference.

Discussion and Conclusions: Students and young trainees still see academic medicine as a difficult career to access. Trainees feel ill-informed about what they perceive as a highly competitive career, with many citing their lack of experience as a barrier to entering academic medicine. However, many trainees remained excited by careers in academic medicine.

Take-home messages: A short conference can be highly informative and can also be used to encourage and inspire current and future academics.
The Undergraduate Surgical Conference - An educational & career tool for medical students

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Background: Interest in a surgical career amongst medical students is declining, with a lack of early exposure being an important factor. Student led undergraduate conferences are an avenue which may increase exposure and interest in surgery. We aimed to evaluate our national undergraduate surgical conference as a career promoting and educational tool.

Summary of Work: Delegates were asked to complete a questionnaire style survey following the conference. Prior career interests and the usefulness of this conference as an educational tool were amongst the factors assessed.

Summary of Results: Of the 110 delegates attending the conference, 59 (53.6%) completed and returned the questionnaire. 39 (66.1%) students identified themselves as having an prior interest in a surgical career. 47 (79.7%) delegates were more likely to consider a surgical career following the conference. There were no significant differences in the proportion of delegates more likely to consider a surgical career following the conference between those with, and those without a prior interest in surgery (84.6% vs 70% respectively; p=0.187). 52 (88.1%) delegates found the conference educationally useful. There were no significant differences in the proportion of students who found the conference educationally beneficial between those with, and those without a prior interest in surgery (89.7% vs 85% respectively; p=0.511).

Discussion and Conclusions: Undergraduate surgical conferences can provide educational benefits and stimulate interest in a future surgical career in medical students with, and without a prior interest in surgery.

Take-home messages: The use of student led conferences as adjuncts to the undergraduate surgical experience is strongly encouraged.

Coaching in groups helps young doctors to cope with professional challenges and career choice

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Background: In the transition from medical school to working life young doctors struggle with professional identity formation, cooperation and communication with patients and colleagues and work/life balance while striving to achieve medical competency. The present study aims to explore outcome of group coaching to support young graduates in the transition period.

Summary of Work: In 2014 three groups of young doctors (22 participants) completed a group coaching course over four months comprising twenty-six hours in eight sessions. Trainee’s perception of outcome was evaluated by semi-structured interviews and a questionnaire.

Summary of Results: The participants perceived group coaching as helpful in regard to various professional challenges, career choice, work/life balance and conflict management. They felt empowered by the sharing of thoughts and feelings concerning common professional problems and reported improved communication skills in relation to patients and colleagues. Enhanced insight and improved reflection skills were treasured.

Discussion and Conclusions: The study suggests that group coaching is an effective way of supporting young graduates in the challenging transition period. Participants rendered it helpful to discuss common problems and share experiences with peers. Whether group coaching has a long lasting effect remains to be explored.

Young doctors found group coaching helpful in managing challenges in their professional life, in career choice and in improving communication skills

Take-home messages: Group coaching is a valuable approach to support young doctors in the transition from medical school to working life as a doctor.
Factors Affecting Decision to Specialize in Ophthalmology of Graduated Medical Students at Thammasat University

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Background: Nowadays, in Thailand, the population in rural areas cannot obtain ophthalmic services easily which consequently leads to a lot of eye problems. Increasing the number of ophthalmologists can be one solution.

Summary of Work: This cross-sectional study was conducted by questionnaires on post training day of medical graduates.

Summary of Results: Fifty six medical graduates of Thammasat university were recruited. Female (33 graduates, 58.92%) was predominant. Their hometowns were in Bangkok and surroundings (14, 25%), central region (17, 30.66%), north-eastern part (1, 1.8%), the east (9, 16.07%), and the south (15, 26.78%). Most of the medical graduates (20, 35.71%) desired to work as ophthalmologists in central region of Thailand. Fifty five graduates (98.21%) wanted to continue residency training and sixteen (28.57%) were interested in ophthalmology. Main reason of selecting was the cleanliness of the work (12, 21.42%) and the reason for non-selection was the high competition (29, 51.78%). Among 24 surgically skillful ones, 10 persons (41.66%) were interested in ophthalmology and 14 persons (58.33%) were not interested. Among 32 unskillful ones, 6 persons (18.75%) were interested in ophthalmology and 26 persons (81.25%) were not interested.

Discussion and Conclusions: Medical graduates of Thammasat university mostly live in the central region of Thailand and are markedly interested in continuing residency training. Ophthalmology was less desirable due to high competition, small number of training centers and limited positions. The main factor for interest in ophthalmology training was the clean work and for the lack of interest was the high competition. The surgical skill was not the important factor in continuing study.

Take-home messages: In Thailand, the competitive rate of ophthalmology training is quite high and the number of training centers is small. Thus, we should have a good plan for slot allocation, training centers, and thorough distribution of all ophthalmologists after training.

Geographical distribution and career trajectory of medical graduates from a public university in a continental country

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Background: Brazilian medical schools have been promoting curriculum changes after National Guidelines on Medical Curriculum (DCN) was published (2001), in order to strength the public national health system, specially primary health care (PHC), aiming to obtain a better distribution of medical workforce, and social responsibility.

Summary of Work: The present report investigates the geographical distribution and professional trajectory of medical graduates from a public university. A cross-sectional study was carried out with graduates from 2001 to 2010, contacted through email and electronic social networks. They received a web-based questionnaire on RedCAP Platform. Statistical analysis was conducted using descriptive data, paired t and McNemar test.

Summary of Results: Among 1255 graduates, 432 (35.3%) answered the questionnaire. Most participants were female (50.5%) with a mean age of 34.3 years old, practicing throughout the country (reaching 74% of states). Only 4.4% work as a general practitioner, and 4.9% as family doctor. Although 65.6% were born in small to medium cities, only 43.8% remained in these cities for practice (p<0.001). They opt for working in cities with higher population density (2213.7 habs/km2) compared to their hometowns (823.4 habs/km2) (p<0.001). City characteristcs, family, job market and inter-personal relationship were the most common reasons for their choice.

Discussion and Conclusions: Despite the policies set by governmental bodies, with investments towards curriculum changes, and concerns for social responsibility, doctors settle mostly in urban areas and larger cities.

Take-home messages: Understanding geographical distribution and professional trajectory could provide further evidence to policies aiming to improve doctors and other health professionals' workforce distribution.
Determination and comparison of motivation in medical and dental students for choosing their career

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Background: In India, thousands of students apply to study medicine and allied fields every year. Surprisingly, very little is known about why they applied for the particular field. Moreover, very few studies are available on comparison of motivation factors of medical and dental students. So, the current study was conceived to determine and compare the motivation factors for students of medical and dental fields.

Summary of Work: A structured questionnaire-based study was done to assess the motivation of medical and dental students for choosing their career.

Summary of Results: Prime motivation for many of the medical students was social status and prestige. High income was present as a prime motivation in dental students. Help and care for people as a motivation predominated in medical compared to dental students. Parents’ dream/wish was also a big motivation for all the students.

Discussion and Conclusions: Altruistic motivations were predominant in medical students in comparison to dental students in our study, whereas economic aspects were predominant in dental students.

Take-home messages: Motivation has been shown to be a predictor for learning, academic success, persistence in a study and well-being as well. Knowing the motivations of career choice may help to understand the student’s profile and their aspirations. Besides, it can be a useful tool for ethical and humanistic education during graduation.

Factors that affect decision making in the field of residency training

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Background: Now selection of residency training in noncontrollable lifestyle specialties has decreased because of social change. Many institutes have had fewer pediatric residents than they need. A study of favorite specialties and factors affecting decision making should be done to find inspiration for pediatric residency training to prevent the shortage of pediatricians in the future of Thailand.

Summary of Work: To study the popularity of each specialty in residency training and related factors influencing decision making in Thailand. Subjects are the second and third-year internists of the Ministry of Public Health, Thailand. Questionnaires about residency training specialty and related factors influencing decision making were distributed to them. Means, chi-square, and t-test were used for statistical analysis to compare the influencing factors.

Summary of Results: 450 from 1800 internists (25%) responded to the questionnaires. Internal medicine was the most popular specialty (26.56%). Pediatrics was the second which was selected (20.32%). Other specialties were selected less than 10%. The most influencing factor was their own preference during studying medicine. Another important influencing factor was role model and environment during studying and working in this field.

Discussion and Conclusions: In Thailand Pediatrics was the second most popular specialty in residency training. The important factor that inspired them to select Pediatrics was the role model and environment during studying and working in this field.

Take-home messages: Inspiration in residency training should be studied to prevent the shortage of noncontrollable lifestyle specialties.
What Choices do Trainee Doctors Make at the end of Foundation Training and why?

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Background: Doctors at the end of Foundation Training face a number of choices regarding the next steps in their career. Scotland needs to recruit and retain trainees to specialty training programmes. It is important to identify and understand the factors that influence the choices of new doctors.

Summary of Work: Every trainee who has satisfactorily completed a foundation programme (FP) in Scotland is required to complete a "Destination Survey". There are specific questions relating not only to their future training but also whether certain placements influenced their choices and whether Region of training has any influence. This study interrogated data collected over the past 4 years to identify patterns and any correlations of choice made by the foundation doctors (FD).

Summary of Results: There were 2949 responses, (94% average of FDs who completed the survey from 2011 to 2014. 63% of trainees went directly into specialty of which GP (21%) and CMT (13%) were the most popular. Further analysis is currently being carried out with regard to the factors affecting choices.

Discussion and Conclusions: Although there is literature with regard to career choices by doctors the influence of the FP on careers choices considering it on a longitudinal basis is new. It is important to understand if the proposal to increase placements in shortage specialties, eg GP and psychiatry can influence career choices from the perspective of placements.

Take-home messages: In order to retain a suitably trained workforce within Scotland, the importance of choices and the push-pull factors regarding careers will help inform the future development of FP.

Impact of an Undergraduate Educational Intervention by Junior Doctors in a Craft Specialty

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Background: UK medical school curricula offer little exposure to craft specialties. High competition ratios amongst junior doctors to enter into these smaller specialties incentivise demonstrations of commitment to specialty and to involvement in education by prospective trainees. This results in a pool of keen albeit junior potential educators who could supplement more peripheral underrepresented elements of medical education at little or no cost.

Summary of Work: A cohort of 15 senior medical undergraduate students at a UK medical school volunteered for 5 extra-curricular 1.5 hour seminars in ophthalmology over 10 weeks. Beforehand, the students completed a short test based on the ophthalmic outcomes of the medical school curriculum and a semi-quantitative questionnaire relating to their interest in ophthalmology as a career. These measures will be collected again at the conclusion of the five sessions and differences will be analysed for significance.

Summary of Results: The mean initial score on the curriculum based test was 47% and initial questionnaire responses indicated dissatisfaction with the coverage of ophthalmology within the medical school curriculum (mean response=1.8/5) and a perception of inadequate ophthalmic knowledge to pass medical finals (mean response=3.1/5) or to be a satisfactory junior doctor (mean response=2.5/5). At the time of writing the educational intervention has not run its course and so concluding data is not yet available.

Discussion and Conclusions: Data pending.

Take-home messages: We aim to find if a low cost undergraduate educational intervention by doctors with relatively little clinical or educational experience is of value and if undergraduates’ consideration of craft specialties as a career path is limited by undergraduate exposure.
The impact of multi-thematic longitudinal curriculum of family medicine on career choices in undergraduate medical students

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Background: To explore the impact of the undergraduate family medicine curriculum that influence the career choice of medical students in this field. We also aim to assess whether any factors in the course have an impact on their interest, which can be reinforced to enhance student interest in family medicine.

Summary of Work: A cross-sectional study, using an anonymous, self-administered online questionnaire, was conducted. Sample included 4th year undergraduate male and female medical students since they were the only batch with equal gender representation, to have completed the family medicine course.

Summary of Results: Overall response rate was 72% (n=105/144). Study respondents were 48.6% males and 51.4% females. Majority of them did not consider family medicine as a career choice before (75.2%) or after (74.3%) completing the course. Assessment of the factors within the course showed that most students considered it to be well-structured, and relevant. Majority understood the relevance of the course at undergraduate level and its relevance to clinical practice. Students agreed/strongly agreed that introduction of family medicine rotations would significantly influence them. A significant majority disagreed that the course positively influenced them. Furthermore, 56.2% of the students did not find the course instructors to be a motivating factor to pursue a career in family medicine.

Discussion and Conclusions: In general, most of the participants considered family medicine as an important aspect of the undergraduate medical curriculum. They believe the course illustrated its relevance to clinical practice and delineated the roles and responsibilities of family medicine physicians. However, overall the course failed to stimulate any further learning in the students and had no positive influence on their perceptions towards family medicine as a career choice.

Take-home messages: There is a scope for modification of the course to increase student interest in the field of Family Medicine, and thus encourage more students to pursue a career in Family Medicine.

Securing General Practitioner education in Europe - A study of seven nations (SGPEE-Study)

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Background: Securing General Practitioner Education in Europe- A study of seven nations (SGPEE- Study) The provision of General Practice to secure the health needs of the population, especially on the background of an ever increasing aging population in Europe is a challenging task. There is now a recruitment shortage for general practice in Europe. Medical Schools could be at the forefront of improving the recruitment of medical students to general practice by improving the clinical experience and exposure to role models during the attachment period. This can promote general practice as an attractive career choice. Increased and improved exposure to general practice can counteract the perception of medical students, that general practice is less challenging and less prestigious than a subspecialty career. Increased exposure to general practice can oppose derogatory comments about general practice from hospital specialist and the negative portrayal of general practice. This could lead to an increased uptake of general practice as a career choice.

Summary of Work: The SGPEE- Study is an internet based questionnaire addressing the provision of general practice attachments within the 7 nations medical faculties (Germany, Netherlands, Sweden, UK, Switzerland, Ireland and Poland) and the perception of their medical students regarding general practice as a career choice.
#8DD13 (24488)

General Practitioners or Medical Specialists: Characteristics, Trends and Determining Factors among Undergraduate Medical Students in Northern Thailand

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Background: The understanding of career preferences among undergraduate medical students acts as an important role for the future supply of physicians in primary care and specialty professionals for national health care services.

Summary of Work: A cross-sectional study was conducted in 5th and 6th year medical students at Faculty of Medicine, Chiang Mai University by anonymous self-administered questionnaires consisting of questions regarding demographic data, future career choices and factors affecting their decisions.

Summary of Results: A total of 327 participants were recruited. Most of participants (51.9%) decided their future specialty career; whereas 22.7% had several specialties preferences. 25.3% of them had not decided yet. Only 10.9% would like to be general practitioners as their future career. Internal medicine (16.9%), surgery (10.1%), pediatrics (9.3%) and emergency medicine (6.3%) were the most preferred specialties selected by undergraduate medical students. Male students favored surgery-related specialties, and female favored pediatrics, ENT, radiology family medicine and obstetrics/gynecology. The important factors influencing specialty decision were lifestyle-suitability of specialties to their personalities, working environment during training and influence of role models. Financial and academic opportunities were less influencing factors.

Discussion and Conclusions: This study shows the general trends toward specialization especially internal medicine, surgery and pediatrics than general practice in Thailand.

Take-home messages: The development and integration of motivational curriculum of professionalism and encouragement toward being general practitioners providing suitable working environment during training and role model in undergraduate students are needed in order to increase production of general practitioners in primary health care services in future.

#8DD14 (26400)

First-year medical students attracted by primary health care present specific personal characteristics

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Background: In Switzerland, like in many EU countries, an insufficient proportion of students are choosing primary health care (PHC) as a career, and worries are expressed about shortage of these physicians in the near future. We investigated the proportion of first-year medical students spontaneously attracted by PHC, and whether they present specific personal characteristics.

Summary of Work: Geneva Medical school first-year students (N=355) self-reported their career intentions (PHC vs other specialties), level of motivation to become PHC physicians in the future, and personal characteristics (empathic capacity, personality, stress coping, and motivation type). A multivariate analysis of variance was run to compare students attracted by PHC and by other specialties.

Summary of Results: Among students, 30% declared being highly motivated for PHC but only 11% intended to be trained as PHC physicians, women being significantly more interested than men (15 and 5% respectively, Chi-square p=0.045). Students attracted by PHC significantly differed from the other students (Manova p=0.006): they were more motivated by care (p=0.049) and intrinsic reasons, such as altruism or mission (p=0.025), and relied more on avoidance behaviors to cope their stress (p=0.046).

Discussion and Conclusions: Results at one medical school confirm that the proportion of first-year students interested by a PHC career is insufficient to meet the needs of the population (about 50%). PHC candidates are mainly female, caring and intrinsically motivated students.

Take-home messages: Since not enough medical students intend to become PHC physicians when they start their undergraduate training, encouragement strategies would be needed to meet population needs. The specific personal characteristics of students spontaneously attracted by PHC could be clues to identify and motivate students to this career.
Factors Influencing Recruitment and Retention of Foundation Doctors in Geographically Unpopular Locations

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Background: Following medical school UK graduates are required to complete 2 years of Foundation Training before entering into specialist training. The North West Foundation School is home to 1100 Foundation trainees employed over 12 hospital trusts in the North West of England. Despite oversubscription to the Foundation Programme, University Hospitals of Morecambe Bay Foundation Trust (UHMBFT) struggle to fill training posts. Resulting in a greater reliance locum doctors to sustain service provision, affecting morale and patient care.

Summary of Work: A research study was therefore undertaken to explore reasons for this and identify possible solutions. Final year medical students at Lancaster University as well as Foundation doctors based at UHMBFT and Central Manchester Foundation Trust (CMFT) completed a structured questionnaire and then attended a focus group to expand on their answers.

Summary of Results: Location was identified as the single biggest factor which affected where Foundation applicants applied to.

Discussion and Conclusions: Participants identified free/heavily subsidised accommodation, the offer of additional qualifications in leadership or teaching would have a positive effect on applications to geographically undesirable trusts. These incentives need to be well publicised, particularly on Foundation School websites, UK Foundation Programme websites and Trust websites. Overall this should lead to savings in recruitment costs, a reduction in vacant training posts and a decreased reliance on locum doctors, culminating in improved patient care.

Take-home messages: Geography cannot be changed however in order to provide consistent, good quality patient care, unpopular trusts need to attract and retain good doctors. Investment in incentives foundation doctors themselves have identified as attractive, is therefore required.
Practice-Based and Solution-Oriented Integration of Public Health Medicine in Postgraduate Medical Curricula

**Background:** Content from the expansive field of public health is incorporated in most Australian postgraduate medical courses. A recurrent difficulty is integrating this broad knowledge into the tight confines of the crowded four-year curriculum. Without a clear clinical focus, students may perceive this essential content as obtuse, or even irrelevant, to their future medical careers.

**Summary of Work:** An extensive curriculum re-development and re-orientation of the Public Health Medicine (PHM) theme at Deakin University School of Medicine was conducted over the course of two years to ensure relevance to future patient-based encounters. The core tenets of PHM include, but are not limited to, biostatistics, epidemiology, evidence-based medicine, policy, health promotion, health systems, social and cultural practice. To integrate these into a medically relevant context we developed a practice-based, solution-oriented approach across all four years of our medical curriculum.

**Summary of Results:** Re-orienting PHM content into a disease- and patient-centered approach has greatly improved student engagement and student curriculum evaluation. In the first iteration, there also appears to be improved learning of public health doctrines as evidenced by assessment outcomes, although further cohort evaluation is required.

**Discussion and Conclusions:** Public Health Medicine contains essential content for future medical practice. Using our new PHM model, students are highly engaged and becoming more intuitive with linking public health principles to patient-based scenarios.

**Take-home messages:** Producing work-ready and highly competent future medical practitioners requires public health erudite medical graduates. Delivering this as core curriculum in a clinically relevant, integrated and solution-oriented manner has led to improved evaluation and learning outcomes.

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Health promotion: a subject in development

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**Background:** Actions to promote health are focused in ethical codes, national goals and curricula for nursing and physiotherapist education. However, students' clinical practice mainly focuses on consequences of disease. A pilot study influenced by steps from Team Based Learning was performed in campus. The aim was to develop, implement and evaluate a model for interdisciplinary education in health promotion.

**Summary of Work:** One hundred and twenty nursing and physiotherapist students participated, of whom 60 students per session. First, students took individually and in interdisciplinary group discussions stand to statements concerning health promotion. Groups' answers were illuminated and discussed in class. Second, interdisciplinary groups considered activities for health promotion in written cases based on authentically situations from professional nurses' and physiotherapists' clinical practice. Each student group identified problems and compiled suggestions in a structured format. Finally, a conversation via the Adobe Connect was performed between the students in campus and the professionals in clinic. The students got the professionals' comments on specific questions.

**Summary of Results:** In a written questionnaire about all students described the activity as interesting and educative. The importance of working with authentic cases in cooperation with professionals and an increased understanding of another professions capability in health promotion was emphasized.

**Discussion and Conclusions:** Activities for health promotion need to be focused. This activity will be implemented in the nursing and physiotherapist education and further evaluated. Students appreciate pedagogical interventions involving transboundary interactions between education and healthcare, which may broaden the perspective of health promotion.

**Take-home messages:** Don't hesitate to use the technology to facilitate meetings between students and healthcare professionals!
Perceptions and Attitudes of Pre-clerkship Medical Students towards Public Health at Alfaisal University, Saudi Arabia

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Background: Integrating public health (PH) education into medical curricula and graduating PH-oriented medical workforces are becoming increasingly important. However, little is known about how medical students perceive PH and how best PH education can be delivered, particularly in the developing countries.

Summary of Work: To the best of our knowledge, this is the first Saudi Arabian study that attempted to explore medical students’ perceived attitudes towards PH and its instructional delivery. An online, anonymous, cross-sectional, self-rating (5-point Likert scale) survey was administered to second- and third-year students.

Summary of Results: 242 students participated in the survey (response rate: 80%). The vast majority of students asserted the importance of PH education (79%) and believed such courses will be useful in their clerkship training and clinical practice regardless of specialty. Lack of positive PH specialist role models (60%), hands-on field experiences and effective integration of PH education into medical curricula were substantial factors that made the PH course less interesting. A larger proportion of students recommended PH education at the pre-clerkship phase (69%) and mostly as mandatory (individual or integrated) courses (65%).

Discussion and Conclusions: Our results largely mirrored other reported studies elsewhere in literature with some discrepancies. Despite acknowledging its importance, students still partially neglect PH courses.

Take-home messages: Along with formal, rigorous and stimulating integration of PH into the undergraduate medical curricula, it is very fundamental to drive medical students to develop positive attitudes towards PH by improving the “quality” of curricular PH content and its instructional learning experiences.

Importance of knowledge about the Brazilian Health System in the Clerkship

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Background: Brazilian Health System (BHS) has been regulated since the Constitution of 1988 and requires professionals prepared to act according to its principles and guidelines.

Summary of Work: In 2014, classes and discussions on BHS were implemented in the last year of the clerkship at the medical course of the University of Ribeirão Preto. To verify the impact of this activity a test of five multiple-choice questions was applied to 29 students before and after the didactic activity. At the end, the students also expressed their opinions and perceptions by answering a structured questionnaire.

Summary of Results: On the test about BHS, there was significant improvement in the performance of students after the activity (p = 0.0306). For 93% of students the activity allowed to consolidate knowledge about BHS; for 89%, the methodology used motivated their learning process and for 86%, the acquired knowledge would be applicable in future medical practice.

Discussion and Conclusions: The knowledge about the laws of the BHS is essential for a proper medical practice in Brazil and it should be incorporated into the undergraduate medical curriculum. The teaching/learning process about BHS at the end of the clerkship is recognized and valued by students and promotes the acquisition of knowledge necessary to work in this system.

Take-home messages: Undergraduate medical curriculum should be adjusted to the egress profile necessary to the Health System in each country.
The social determinants of health: their importance for the medical curriculum

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Background: Unemployment and social class inequalities are projected to increase in coming years and both have important implications for health. In undergraduate medical curricula there is often a tendency to under-emphasise these social determinants of health and focus primarily on clinical aspects.

Summary of Work: To address this gap two literature reviews were completed: the first on the effects of unemployment upon health, the second on social class differences in health. These were conducted to synthesise the current state of research and explore the theoretical explanations underpinning the relationship between these social determinants of health and their impact on health and illness. It is intended that these will eventually form part of a textbook for undergraduate medical students.

Summary of Results: The research consensus is that unemployment is a stressful life-event that can cause ill health, both mental and physical and even mortality. Again, although reproductive and adult mortality for each social class has been decreasing over the past century, the disparity in mortality rates between the upper and the lower social classes is increasing.

Discussion and Conclusions: We show the importance for students to understand the factors that produce health inequalities so that they can be involved in evidence-based practice when the majority become general medical practitioners on their graduation. Specifically in relation to their advocacy role.

Take-home messages: The production of educational material on the social determinants of health will prioritise and enhance teaching in this often neglected area of the medical curriculum.

Teaching Continuous Improvement Skills through Dashboard Development

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Background: To practice effectively in the US health care system, physicians should engage in continuous improvement activities. This requires an understanding of the health care system, as well as practice-based learning and systems-based practice skills that are considered core competencies by the Accreditation Council for Graduate Medical Education. Physicians believe that they have an obligation to engage in discussions regarding the health care system. However, resident physicians have limited understanding of the system.

Summary of Work: We implemented a health systems curriculum for internal medicine residents. This included two didactic sessions that 1) reviewed the US healthcare delivery system and 2) introduced quality metrics from governmental- and non-governmental health care organizations. As part of the curriculum, residents created model practice dashboards incorporating metrics they felt most important to follow and identified methods to track these. This unique exercise encouraged residents to reflect on personal performance improvement within the context of their health care system.

Summary of Results: Of 141 dashboards, 121 (86%) included process measures and 105 (75%) included outcome measures. Fewer dashboards included metrics reflecting patient satisfaction (26%), patient demographics (16%), financial (7%), or systems issues (7%).

Discussion and Conclusions: As an exercise prompting continuous improvement, residents developed model practice dashboards. They most frequently included process and outcome measures, perhaps reflecting the metrics they felt to be of greatest importance or accuracy in evaluation of their care.

Take-home messages: Dashboard development is an effective exercise in practice-based learning and systems-based practice.
#8EE07 (26343)
Should nutrition be under ‘Other stuff’ in the medical curriculum?

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**Background:** Concern has been raised that medical doctors, the first contact for patients to provide nutritional advice, lack nutritional knowledge and education. In the UK, the ICGN developed a broad standardised undergraduate nutrition curriculum (17 learning outcomes), to ensure medical graduates are safe and competent to practice, ratified by the GMC.

**Summary of Work:** This project reviewed the teaching and learning of Nutrition within the medical programme at the University of Aberdeen in relation to the ICGN curriculum, by outcome mapping, discussion with stakeholders and a student survey.

**Summary of Results:** Only 84 of the sessions taught in years 1-3 could be mapped to the outcomes and mostly in the 2nd year. Only 16 of the 53 learning guides could be mapped to outcomes. The gaps were nutrition and public health, health behaviour, genetics, drug-nutrient interactions and nutritional support. Most 5th year medical students disagreed (n=39, 52.0%) or strongly disagreed (n=6, 8.0%) that they were taught enough about nutrition and did not feel confident to discuss nutrition-related topics with a patient [44(58.6%) disagreeing and 11(14.6%) strongly disagreeing to the statement].

**Discussion and Conclusions:** Nutrition is not seen as a priority, competing within the already crammed medical curriculum. Standardised nutrition-related and clinically relevant teaching materials should be provided especially for later years when ward-based and tutorial teaching is common. Inter-professional education is encouraged. In conclusion, gaps should be addressed especially regarding public health nutrition and nutrition support.

**Take-home messages:** Nutrition is cross-cutting – perhaps we need to signpost it better.

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#8EE08 (28275)
Healthy kitchen concept as a common platform for teaching

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**Background:** Complex teaching about nutrition and healthy lifestyle is sparse at medical faculties worldwide. On the other side, it is quite obvious that majority of “diseases of affluence” (obesity, metabolic syndrome, diabetes mellitus, atherosclerosis, tumours …) are (at least partially) caused by unhealthy lifestyle. Thus, development of effective teaching frameworks that will integrate healthy lifestyle and nutrition into curricula at medical faculties are needed.

**Summary of Work:** We aimed to introduce a “healthy kitchen” concept – “hands on” teaching through cooking in our newly arranged teaching kitchen at Medical Faculty in Pilsen.

**Summary of Results:** We have implemented a “healthy kitchen” concept as a tool for attractive and effective teaching of nutrition and healthy lifestyle for undergraduate, postgraduate and even patient’s education. Moreover, we use a “healthy kitchen” environment (framework) for practical demonstration of broad scale of problem-based learning, e.g. chemical analysis of food and body fluids; influence of exercise and nutrition on laboratory results and physical examination; planning, realisation and evaluation of experiment (including basics of statistics). The “hands on” teaching and learning is accompanied by e-learning courses that intensify learning process (partial implementation of flipped classroom concept).

**Discussion and Conclusions:** The “healthy kitchen” environment proved to be an attractive way of teaching a broad scale of topics. However, effectiveness of this approach (in comparison with other methods) needs to be formally (experimentally) proved.

**Take-home messages:** The “healthy kitchen” concept can be used not only for nutrition and healthy lifestyle teaching, but also as a general framework for teaching. Acknowledgement: The project Propagace přírodovědných oborů prostřednictvím badatelsky orientované výuky a popularizace výzkumu a vývoje, reg. č. CZ.1.07/2.3.00/45.0028 is operated under OPVK programme and is co-financed by the European Social Fund and the state budget of the Czech Republic.
#8EE09 (26623)
A pilot study of attitude, and self-use of Thai herbal medicine among medical students

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**Background:** In Thailand, Thai herbal medicine (THM) is rapidly growing in healthcare system and industry. Better understanding of attitude and self-use THM among medical students will lead to design a systematic THM curriculum. This pilot study aim to describe attitude, and self-use of Thai herbal medicine among medical students.

**Summary of Work:** A descriptive cross-sectional survey was performed among undergraduate medical students, Chao phaya abhaibhubejhr hospital, Burapa university, Thailand, using a structured questionnaire.

**Summary of Results:** The overall response rate was 100% (n=32). Majority of students (85.17%) have used THM for their health. Among this group, Indian Gooseberry/Kariyat/Turmeric were the three most common use. More than half of participants (56.25%) believed to encourage use of THM in Thai’s population. Most of student (75%) considered government should promote use of THM in public healthcare facilities. Approximately two thirds of students considered knowledge of THM should be integrated with conventional medicine. Almost of students (90.62%) believed that education of THM curriculum should be conducted in medical schools.

**Discussion and Conclusions:** Most of medical students have used for their health, and considered knowledge of THM should be integrated with conventional medicine in both practice and education. This has lead to a development of THM curriculum should be designed to meet the professional, and healthcare system need.

**Take-home messages:** Better understanding of attitude, and self-use among Thai herbal medicine leads to a systematic design of THM curriculum to meet professional, and healthcare system need.

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#8EE10 (26654)
Role of Visiting Tour of Medical Humanities Museum in Medical Humanities Education

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**Background:** Medical humanities education is an important curriculum in medical schools, which is usually conducted during junior medical years. For senior medical students and postgraduate physicians, medical humanities can be a special curriculum to be integrated in their clinical education. Museum of Medical Humanities of National Taiwan University College of Medicine is a unique medical humanities museum in Taiwan which provides educational information relating to medical humanities.

**Summary of Work:** We designed a course of exhibition tour to visit Museum of Medical Humanities of National Taiwan University for 96 young clinical participants including 44 clerks, 16 interns and 36 postgraduate first year physicians (PGYs) in Cathay General Hospital, Taipei, Taiwan. The curriculum contents included: (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 visiting and a term report of the course.

**Summary of Results:** The results showed that overall satisfaction score for the participants was 89% with higher scores in clinical duty team (intern and PGY). Improvement of self-awareness was observed about human evolution (3.77 to 4.10, Likert scale) and human aging (4.36 to 4.43) before and after the visiting. After the visiting, the clinical duty team (intern and PGY) had significantly higher than the non-clinical duty team (clerk) in 6 facets of humanities including empathy, altruism, integrity, correct values, self-reflection capacity and lifelong learning.

**Discussion and Conclusions:** In this novel study, visiting tour of unique medical humanities museum has been proven to play a role in medical humanities education. It can stimulate the medical students and young physicians the awareness of humanities and promote their qualities of humanism through museum visiting, role presentation and critical discussion.

**Take-home messages:** Can museum of medical humanities play a role in medical humanities education?
#8EE11 (26190)
“To Be” or “Not to Be” - What a Medical Humanities Teacher Should Be?

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**Background:** What is the purpose of our Medical Humanities education? What can we do to achieve these goals? Medical Humanities Education is the discussion of building value systems. Therefore, the character of the educator plays a vital part of Medical Humanities teaching. Educators need to possess certain qualities, to let students become willing to accept their teachings regarding value systems. Moreover, to let the students be willing to hold these values once they practice medicine in the future.

**Summary of Work:** There are many crucial elements needed to build a value system. Only “knowing” these values is far from enough, one must “believe” in them. Then can moral emotions be inspired and furthermore truly demonstrate core Medical Humanities values. So, the question is “How to make them believe”?

**Summary of Results:** To let students believe in the values the educator are teaching them, educators themselves should strive to achieve the following qualities. Thus educators of Medical Humanities should hold the four following qualities. A Medical Humanities educator should ask questions, not answer them. A Medical Humanities educator should be a guide, not a regulator. A Medical Humanities educator should be a listener, not a talker. A Medical Humanities educator should be open minded, not an authority figure.

**Discussion and Conclusions:** No matter educator or student, we all have the same amount of authority in our Medical Humanities class. Only in this way, students will be much more willing to participate in discussion and easily identify with the values which Medical Humanities pursue.

**Take-home messages:** If we ask of our students to have a humanitarian spirit, their teachers should have it too, otherwise we won’t have the right to demand this of them.

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#8EE12 (25054)
Exploration of cultural competency trainings in UK healthcare settings: A critical interpretive synthesis of the literature

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**Background:** ‘Cultural competency training’ (CCT) has been proposed as a strategy for eliminating racial inequalities and ensuring culturally appropriate health services. However the literature illustrates inconsistencies in the usage, understanding and implementation of CCT. The study objective is to review current conceptualisations of cultural competence and to understand how it can be learnt and acquired.

**Summary of Work:** The study review draws upon an extensive examination of research materials pertinent to the scope, nature and scale of CCT in UK healthcare settings; particularly focused on medical education. The search strategy involved the use of five electronic databases. Of 748 papers, 36 satisfied the inclusion and exclusion criteria. Critical interpretive synthesis (CIS) was used to analyse these papers. The study design assimilated methods adopted in conventional systematic reviews within the format of CIS, to combine the entire body of literature and generate theoretical categories.

**Summary of Results:** Four synthetic constructs (over-arching categories) were produced from the analysis, which were conceptualised as ‘conflicting concepts’, ‘incongruence between theory and practice’, ‘duty of care’ and ‘ensuring engagement’. Together these constructs generated an outlined theoretical framework (‘synthesising argument’) defined as ‘in-authentic commitment’ towards CCT, which collectively explained the findings of the review.

**Discussion and Conclusions:** CIS permitted an in-depth analysis, highlighting the areas of disagreement in the literature as-well as practical implications for policy, research and clinical practice that can aid progress and reform in this field.

**Take-home messages:** The findings demonstrated that authentic commitment is needed to ensure CCT is institutionalised throughout the healthcare system and medical teaching institutions.
C2ME: Building cultural competence teaching skills

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**Background:** Medical teachers are often unprepared to teach cultural competence to medical students. However, there appears to be no consensus as to the knowledge and skills needed by medical teachers to effectively incorporate cultural competence topics into their teaching. The C2ME “Culturally Competent in Medical Education” is an 11-country, European project whose objective is to facilitate the integration of cultural competence teaching in the undergraduate medical curriculum. The project focuses on curriculum analysis, policy development and faculty training.

**Summary of Work:** The first phase of the project involved a Delphi survey of 34 experts to determine the knowledge and skills needed by teachers in order to effectively teach cultural competence. The first round questionnaire asked experts to list the knowledge, skills and attitudes needed by teachers to effectively teach the a defined list of cultural competence learning objectives. During the second round, experts were asked to indicate the degree to which they considered each of 76 items (knowledge, skills, attitudes) to be important for medical teachers and for specific teaching contexts.

**Summary of Results:** 65% consensus was achieved for 11 items in the 2nd round. These included skills specific to cross cultural patient care as well as more general teaching skills.

**Discussion and Conclusions:** Delphi results informed the development of a teacher survey aimed at identifying teacher training needs. Next steps will involve the development of targeted teacher training materials that can be integrated into faculty development programs in medical schools. Teach-the teacher modules (both face-to-face and on-line) will be developed and piloted at C2ME partner sites.

**Take-home messages:** Investment in faculty development will be necessary in order to expand the teacher pool for cultural competence and successfully integrate cultural competence across the undergraduate medical curriculum.

Competencies and training approaches in climate change for clinicians

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**Background:** There is increasing awareness of the importance of clinicians’ understanding of climate change and skills in promoting sustainability at a local and global level. Accordingly, many educational institutions are developing environmental learning objectives and methodologies.

**Summary of Work:** This study outlines the current literature about clinical education on climate change, and presents an educational case study at our university.

**Summary of Results:** Medical education institutions state that clinicians should have knowledge of: i) interactions between health and the environment; ii) ethical-legal duties in environmental sustainability and iii) skills to promote environmental and human health. At our university, we taught 24 medical students using nine formal didactic lectures. Topics included water, air and food systems impact on health; human contribution to resource use and climate change, and the mechanisms for health impact from environmental change. Students facilitated their own learning using e-learning, readings, educational trips and a practical project. Students were assessed on a literature review, oral presentations and written self-reflections.

**Discussion and Conclusions:** Literature suggests education priorities should include clinicians’ knowledge of health and environmental interaction and their role in promoting a healthy environment. A combination of didactic teaching and self-directed learning may be appropriate.

**Take-home messages:** Climate change is an important issue for clinicians to understand. There is a current trajectory in clinical education towards developing ecological competencies. Climate change curricula are currently in place, and one example is presented here.
#8EE15 (27011)
Systematic integration of diversity perspectives into the scientific approaches modules of the new modular medical curriculum at the Charité Berlin

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Background: A new integrated, modular medical curriculum was introduced at the Charité - Universitätsmedizin Berlin in 2010. The goal was to systematically integrate diversity perspectives, especially gender and sex aspects, throughout the curriculum including three scientific approaches modules. Those modules provide students with basic scientific knowledge and skills, processes of evidence-based medicine and transfer of scientific results to clinical practice.

Summary of Work: Relevant diversity aspects were selected prior planning of the scientific approaches modules and corresponding diversity-related learning objectives were prepared. Regular participation in the module planning sessions, the module reviews by the curricular academic board and close cooperation and counseling of faculty members facilitated the integration of the selected diversity perspectives.

Summary of Results: Diversity aspects were successfully integrated into all three scientific approaches modules; i.e. as learning objectives into teaching courses and as items of the assessment checklists for the students’ oral presentation and written report of their scientific project. By this, the students actively learn to consider diversity perspectives in their research work, e.g. equal gender distribution in the study cohorts as well as the consideration of sex, age or ethnic differences when interpreting scientific results and the use gender-sensitive language.

Discussion and Conclusions: Curricular integration of diversity perspectives can be facilitated by a systematic approach involving selection of potential content, regular and active participation in the committees involved in curriculum design and close cooperation with faculty members.

Take-home messages: Diversity perspectives are important for medical students for conducting research projects and developing research literacy.

#8EE16 (23302)
Challenging creative thinking in medical students can create more surgical innovations

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Background: Chest tube displacement or dislodgement due to inappropriate tying or loosening of suture material after about 5-7 days of insertion is common problems in our institute. We challenge our medical students with this problem to see if they can solve it. The students were divided into two groups for comparison the effects of teaching by illustration or not.

Summary of Work: All 12 students had already learned about chest drain system, its physiology and chest drain care before. We showed them video clip of loosening of suture material that cause chest tube displacement. Then we divided into two groups equally. Group 1, we illustrated the method that we usually practice for chest tube fixation and then ask them to solve the problem. Group 2 no illustration. But guided the aims of fixing chest tube and gave them some material that may applied to solve the problem. We measured times that they took to create first solution and how many solutions they can created in 1 hour period.

Summary of Results: Students in group 2 took twenty minutes to create the first solution while group 1 took forty minutes. Group 2 had created 4 methods to solve the problem while group 1 had created only 2 methods.

Discussion and Conclusions: Creative thinking can be taught in medical students with mentor of teacher. Guiding them the principle rather than showing the ways you usually practice can facilitate their learning more efficiency and create more innovations in chest tube fixation.

Take-home messages: Guiding them the principle rather than showing the ways you usually practice can facilitate their learning more efficiency in some situations.
Attitude of medical students toward one-week studying in Forensic Medicine

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Background: One of the doctor’s roles in the rural hospital of Thailand is postmortem examination. The aims of this study are to assess attitude toward and the confidence of practice in forensic medicine among medical students at Maharat Nakhon Ratchasima Hospital, Thailand.

Summary of Work: The author conducted a pre-test and post-test study with sixth-year medical students. Structured, self-administered pre-class and post-class questionnaires were used to explore the interest, confidence, and difficulty related to forensic medicine. Wilcoxon rank-sum (Mann-Whitney) test was used to analyze the difference.

Summary of Results: All (n=47) medical students participated in the study. Male was 70.21%. Age averaged 22.87 years. 87.23% of students will be a general practitioner in the rural hospital. The overall attitude to forensic medicine was relatively high. Confidence to perform external postmortem examination especially time of death estimation post-class was significant higher than pre-class (p-value < 0.01). However, the medical student’s perspective toward learning in forensic medicine was difficult and the confidence was not improved after attending the autopsy practice. Neither gender nor work after graduating were factors associated with interest in forensic medicine.

Discussion and Conclusions: Usefulness for working in rural hospital is one of the reasons for interest in forensic medicine. Confidence in external postmortem examination probably causes medical students to deal with all unnatural deaths well. The reason why autopsy practice didn’t make the difference in confidence was discussed. Confidence after one-week studying increased even though forensic medicine was a difficult field of medicine.

Take-home messages: Re-arranging study course may improve the student’s confidence to perform postmortem examination.

A study of health education around female circumcision for communities at risk and professional groups

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Background: Female genital mutilation (FGM) is recognized internationally as a violation of human rights. It is mainly practiced in Africa and the Middle East but it remains in some immigrant communities in the UK where it is illegal. Up to 2,000 girls are believed to be at risk of FGM in our city alone. FGM can end in one generation with good programmes of education and application of law. Establishing the effectiveness of education is crucial to direct limited resources coming mainly from the voluntary sector, to inform policy for education and produce accessible materials.

Summary of Work: This qualitative study comprised focus groups: one with women only; another with young people, male and female, aged 18-25; and a group of professionals involved in child and family protection, such as police officers, social workers, teachers and doctors. Guided topics were around perceptions of the currently available education on this topic, and reflections on how this may be improved.

Summary of Results: A summary of the education currently available with reference to the contemporary literature will be presented. A narrative account of the themes will be used to illustrate the preliminary results from the study.

Discussion and Conclusions: This study explores the extent, inclusivity and effectiveness of engagement and education around the dangers of FGM for communities at risk and for professionals.

Take-home messages: Effective multi-professional education alongside engagement with those at risk and their communities is key to eliminating FGM in the UK.
#8EE19 (26523)
HackaThought: Co-creating solutions for student mental health

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David Wiljer*, Centre for Addiction and Mental Health, Education, Toronto, Canada

Background: To improve the mental health of post-secondary students in a large Canadian urban area, an engagement project with medical, design and technical students was created using an open-source digital platform. The goal was to support access to services for those seeking mental health and wellness services.

Summary of Work: Utilizing an innovative, community-based and rapid prototype development process known as a hackathon, we held a weekend long event, the HackaThought. Over a 3 day period, participants were exposed to wide range of mental health issues and challenged to develop a mobile solution to improve awareness of services. Participants presented projects to a panel of students and expert judges and one project was selected for full development. An evaluation of the event was conducted through an online survey.

Summary of Results: 65 participants attended, and 14 projects were submitted for judging; the winning mobile APP was Check It, promoting a healthy lifestyle of walking, eating, talking, and laughing. 27 (RR =42%) responded to the survey: 15/27 (55.5%) were students and 5/27 (18.5%) were professional developers. 18/25 (72%) reported increase knowledge of post-secondary mental health issues; 18/25 (72%) would participate in another mental health hack. Several concerns related to intellectual property (IP) and the judging process were raised.

Discussion and Conclusions: Participants from diverse backgrounds were motivated by the focus on mental health. Through this methodology, the rapid co-creation of user-focused solutions was feasible and achievable.

Take-home messages: The Co-creation of solutions for students creates awareness and engagement in the post-secondary setting. Particular attention to the process, topic relevance area and ownership of IP are essential.
International health electives in the developing world – More harm than good?

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Mahfuj Ahmed, King’s College London, School of Medicine, London, UK
Mohsin Shah, King’s College London, School of Medicine, London, UK
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Yasmin Begum Jolly*, University of Liverpool, School of Medicine, Liverpool, UK
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Background: Over the past decade, there has been a significant rise in international health electives (IHEs) undertaken by medical students in the UK and US reflecting a greater interest in healthcare overseas.

Summary of Work: A literature search of peer-reviewed articles indexed in PubMed was carried out to assess currently available information on the subject matter.

Summary of Results: Students and doctors are beginning to recognise the importance of understanding the complexity of tropical disease and cross-cultural communication as the diversity of patients’ backgrounds increases. Studies on IHEs have shown dramatic improvements to participants’ clinical knowledge and highlight the importance of learning how to manage patients with limited resources. Furthermore, healthcare professionals that travel overseas demonstrate an increased interest in primary health care fields on returning to their home countries, positively impacting their future career practices.

Discussion and Conclusions: Those who have undertaken an IHE have found it to be beneficial not only to their learning experience but also for their personal development. However, the quality of care provided is not always monitored or evaluated. As the demand for global health opportunities grows, it is imperative that medical students and doctors are given the appropriate preparation and mentorship they require. Poorly structured IHEs in developing countries can lead to cases of ‘poor care given to poor people’.

Take-home messages: Although IHEs are an important educational tool, there is a need for more stringent guidelines and better evaluation to ensure that high quality patient care remains the utmost priority.
i3DC: International, intensive, infectious diseases course. One size fits all

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Claire Le Jeune, Université Paris Descartes, Internal Medicine, Paris, France
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Caroline Charlier-Werther, Université Paris Descartes, Paris, France
Roberto Cauda, Catholic University Sacred Heart, Rome, Italy

Background: To foster cooperation between medical schools around Europe and to overcome differences among curricula, we developed a fully recognized common course that involved teachers and students from 3 European Institutions. Infectious diseases were chosen following a student’s survey.

Summary of Work: Infectious diseases teachers from Paris Descartes, Edinburgh and Catholic University of Rome agreed on the core curriculum of undergraduate ID teaching. The course taught in English by this international team, consisting of a full time week (about 30 hours) with lectures and practical sessions was given in each Institution to local/international students. Exams were held two weeks after each course by SBA test.

Summary of Results: 20-30 voluntary students were selected based on their background and motivation. Interestingly the three cohorts of students were different in term of year of study (from 3 to 4) and of local curriculum. All students gave very positive feedback, most of them successfully passed the exam, the French and Italian students had the course fully recognized in their curriculum.

Discussion and Conclusions: i3DC course showed that it is possible to design common courses that meet international standard and are satisfactory for European students. The cooperation of international teachers to share responsibilities was found extremely interesting and stimulating for students. Some of them had a clinical experience in one of the foreign institutions, completing their international experience.

Take-home messages: Cooperation within different European medical schools can produce teaching modules of value both for students and teachers: students had an international experience at home; teachers shared experiences and methodologies. This model can be extended to other topics and provides an efficient, affordable and successful method to implement internationalization.

A study to explore the benefit of international health electives to junior doctors during their FY1 training posts?

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Background: International health electives (IHEs) are a traditional part of undergraduate medical training but like other components IHE need to argue for their time in contemporary curricula. Although other researchers have explored the perceived benefits of IHEs, we found none that had done so specifically from the perspective of newly qualified FY1 doctors. Our projects explore FY1 doctors’ views on the relevance of IHE to their first year in practice.

Summary of Work: Participants were current FY1 junior doctors who graduated from UCL medical school. They were purposively sampled to provide representation of the following features: resource poor vs developed IHE country, urban vs rural IHE setting; research based vs clinical experience IHE. Participants provided informed consent for data collection via one to one semi structured tape-recorded interviews, which have been transcribed and anonymised.

Summary of Results: Interviewees consistently recognised benefits of IHEs in preparing them for their FY1 role including: overcoming communication challenges and learning to communicate difficult subjects, improved cultural and awareness, improved clinical and history taking skills, feeling an integrated part of a team, taking on responsibility, confidence in dealing with acute emergencies and awareness of counterfeit medicines.

Discussion and Conclusions: Interviewed FY1 doctors consistently identified useful training and experience gained during IHE that were relevant to their first year of practice. Some themes mirrored findings in the existing literature, though new areas were also identified.

Take-home messages: IHE have important relevance to preparation for practice and our study supports the continued benefits of IHE in the MBBS curriculum.
Cooperation for Development and Medical Education: pilot experience in undergraduate medical course in Portuguese speaking countries

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Maria Amélia Ferreira, Faculty Medicine University of Porto, Surgery, Porto, Portugal

Background: An enormous effort has been undertaken by Angolan government to increase medical doctors, through the development of new medical courses. Under the cooperation agreement between Faculty of Medicine University Porto, Portugal (FMUP) and Faculty of Medicine University Lueji A. Nkonde, Malange, Angola (FMULANM), a pilot mobility experience provided a group of 6th year students from FMULANM with an internship at FMUP. The aim of this study is to evaluate the results of this mobility programme.

Summary of Work: In the academic year 2013/2014, 22 FMULANM students (10 males and 12 females), average age of 24 years (21-43), attended an internship at FMUP for 3 months, attending the core areas of Surgery, Medicine, Obstetrics/Gynecology and Pediatrics. Evaluation of the mobility programme was done by answering an anonymous survey in a Likert Scale (4 to 1).

Summary of Results: 95% of the students were very satisfied with the internship suggesting longer duration and its continuity in the future. Several items were positively evaluated pointing the importance in the choice of the future specialization. Students were particularly excited about the learning acquired in Surgery and Obstetrics/Gynecology. In surgical procedures, they highlighted the high interest of ambulatory surgery, competences acquired in experimental surgery, skill laboratory and in the execution of small procedures.

Discussion and Conclusions: Angolan students obtained great benefits with this internship in the achievement of clinical competences, that will provide a better education to practice medicine in Angola.

Take-home messages: Cooperation for Development contributes to the strengthening of relations between Portuguese speaking countries, and medical education can greatly benefit from this experience.

Needs assessment and response for the first long-term international medical internship program in a Taiwanese teaching hospital

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Background: There are 12 high school leaver medical programs and 1 post-baccalaureate medical program mainly for native student in Taiwan, but the only government-funded post-baccalaureate medical program exclusively for international student was just established in 2013. The affiliate institution is a Joint Commission International (JCI) accredited academic medical center and was selected to be the main internship course training hospital of this unique program, which will start from August 2015. Because of the enormous diversity of the students’ cultural background and the confronting language barrier, a series of need assessment, consensus conferences and environmental reconstruction was initiated.

Summary of Work: Need assessment for the students and the clinical teachers started since January 2014, including 2 symposia to collect the students’ hometown background information as well as their point of view and expectation about the clinical rotation. Three faculty consensus conferences were also held to define the privileges and responsibilities of the stakeholders involved in this program and also explored the obstacles among the students, faculties, patients, administrators and their interactions in the future.

Summary of Results: The first 34 students are from 12 African, Oceanian, the Caribbean and the Latin American nations. Infectious disease such as HIV infection, tuberculosis and malaria is constantly the focal point, but mortality caused by accidents, diabetes, cardiovascular disease and neonatal death are also the critical problems they concern. They all showed highly aggressiveness of being engaged in daily patient care through hands-on practice, but worried about the communication. The clinical teachers cared about the sufficient protected teaching hours as well as language barrier and cultural conflict among the students, patients and the colleagues. To solve these problems, English healthcare information system and bilingual teaching assistant accreditation and rewarding system were instantly established.

Discussion and Conclusions: Though the hospital has successfully passed JCI accreditation for three times, try to manage the weak points of providing adequate learning experience can also help the institution prosperous in medical education.
#8FF07 (27309)
Educational Impacts for UK Professionals of Volunteering Overseas in Health Partnerships

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Background: Health partnerships between institutions in the UK and Low or Lower-middle Income Countries are an important model of development. We reviewed the evidence on the impact of health partnerships to UK individuals, institutions & the NHS, and the educational outcomes for those volunteering from the UK.

Summary of Work: A systematic review (including citation mapping) of both published literature and grey literature was conducted. Content relating to costs or benefits was extracted and analysed by thematic synthesis. The benefits to individuals of volunteering were mapped to the key outcome indicators for five different UK professional development structures.

Summary of Results: The literature review returned 9 published papers and 32 pieces of grey literature that met all inclusion criteria. 95% of sources cited benefits and 32% cited costs. Forty initial individual benefits codes were elicited. These were grouped into 7 key domains: clinical skills; management skills; communication & teamwork; patient experience & dignity; policy; academic skills; and personal satisfaction & interest. A high degree of concordance was shown between educational benefits cited and professional development frameworks. Benefits mapped directly onto the most advanced descriptor of each dimension of the NHS Knowledge and Skills Framework.

Discussion and Conclusions: There is little published or unpublished literature on the impact of volunteering within health partnerships to British individuals, institutions or the UK. Analysis suggests skills acquired through volunteering map closely to workforce development frameworks.

Take-home messages: The NHS workforce gains and improves recognised skills when volunteering overseas. Formally embedding health partnerships volunteering into CPD process would maximise benefits and learning.

#8FF08 (26380)
A Programme for Overseas Doctors: aiding transition into the NHS

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Background: The UK’s National Health Service (NHS) currently relies on overseas doctors to ensure effective healthcare delivery. The absence of a supportive framework to aid in the transition of this group, targeting social, cultural and work related issues, has led to feelings of stress, isolation and causing them to feel at risk.

Summary of Work: The Programme for Overseas Doctors (POD) provides a supportive environment in which overseas doctors can learn and practice the necessary competencies that will aid in their medical practice. A realist evaluation of POD was conducted, initial hypotheses being tested by collecting data on how the programme worked and used a multiple case study design. The data was analysed and interpreted to refine the initial programme theories.

Summary of Results: Interviews were conducted with POD attendees, supervisors, ‘buddies’, and overseas doctors who had experienced no intervention. Psychological and educational mechanisms can be triggered if an effective programme is put into place; psychological mechanisms including self-efficacy, social capital, engagement, motivation, insight and realistic expectations. Educational mechanisms include communication skills, knowledge and professional development. Establishing a strong support network is critical in transition success.

Discussion and Conclusions: Traditional outcome-focused approaches often fall short of explaining how and why a programme does or does not work; therefore a realist approach was able to fill this gap. Evaluation and response to POD confirm the need for such programmes to be implemented in other Trusts.

Take-home messages: The severity of transitional needs cannot be addressed by training alone, but must take into account all aspects of transition and provide ongoing support.
Improving medical education in an area of limited resource - the Exeter-Ethiopia medical education partnerships project

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Robert Marshall, University of Exeter Medical School, Truro, UK
Bilisuma Mulatu, University of Wollega, Nekemte, Ethiopia

Background: We have linked the University Medical Schools of Exeter and Wollega. Wollega is 200 miles west of Addis Ababa, and is one of 13 medical schools created recently as part of a government initiative to increase the number of doctors in Ethiopia. Their medical students are taught by junior doctors, most of whom are 2-3 years post qualification and untrained in teaching medicine.

Summary of Work: Our initial visit assessed the quality of teaching and the needs of Wollega. Subsequent visits have delivered teaching courses for both undergraduates and postgraduates, including lecturing on preclinical and clinical subjects and ward-based teaching.

Summary of Results: The response from UK volunteers, from undergraduates to consultants keen to participate in the link, has been inspirational. Ethiopian undergraduates show great enthusiasm and enjoyment for any teaching opportunities.

Discussion and Conclusions: On the positive side: Senior staff in both universities are supportive and offer every assistance. We have formed a new collaboration with St Bartholomew’s Medical School, who have linked with Aksum Medical School, North Ethiopia. We are working to enable the Ethiopian students to teach Exeter students. Difficulties that we face are: Variable internet access on the Wollega hospital in Ethiopia. We are working to enable the Ethiopian who have linked with Aksum Medical School, North west of Addis Ababa, and is one of 13 medical schools created recently as part of a government initiative to increase the number of doctors in Ethiopia. Their medical students are taught by junior doctors, most of whom are 2-3 years post qualification and untrained in teaching medicine.

Take-home messages: Online learning can be challenging in a developing country and should not be a substitute for direct contact, which is fundamentally important to both parties. Establishing a link between medical schools in the UK and low income countries invigorates students and teachers alike.

Maritime health international e-learning postgraduate medical education courses: an interuniversity collaboration to train health professionals around the world

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Background: Medical education competences are fundamentally oriented to solve health issues of inhabitants that live, work and get sick on the planet’s surface. Mostly, don’t consider the acquisition of competences addressing healthcare issues at distance for sea workers embarked during long periods and navigating around the world with limited access to ground healthcare services. This gap requires proper medical training on Maritime health issues.

Summary of Work: Courses have been designed to train health professionals to be able to perform medical examinations on seafarers or divers, to manage a medical care centre, a ship hospital or a radiomedical telemedicine consultation, to train health professionals to be able to perform medical examinations on seafarers or divers, to manage a medical care centre, a ship hospital or a radiomedical telemedicine consultation, to train health professionals to be able to perform medical examinations on seafarers or divers, to manage a medical care centre, a ship hospital or a radiomedical telemedicine consultation, to train seafarers, or to manage risk prevention activities on board. Learning resources are provided in different languages for trainees that mainly participate in asynchronic collaborative teamwork.

Summary of Results: Since 2003 we are developing an international online platform to deliver postgraduate courses on Maritime Medicine where main maritime health issues are included and also underwater and nautical sports aspects. PME programmes provide online training for practising medical professionals and other health staff worldwide. Furthermore, a range of face-to-face workshops, training events and symposia are regionally organized in close collaboration with Maritime Health Associations worldwide.

Discussion and Conclusions: Maritime health professionals were pioneers implementing telemedicine services to assist embarked workers and treating underwater diving professionals. They were also the first to share digitalised clinical records among maritime health professionals at harbours. We’ll present in detail this successful collaboration between Universities to deliver PME programmes on Maritime Health.

Take-home messages: Maritime Medicine it’s not recognized as a medical specialty in most countries. So, there is a need to go further to fulfil this gap.
Working together to deliver an international plan for teaching and assessing leadership in medicine

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Anne Matlow, University of Toronto, Postgraduate Medical Education, Toronto, Canada
Deepak Dath, McMaster University, Surgery, Hamilton, Canada

**Background:** The General Medical Council, The Royal College of Physicians and Surgeons of Canada (RCPSC), European Union of Medical Specialists and the Accreditation Council on Graduate Medical Education require physicians to demonstrate leadership skills as a core component of practice. However, these and other international accrediting bodies have no consensus about what these skills are and how they can be acquired through undergraduate and graduate medical education.

**Summary of Work:** The University of Toronto and RCPSC designed a one-day conference on leadership development in medical education, inviting international stakeholders including patients, learners, faculty, medical educators and leaders. Participants worked on key questions regarding the enablers and challenges with leadership development as well as curriculum development.

**Summary of Results:** Components of medical leadership, teaching, assessment, resources and program evaluation were themes that arose from the discussions of the 64 participants from 8 countries. A scaffold of major factors contributed to these themes including: curriculum; implementation; work-based training; and faculty development.

**Discussion and Conclusions:** Stakeholders in medical education have identified factors that help define leadership in medicine, discussed ways to teach and assess leadership competencies, and thought about how to evaluate programs on leadership training. They have committed to exploring these areas and to determining priorities for collaborative, international efforts to improve the curricula in teaching and assessing leadership in medical education.

**Take-home messages:** Leadership is an important component of medical practice that has not yet become a common or standard part of medical education. A collaborative effort to define and standardize leadership in medical education is necessary.

Intention to emigrate in Romanian Medical Faculty 2013 graduates

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Anca Dana Buzoianu, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, Romania

**Background:** Migration of medical professionals is a long recognized problem in Romania, but it has not been studied in depth. 8000 doctors have left the Romanian medical system from 2007, but official data and statistics for Romania are not available. This study assessed the intention to migrate and the factors influencing this decision among newly passed out graduates from the largest medical school in Romania.

**Summary of Work:** A descriptive study was conducted at the Faculty of Medicine, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca in September 2013. During the graduation exam, students were asked to fill in a questionnaire form that sought opinions on intention to emigrate and the reasons supporting the desire to emigrate.

**Summary of Results:** 320 students returned the questionnaires. 16.3% of the graduates had already decided to emigrate, while 37.8% answered that it was very probably they will emigrate. Most of the graduates (43.8%) intended to leave during the first residency years; 25.3% of the respondents did not intend to ever return to Romania. The most cited reasons for migration were a perceived better quality of life, better earnings and more training opportunities in the host country. The favourite destination countries were Germany (37%), France (21%), and UK (20%).

**Discussion and Conclusions:** The rate of migration is significant, most of 2013 graduates considering migration as a method to continue their medical education. If this tendency will continue Romanian medical system will have serious problems regarding the brain drain.
#8FF13 (27511)

The relationship between standardized assessment scores and workplace-based performance in international medical graduates

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Shannon Murphy, University of Calgary, Alberta International Medical Graduate Program, Calgary, Canada
David Topps, University of Calgary, Department of Family Medicine, Calgary, Canada

Background: The Alberta International Medical Graduate (AIMG) Program assesses foreign-trained physicians for entry into postgraduate training. This assessment includes English-language proficiency tests, the MCC-Evaluating Exam, the MCC NAC OSCE, and a multiple mini-interview. Further assessment of clinical reasoning and CanMEDS intrinsic roles is important to refine selection of IMG candidates, based on review of past performance of previous candidates.

Summary of Work: We developed a computer-based clinical aptitude exam (CAE), incorporating script concordance and situational judgement items. Performance of AIMG Program candidates was benchmarked against that of University of Calgary final-year medical students. Program candidates then underwent 4 weeks of workplace-based assessment (WBA). Scores on the various existing AIMG Program assessments are being correlated with quantitative WBA data.

Summary of Results: These correlations will help to determine the predictive contributions, and possibly incremental validity, of the assessments required of IMGs seeking postgraduate medical training in Alberta.

Discussion and Conclusions: The AIMG Program has adopted several instruments to appraise its applicants. Although WBA may be the gold standard to determine medical learners’ competence and potential for learning, its cost limits the ability to offer placement to all AIMG Program applicants. The current work will help to further refine selection processes, in an effort to efficiently and effectively identify those individuals most likely to succeed in AIMG Program-related residencies.

Take-home messages: The AIMG Program Clinical Aptitude Exam will add a previously un-tested dimension to the multimodal assessment of international medical graduates in Alberta.
#8GG Posters: Clinical Teaching
Location: Hall 4, SECC

#8GG01 (25308)
Attitudes of medical students toward patient-centered care: A cross sectional study in Prince of Songkla University, Thailand

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Thadakorn Tantisarasart*, Prince of Songkla University, Community Medicine, Songkhla, Thailand

Background: The patient-centered care is important for healthcare system. It provides good patient outcome and also improves doctor-patient relationship. This study aim to assess attitudes of medical student toward patient-centered care and explore the factors that influences these attitudes.

Summary of Work: A cross-sectional study was conducted in January 2015. The study population of 619 medical students from 2nd to 6th year in Prince of Songkla University were invited to answer the Patient-Practitioner Orientation Scale (PPOS) which was translated into Thai by cross-cultural back translation technique and was used to assess attitudes toward doctor-patients relationship. The association between PPOS score and individual characteristics included gender, academic year, GPA, hometown, mean expenditure per month and residence during studying were studied. The statistical analysis was done by using independent t-test, one-way ANOVA and multiple linear regression.

Summary of Results: The total respondents were 520 (84%). The mean(SD) of overall PPOS scores was 3.768 (0.42). From multiple linear regression analysis, there are three factors that significantly impacted to patient-centered care included gender, academic year and GPA (p<0.0001). Hometown, mean expenditure per month and residence during studying were no significant difference.

Discussion and Conclusions: Female medical students and higher academic year have more positive attitudes toward patient-centered care than male medical students and lower academic year, respectively. Moreover, we found positive association between GPA and the attitudes. Medical students who got higher GPA have more positive attitudes toward patient-centered care than lower GPA.

Take-home messages: This study provided the new association between the higher patient-centered care attitude and higher GPA.

#8GG02 (24919)
Propensity to disclose medical data among Thai medical students

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Background: The widespread use of smartphones and social media among Thai medical students, coupled with the increasing adoption of electronic health records in medical institutions poses a concern for potential medical data misuse, despite mandatory training on medical ethics, patient rights, and patient privacy.

Summary of Work: We conducted a survey (169 students, 94% seniors) and collected information about the extent of EHR and policy training, as well as perceptions about 4 case vignettes on medical data misuse. The cases covered password misuse, patient data download to personal devices, unauthorized access, and social network sharing.

Summary of Results: Despite all students receiving the same training, perceptions on the extent of training and knowledge about institution policy regarding medical data varied widely. Students who perceived they had received less training knew less about institution policy, were more likely to download patient data to their personal devices, and more willing to share this on social media.

Discussion and Conclusions: Our findings indicate that technology-assisted misuse is a potential problem. This will be accentuated with increasing personal and institutional technology adoption, while legal requirement for data protection remain in force. Simply conducting training on medical data misuse is not enough. Institutions need to make students aware of procedural and technical countermeasures that are in place to detect and possibly discipline violators.

Take-home messages: Training institutions need to reinforce the message about patient data privacy in a repeated manner and integrate it into many teachable moments so that convenience does not trump privacy.
#8GG03 (26619)
Pediatric discharge summary medical record: How to improve skill in final year medical students

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Background: Lack of completeness of medical record and discharge summary was found in internships. This study aims to evaluate the effectiveness of practice in medical record audit and discharge summary in the final year medical students to improve audit scores and calculated relative weight (RW).

Summary of Work: In academic year 2014, the sixth year medical students (N=29) were divided into 10 groups, average 2-4 students of each for five weeks rotation in Pediatric clerkship. Seven medical records of preterm with complications, neonatal jaundice, pneumonia, leukemia, febrile convulsion, and sepsis were assigned to each students to audit and discharge summary written at first and fifth weeks for pre and post-test. Each student was assigned to 1) audit each record including principal diagnosis, co-morbidity, complications, and procedures and 2) write summary discharge if necessary. One hour lecture of medical record audit and discharge summary was given after pre-test. The students submitted discharge summary of ten cases for learning and feedback. Pre and post-test audit scores and calculated RW were compared by paired t-test at significant level of 0.05. In-depth interview was used to assess student satisfaction.

Summary of Results: Statistically significant improvement in total scores (52vs.71, p=0.001), principal diagnosis (19vs.26, p=0.001), co-morbidity and complications (15vs.21, p=0.001), procedures (19vs.23, p=0.001), and RW (0.9vs.1.2, p=0.001) was found. This learning method enhanced student awareness of the completeness of medical record and discharge summary.

Discussion and Conclusions: Audit and feedback are the effective methods to improve student skill in writing medical records accurately and completely.

Take-home messages: The medical student should be trained to complete medical records.

#8GG04 (27312)
Curriculum of caring: A pilot study

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Background: The following study examined whether narrative reflection influenced medical students’ communication and engagement with patient educators (PEs) affected by developmental disabilities (DD) in a mock clinical setting.

Summary of Work: Twenty-seven first-year medical students were recruited and randomly assigned to one of two educational interventions. The control group received an introductory lecture about DD healthcare, followed by a short quiz. The variable, or narrative group received the same introductory lecture, followed by videos of individuals affected by DD talking about their lives and healthcare needs, and concluded with a reflective writing and discussion activity. It was hypothesized that exposure to and reflection upon these stories would prime students to demonstrate greater care and engagement in clinical encounters. All students then circulated through four stations, where they conducted brief interviews with a specific PE. Their performance was assessed through self, PE, and objective rater evaluations.

Summary of Results: Although students in the narrative group had higher scores across all clinical encounter evaluations, the results were not statistically significant. Their self-reported comfort, competence, and confidence in working with DD, however, were significantly greater relative to the control group (p<0.001).

Discussion and Conclusions: It was found that reflective, discussion-focused patient exposure helped develop greater comfort, competence, and confidence in medical students, specifically in a DD context.

Take-home messages: Early exposure and experiential learning are pedagogically and emotionally beneficial for medical students. The inclusion of real-life patient educators creates an empowering and authentic experience, and can hopefully help reduce stigma around developmental disabilities.
#8GG05 (26773)
Novel teaching programme improves prescribing confidence in final year medical students

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Background: Poor prescribing standards amongst junior doctors are being tackled partly by the development of the new GMC-led national prescribing exam for final year undergraduates. Students on attachment at our institution had not received formal teaching in prescribing prior to their final year. We set up a short course addressing some key areas.

Summary of Work: We set up a 4-week course, repeated 3 times during the academic term, open to all final year students. The sessions each covered a clinical scenario, accompanied by a practical task involving the students prescribing on mock drug charts. The main outcome measure was self-reported prescribing confidence on a 10-point visual analogue scale. Scores were collected before and after the sessions.

Summary of Results: Endocrine - 313% improvement; Cardiology - 304% improvement; Analgesia - 288% improvement; Anticoagulation - 317% improvement; Average improvement - 305.5%.

Discussion and Conclusions: This study has 2 main findings. First, many students lacked confidence in their ability to perform real-life prescribing. Second, students find the interactive approach to teaching prescribing beneficial. This is particularly important given the emphasis on prescribing with a national formal assessment. As an objective measure of the success of the course we intend to compare the results of these students with their peers.

Take-home messages: Teaching prescribing is an effective way of increasing confidence with clinical prescribing scenarios. Confidence in prescribing does not require lengthy, arduous training courses; addressing the deficiency in training with a relatively short course is sufficient.

#8GG06 (27048)
Immunology course facilitated professional skills and community spirit

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Background: Generic skills are best learnt when integrated into substance studies in a meaningful way. Biomedical science knowledge plays an important role in students’ clinical reasoning skills. For teachers with a non-veterinarian background it is important that they get an understanding of clinically important practices in their own teaching field and for clinicians constant updating of biomedical knowledge is necessary.

Summary of Work: The aims of an optional course “Immune-mediated diseases in animals – practices and challenges” (2 ECTS credits) included enhancing students’ life-long learning skills and giving experience in communicating one’s work in a scholar way. Fourteen students and eight teachers from different disciplines participated in the course. Teachers briefly presented their clinical topics but for most of the course students worked independently while teachers facilitated their work. Students searched and evaluated most recent medical publications and peer reviewed other students’ work.

Summary of Results: Students agreed that the course refreshed the principles of basic immunology, gave new insights into immunological diseases, and developed their critical-thinking skills. Teachers found this a practical and inspiring way to update and widen their knowledge. They also got to know each other and were eager to continue co-operation in teaching.

Discussion and Conclusions: Courses connecting basic science teachers and clinicians create collaboration and promote development of integrated curriculum. Students became members of a professional community of learning and gained not only subject knowledge but valuable generic skills. The course offered a platform for creating research networks and strengthened collegial atmosphere.

Take-home messages: Courses connecting clinicians and teachers with biomedical knowledge create a stimulating learning environment for the students, increase community spirit within the faculty and enhance vertical integration.
#8GG07 (25075)

**Deficiency of knowledge for well-baby care in pediatric clerkship**

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**Background:** Assessing growth and development of children and providing preventive health care are the core competencies of medical students in pediatrics. However, due to competitive learning issues, students may not have enough knowledge on these subjects. Therefore, we designed a booklet of children’s health care including vaccination, growth curve and developmental milestones, accident prevention, tips for breast feeding, dental care and food supplementation. This study was to assess whether the booklet is useful for students in learning of health care of children.

**Summary of Work:** Medical students were assigned to a pediatric clinic for 2 weeks during their pediatric rotation in a university hospital. Each student was given a booklet for children’s health care and arranged to interview parents and infants in a well-baby clinic. At the end of pediatric rotation, we assessed students’ knowledge about their children’s health care by a 28-item MCQ quiz.

**Summary of Results:** We totally enrolled 70 medical students. Of the 28-item MCQ quiz, the mean number of questions students answered correctly was 21 (correct rate 76%): the top 3 items with correct answer were: accident prevention (99%), correct sleep posture (99%) and avoid drug exposure in case with G-6-PD deficiency (100%). In contrast, the 3 highest rates of wrong answers were: maternal nutrition effect on breast milk (86%), tool to measure body temperature (64%) and judge of food intolerance (61%).

**Discussion and Conclusions:** A booklet for children’s health care is helpful for medical student learning in pediatric clerkship. Other material or methods may be needed to supplement their deficiency in knowledge of well-baby care.

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#8GG08 (25343)

**Does the use of a checklist improve the ability of medical students to collect relevant diagnostic information in psychiatric patients?**

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Stefan Schenkel, University Medical Center Mainz, Department of Psychiatry and Psychotherapy, Mainz, Germany  
Klaus Lieb, University Medical Center Mainz, Department of Psychiatry and Psychotherapy, Mainz, Germany

**Background:** Psychiatric disorders are common diseases. A WHO-Study postulates that every fourth person seeing a doctor does so because of psychiatric problems. So no matter which profession medical students will choose, the ability to obtain psychiatric reports is undoubted. Psychopathological findings are essential for diagnosis, but students’ abilities in obtaining psychopathological results vary widely.

**Summary of Work:** A quantitative checklist analogously to OSCE checklist was designed in focus group interviews. Students were randomized in two groups of 35 students. In both groups identical lessons (90min) about history taking in psychiatry and psychopathological findings were given except for the intervention group to receive and get an explanation of the checklist. All students took history and psychopathological history of 1 patient and wrote a report. Reports were compared to reports of a structured interview and evaluated due to standardized criteria by blinded trained raters. Reports of both groups were compared by students T-Test. As secondary outcome criteria course evaluation and results in the written exam was compared. Study was approved by local ethics Committee.

**Summary of Results:** The checklist group created significantly better results in psychiatric reports, in particular writing more meaningful reports and to confirm the right diagnosis more frequently. No significant differences were detected for the two remaining outcome variables. A trend for better evaluation in the checklist group was found.

**Discussion and Conclusions:** Validated checklists may be a cheap tool easy to integrate in psychiatric teaching with positive results, to enable students to get relevant diagnostic information.

**Take-home messages:** Checklists for psychopathological findings help students to write psychiatric reports.
Dialectical tensions in clinical teaching: Interrogation of taken-for-granted assumptions or maintenance of the status quo?

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Background: Brookfield (1995) cautions that without critical reflection we teach “innocently” and make potentially erroneous assumptions about our own teaching effectiveness and student understanding. Appreciating the relationship between critical thinking and the ability to challenge assumptions of taken-for-granted and tacit knowledge and practices is significant and valuable understanding for teachers.

Summary of Work: This discussion, in the form of a tempered polemic, is grounded in application of the three types of assumptions articulated by Brookfield (1995) with a series of illustrations of possible and current contested understandings. Paradigmatic assumptions encompass the accepted epistemological stances which are predominant in health professional teaching. These include a commitment to beliefs that competency based curricula are realistic frameworks to ascertain learning and that technical rational paradigms work best with human subjects. Prescriptive assumptions include a belief that problem based learning is valuable for all students, that a teacher “knows” who the clinical student is and that they share the same values and beliefs. Examples of causal assumptions are notions that interprofessional education produces collaboration and flattening of hierarchical structures, that the best teachers are those with years of experience and that good teaching equals good evaluations.

Summary of Results: Shedding light on collective tacit and taken for granted assumptions which may significantly influence clinical teaching is a first step to counteract what some have characterized as “dynamic traditionalism” in small group and individual clinical learning situations. The ability to identify and make the inexplicit explicit is a skill which can be cultivated.

Discussion and Conclusions: A dialectic founded in discourse intertwining both the best of current practices and new understandings arising from attention to “hidden” assumptions is an appropriate focus for those interested in providing optimal clinical learning experiences for students.

Countering medical students’ stigma: service users and the recovery approach

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Background: Levels of stigma against mental health service users increased during medical students training. In contrast, contact with service users decreases stigma in the general population. We hypothesize that a service-user led programme focusing on practical application of the recovery model and engagement with service users in recovery, rather than acute distress, will reduce medical students’ level of stigma and increase positive perspectives on mental health.

Summary of Work: A service-user led collaborative process established key learning outcomes to increase understanding of, and skills in, promoting recovery. Penultimate year psychiatric attachments will include up to 35% spent in service-user led NGOs, actively involved in discussions with service users, reflecting on these, and in service-user led sessions on principles and application of recovery theory. Attitudes will be assessed before and after the attachment, and at 3 months.

Summary of Results: The programme commenced in February 2015 and initial results will be presented.

Discussion and Conclusions: It is anticipated that students’ level of stigma will be similar to previous cohorts at outset, and reduced compared to an earlier study that included only two seminars on this topic. Efforts to reduce stigma among medical students have been only transiently effective. We hope this substantive commitment to engagement with service users will be of more enduring influence.

Take-home messages: Stigma against those experiencing mental distress is unacceptably high among health professionals. Innovations to reduce this are required to improve the health, and health care experience, of mental health service users. Active engagement with mental health service users in recovery offers one such approach.
Developing a course that prepares dental students in Saudi dental schools to deliver treatment for patients with disabilities

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**Background:** Patients with disabilities do present difficulties in maintaining good oral hygiene; this surely puts them at high risk to develop rampant dental disease. Generally, they require special adaptations during dental appointments.

**Summary of Work:** Develop a specific course for undergraduate dental students in Saudi dental schools, to ensure adequate clinical and basic science preparation, and to provide dental care for special need patients.

**Summary of Results:** The Six – Step Approach for curriculum development, and the Module Design Format developed by Hamad (1985, modified 1992) were used. The latter contains different guidelines, such as: course title, duration, intended students, rationale, educational objectives, education strategies, work plan, students’ assessment, evaluation, etc.

**Discussion and Conclusions:** Five major course units were developed accordingly, containing a total of 71 specific learning objectives, classified into three domains "cognitive, attitude, and skills". Program implementation will take 5 steps: Identifying resources, support and administration, addressing potential barriers, introducing the course, and program evaluation. The key questions of evaluation would consider: curriculum, faculty and instructors, students, program organization, and teaching/learning methods. The continuous assessment will rely on performance in PBL, tutorials, lab, and clinical sessions through the OSCE. The final assessment will be based on final written exam through MCQs, SAQs, and MEQs, and final case study presentation.

**Take-home messages:** Dental schools need to provide students with the knowledge, skills and positive attitudes to meet the oral health need challenge of ignored groups within their communities. The needs of patients with disabilities can be met through delivering of educational material as part of the curriculum.

Learning through logbook writing in Clinical Immersion Subject of second year medical students of Prince of Songkla University, Thailand

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**Background:** Clinical Immersion is one of several fundamental backbone subjects aimed to provide basic perceptions of medical graduates of Prince of Songkla University, Thailand. The subject is implemented in the second of six-year curriculum. It is aimed to provide perception and understanding in (1) community doctors’ work and lifestyles, (2) doctor-patient interaction and relationship and (3) holistic approach to illnesses. Daily logbook writing is used as learning media and evaluation. The students’ logbooks are read by the assigned supervisors and assessed according to an evaluation form. This is a part of subject’s assessment.

**Summary of Work:** This study was to assess the extent of achievement in learning through logbook writing. It was done in the academic year of 2014. The process was done through analysis the content of individual student’s writing between the practice in orientation day and each week of their hospital posting. The analysis was to assess the extent of students’ achievement according to the subject objectives.

**Summary of Results:** In contrast to the students’ feedback that this subject was very useful to their profession and they learned to the great extent according to the subject’s objective, they did not like the logbook writing and they felt that they did not learn much through this process. In analysis of students’ writing, most students developed progress in writing and reflex their perception, feeling and learning.

**Discussion and Conclusions:** Even though qualitative process of learning using logbook writing can be a favourable media of learning, thorough approach and extensive work is required.
Writing Patient Admission Note: Medical Students’ Perspectives

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Background: Writing patient admission note is an essential educational process for medical students. Despite being taught during coursework and practicing history taking with simulated patients, most student admission notes are poorly written. This study aims to identify problems in note writing and find solutions to improve writing skills.

Summary of Work: In this cross-sectional study, the 4th and 5th year medical students were asked to complete a questionnaire related to issues in writing patient admission note.

Summary of Results: Total 51 medical students were enrolled. Common problems in writing patient admission notes that were reported by students were 1) inability to summarize important key points in complicated patient (64.7%); 2) too many assigned admission notes (68.6%); 3) insufficient time (60.7%); 4) lack of advisor’s feedback and guidance (86.2%); and, 5) language barriers when encountering foreign-language speaking patients (90.1%).

Discussion and Conclusions: The main problems in writing patient admission notes are associated with language barriers and lack of advisor’s feedback.

Take-home messages: Advisor’s feedback and foreign-language development may improve medical student’s writing skills.

Obstetrics & Gynecologic teaching method: Experienced staff’s opinion

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Background: Effective teaching method will assist student to achieve learning objectives. There are many teaching methods to encourage active and passive learning of student. In Medical Education Center Phayao hospital, most staff receive little medical education training program and teaching experience. Experienced staff’s opinion will assist in selecting an effective teaching method. The purpose of this study is to explore experienced staff’s opinion about effective teaching method for Obstetrics & Gynecologic topics.

Summary of Work: A questionnaire was used to explore experienced staff’s opinion about effective teaching method of breaking bad news, PID, abnormal uterine bleeding, abnormal Pap smear, antenatal screening, postpartum care, fetal assessment, partograph, Leopold maneuver and Gynecologic history taking & physical examination. At the beginning, all topics are planned to use traditional lecture.

Summary of Results: A total of 46 responses were returned (76%). Data revealed that in experienced staff’s opinion, OPD teaching are used in Leopold maneuver 57%, Gynecologic history taking & physical examination 51% and antenatal screening 47%. Bedside teaching is used in abnormal Pap smears 43%. Case base lecture are used in fetal assessment 43%, breaking bad news 36%, abnormal uterine bleeding 36%, partograph 32% and PID 23%. Traditional lecture is used in postpartum care 32%.

Discussion and Conclusions: In experienced staff’s opinion, case base lecture is still effective teaching method to assist student to achieve learning objectives in most topics, although it encourage passive learning. Almost all topics that learning objective is performance domain, teaching method which encourage active learning is effective method.

Take-home messages: In experienced staff’s opinion, case base lecture is effective teaching method.
Care Map: Effective Educational Tools for Medical Students Improving Patient Care Quality

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Background: Care-map, which is a management tool for common diseases including dengue, hyperglycemia and stroke, has been published since 2012 for medical students and internal medicine residents. This study aimed to evaluate the effectiveness and trainees’ satisfaction of these tools.

Summary of Work: We retrospectively reviewed medical records with dengue infection, hyperglycemia and stroke at a short-stay ward of Siriraj Hospital in 2011-2014. The demographic, length of stay (LOS), cost, quality of care were compared before and after implementation of these tools. Moreover, cross-sectional survey questionnaires in trainees were collected.

Summary of Results: 586 medical records (297 care-map, 289 non care-map group) were recruited. The mean age was 53.66±20.80 years. There were no differences in baseline clinical characteristics, disease severity and laboratory in each diseases between both groups. The total and essential quality scores significantly higher in the care-map group than the other group (86.67±14.91 vs. 58.07±16.31; p<0.001, and 85.61±14.91 vs. 60.83±18.05; p<0.001, respectively). The aspects of documentation, prescription, and patient education improved significantly after implementation. However, LOS, cost, and outcomes were not different. 220 trainees’ questionnaires (184 students, 36 residents) were analyzed. 62.8% of trainees applied care-map in most cases. With respect to students’ satisfaction, 85% of students rated care-map as a learning tools with high to very high benefit, especially in practical guidance, and comprehensive map as a learning tools with high to very high benefit, to students’ satisfaction, 85% of students rated care-map in most cases. With respect to students’ satisfaction, 85% of students rated care-map as a learning tools with high to very high benefit, especially in practical guidance, and comprehensive map as a learning tools with high to very high benefit.

Discussion and Conclusions: Care-maps in varied spectrum diseases were the effective tool improving workplace-based education and the quality of patient care especially in documentation, prescription, and discharge planning with good satisfaction from trainees.

Take-home messages: The care-map is a valuable tool for training and facilitating best quality care.

Improving Undergraduate Medical Students’ Confidence about Performing a Physical Examination through Authentic Educational Videos

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Background: Instructional videos are widely used to facilitate undergraduate medical students’ learning and practical skills. Most videos demonstrate a performance of a certain skill, but not an authentic examination including the proper interaction with the patient.

Summary of Work: We produced nine educational videos in which the physician performs a physical examination in a realistic environment with a simulated patient. The physician shows the correct technique in an authentic way while interacting with the patient. The videos are accessible for the students via an e-learning management system.

Summary of Results: 190 of 270 second-year medical students answered an online questionnaire about the first two videos on the examination of the heart and the abdomen (70.4%). On average, the students’ subjective confidence increased from 3.4 to 2.2 after viewing the heart video and from 3.7 to 2.3 after viewing the abdomen video (six point Likert scale, 1 being a high confidence). The students reported that witnessing an authentic physician-patient interaction was useful. 63 (66%) students used the videos while practicing the physical examination with their peers. 87 (89%) of the students subsequently improved their technique of physical examination. Thereby the students rated the videos as a helpful learning tool (1,8 on a six-point Likert scale, 1 being very helpful).

Discussion and Conclusions: Creating videos in realistic environments requires a significant effort. Nevertheless, our results show that those videos can support students in their learning process.

Take-home messages: Authentic educational videos on physical examination can improve undergraduate medical students’ confidence in performing this skill.
#8HH Posters: The Teacher and the Junior Doctor as Teacher

Location: Hall 4, SECC

#8HH01 (25187)
Evaluating the impact of residents’ teaching skills on students’ clerkship performance. Looking back into the Obstetrics and Gynecology experience

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Background: Residents play an important role in students’ education. They spend the most time with the students while still in training, so they have a better understanding of student’s learning needs.

Summary of Work: The aim of this study is to evaluate the impact of resident’s teaching skills and mentorship on the overall performance and learning experience of third year medical students going through the Obstetrics and Gynecology rotation. Methods Third year medical students are required to complete a Preceptor Evaluation upon completion of their 8-week rotation. This evaluation assesses, among other things, the role and quality of the residents as mentors and teachers, and overall student satisfaction. The evaluation includes 25 questions using a 5 point Likert scale from 0-5, 1=Strongly Disagree and 5= Strongly Agree. Descriptive, ANOVA and Regression analysis were applied using SPSS Statistic 22.

Summary of Results: Data from 2011-2014 was analyzed from a total of 498 students. Significantly lower means were observed for two out of three communities regarding residents providing useful instruction and constructive feedback during student’s clinical performance. A significant correlation was found between the student’s negative feedback, lower required logs, less hours spent with the residents, and overall final grade, p=0.05. No correlation was found between the student’s feedback and final written exam performance.

Discussion and Conclusions: The results confirm the need to teach residents how role modelling affects student education. It is essential to improve residents’ teaching skills by identify learning moments in any clinical setting.

Take-home messages: Residents’ teaching skills need to be taught through a tailored program.

#8HH02 (25236)
Near-peer teaching before finals: a pitch-perfect way of building confidence?

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Background: Near-peer teaching can improve confidence when preparing students for examinations. Final-year medical students were invited to a revision course designed and delivered by recent graduates. We wished to explore: confidence (pre- and post-course) and whether course complexity appeared correctly pitched.

Summary of Work: Stations were devised to match history, examination and communication skill scenarios in the students’ final OSCE. A framework to approach the topic was discussed before volunteers were sought to attempt the station. Feedback and tips to avoid pitfalls were provided. Pre- and post-course questionnaires were utilised. Learners were asked to rate their confidence before and after on each course element using a 5 point Likert scale (fully prepared (1) – not prepared (5)).

Summary of Results: 47 students participated: 25 completed the pre-course and 47 the post-course questionnaires. All students reported the station complexity was correct. The average preparedness score before was 3.3 (prepared). After the course, it rose to 2.0 (very prepared). Pre-course, students rated themselves as most prepared for cranial nerve examination. Conversely, they felt least prepared to tackle the respiratory and abdominal stations. However, they reported the greatest perceived improvement.

Discussion and Conclusions: Preparedness rose and the stations were reported to have been correctly pitched. Thus, the near-peer model seems to have provided learners with a course matched to needs. Near-peer teaching improved self-rated performance. However, it is unclear why preparedness pre-course varies by subject area and whether our course could boost examination performance.

Take-home messages: Learners gain a confidence boost when taught by near-peers!
#8HH03 (25797)
The educational value of a “near-peer” organised formative OSCE
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Sarah Davies, Morriston Hospital, Department of General Surgery, Swansea, UK
Matthew Horner, Morriston Hospital, Department of General Surgery, Swansea, UK
Tim H Brown, Swansea University, College of Medicine, Swansea, UK

Background: Formative assessment (FA) in medical education regularly occurs on the wards involving students taking a history, performing an examination or discussing a case. “Near-peers” such as junior doctors often participate as the assessor. Near-peer-led teaching provides significant learning benefits and is used by some UK medical schools. Less is known about the benefits of near-peer organised FAs such as OSCEs.

Summary of Work: A group of F1 doctors designed and implemented a formative OSCE for third year graduate-entry medical students at Swansea University. Participation was voluntary and mock patients were used, with F1 doctors as assessors. Written and oral feedback was given for two minutes following each station. An evaluation form was used to collect quantitative and qualitative feedback.

Summary of Results: A total of 43 (of 73) students participated (uptake rate 58.9%). Feedback from 41/43 students who participated (response rate 95.3%) rated the OSCE highly for usefulness and relevance. Over 80% of students preferred near-peers as formative assessors, 9.7% preferred consultants and 9.7% had no preference. Over 90% of students felt more confident prior to the summative OSCEs. Good feedback was highlighted as the strength of the assessment by 17 students (41.5%), with many citing appropriate timing and detail.

Discussion and Conclusions: The majority of students who participated benefited with most preferring junior doctors as assessors, mostly due to quality feedback. Participating as assessors is good experience for junior doctors, who are themselves developing roles as educators.

Take-home messages: Inclusion of junior doctors in FAs may be of educational benefit to students and junior doctors alike. Further study is required.

#8HH04 (25644)
Role model of mentor interns for CPIRD medical students in Vachira Phuket medical education center
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Background: Mentor interns were interns who were employed by CPIRD to help staff to teach medical students in the new medical education center. Vachira Phuket medical education center have just had mentor interns in medicine, pediatric and Ob-Gyn department. Mentor interns were close to medical students and important in being role models for them. So we compare role model of mentor interns in our new medical education center.

Summary of Work: The 4th-6th year medical students (n=60) were asked by questionnaires for the assessment of our mentor interns in communication skill, relations with patients and empathy in patient care of each departments. The result was analyzed by ANOVA and LSD. (p= 0.05)

Summary of Results: The mentor interns were close and impact on role model to the 4th year medical students (x̅= 9.00 ± 0.15) more than the 5th (x̅= 8.22 ± 0.28) and 6th years (x̅= 8.35 ± 0.26) (p < .05) Mentor interns of Medicine were the greatest role model (x̅= 9.08 ± 0.23) compared to Pediatric (x̅= 8.76 ± 0.34) and Ob-Gyn (x̅= 7.74 ± 0.18) with significance (p < .05), especially in relations with patients and empathy in patient care.

Discussion and Conclusions: The mentor interns were important in being role models for relations with patients, empathy in patient care and communication skill to medical students. This was especially close and impactful to the 4th year medical students.

Take-home messages: Mentor interns were important in CPIRD medical school by being role models. This was especially close and impactful to the 4th medical students.
Evaluation of a teaching skills course for general practice trainees

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Background: There is increasing emphasis on all doctors developing a teaching role, cultivated from the trainee stage. Teaching role development is included in the general practice (GP) training curriculum. However, whilst hospital registrars are frequently involved in teaching activities, the same is not true of GP registrars. It is suggested that GP registrars feel unprepared and lacking in the skills and knowledge in order to take on teaching activities. This poster will describe emerging data evaluating the design and implementation of a teaching skills course for final-year GP registrars.

Summary of Work: We designed a GP registrar teaching skills course initially informed by exploratory scoping workshops with experienced GP trainers. In two half-day interactive workshops we provide an overview of our medical school’s undergraduate curriculum, the PBL process, principles of providing feedback and assessment methods. Our postgraduate training partners have supported us in integrating this course into the multiple GP training schemes in our region. Delivery of these courses is currently ongoing. Immediate post-course questionnaire evaluation is being conducted utilising a mixture of Likert-type scales and free text comments.

Summary of Results: Emerging results will be presented. Numerical analysis indicates a statistically significant rise in self-reported confidence scores pre-to post-workshop. Free text comments also confirm that the course was well received by participants with stated intentions to change future practice.

Discussion and Conclusions: Our results suggest that providing teaching skills training to trainees is meeting a specific need that will hopefully translate into implementation. Longer-term follow up will be needed to ascertain its true impact.
#8HH07 (26394)
Evaluation of a junior-doctor led prescribing programme for medical students

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Eleanor Hampton, University of Edinburgh, Edinburgh, UK

Background: Prescribing errors occur in almost 10% of hospital prescriptions. The highest rates of error are seen in foundation year doctors. This has been ascribed to deficits in pharmacological knowledge and to a lack of practical prescribing opportunities as medical students. We describe a programme of voluntary prescribing tutorials run by junior doctors for Edinburgh University year 5 medical students and evaluate feedback on the students’ perception of the programme.

Summary of Work: Fifty seven voluntary tutorials on twenty prescribing scenarios commonly faced in foundation years were delivered in 2013 in hospitals across three health boards in South East Scotland. Students completed post-tutorial feedback questionnaires (n=171) to explore previous prescribing experience, prescribing confidence and thoughts on the programme.

Summary of Results: Prior to attending tutorials 92% of students had written a prescription chart under supervision and 20% felt confident about prescribing for the designated scenarios. All attendees felt tutorials improved their knowledge and confidence and 96% expressed a preference for tutorials to be run by junior doctors rather than more senior members of staff. Students felt that working through real-life scenarios would help prepare them for life as a doctor.

Discussion and Conclusions: A junior-doctor led prescribing programme was perceived by medical students to help them gain knowledge and confidence around prescribing. With new prescribing assessments being introduced in the undergraduate curriculum additional teaching is important and will provide opportunities to assess the impact of the content and delivery of our programme.

Take-home messages: Near-peer prescribing teaching is popular with medical students and is one way of increasing practical prescribing opportunities.

#SHH08 (26659)
Effective Reciprocal Evaluation Tool to Drive Improvement of Residents’ Clinical Teaching Skill in Residents-as-Teacher Curriculum

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Background: Residents play crucial and direct roles in teaching new generations of physicians. Studies showed that residents conduct more teaching at the bedside compared to attending. Despite their significant responsibilities in clinical teaching, not all residents receive formal instruction on how to teach effectively.

Summary of Work: Nowadays, faculty development curricula raise more concern in residents teaching ability. Except One-Minute Preceptor (five microskills of clinical teaching), we also introduced Mini-Clinical Teaching Skill Evaluation Exercise (Mini-CTEX) in a two-hour teaching-enhancement workshop. The one group pre-post test design was adopted in this study to assess whether Mini-CTEX could improve participants clinical teaching ability. The effectiveness was assessed by descriptive statistics.

Summary of Results: Twenty-seven residents completed the One-Minute Preceptor course and Mini-CTEX training program. The residents came from different subspecialties, including internal medicine, surgery, obstetrics and gynecology, ophthalmology, dermatology, pediatrics, otolaryngology, family medicine, orthopedics and anesthesiology. The vast majority of the self-confidence for clinical teaching before the workshop was low to medium. Comparison of overall self-reported teaching ability pre-test and post-test (immediately after the Mini-CTEX training) revealed a pronounced effect (d=1.32) and statistically significant difference (p<0.05). The improvement of subscale scores in teaching methods, teaching motivation, and self-growth was also significant (p<0.05).

Discussion and Conclusions: Residents-as-Teacher Curriculum improves resident self-assessed teaching confidence and teaching skills. The usage of an effective reciprocal evaluation tool is linked to improve the effectiveness of resident’s clinical teaching skill training program.

Take-home messages: The intervention of effective reciprocal evaluation tool, Mini-CTEX, is a significant contributor to resident’s clinical teaching skill curriculum.
Establishing teaching links between medical students and junior doctors; evaluation of a near-peer teaching project

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Alex Harding, University of Exeter, Exeter, UK

Background: This project aimed to establish teaching links between medical students and foundation doctors at the Royal Devon and Exeter Hospital via a near-peer teaching intervention and to examine how this intervention translated into quality and quantity of teaching.

Summary of Work: A focus group of students and junior doctors was used to identify barriers to interaction. Participation in the project was voluntary. 76 fourth year students and 26 third year students were paired with 26 and 13 F1/F2 tutors respectively. Tutors were asked to log every tutorial given via an online form. Students were asked to give feedback for every tutorial attended through a separate, anonymized, online form.

Summary of Results: Pairing of students and tutors was intended to overcome a lack of confidence in approaching junior doctors on the wards and the perception that they were too busy to teach. Over the first seven months of the project 112 tutorials were given by a total of 31 tutors. To the question “How useful was this tutorial?” 51.6% of students responded ‘Very useful’ and 27.1% ‘Useful’. To the question “How would you rate the quality of teaching?” 63.6% of students responded ‘Excellent’ and 33.1% ‘Good’.

Discussion and Conclusions: Teaching by junior doctors is clearly valued by students. However, despite the programme, barriers to medical-student junior doctor interaction still exist - as evidenced by the variability in number of tutorials per tutor and the significant number who recorded no tutorials. Additionally, there were issues around teaching quality.

Take-home messages: Work is going to identify the determinants of near peer teaching provision, why imbalances exist and how to address them.

A dual purpose teaching course: Junior doctor led teaching to prepare medical students for finals and commencing work as a doctor whilst improving the teaching skills of foundation doctors

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Background: Foundation doctors are well placed to deliver near-peer teaching to medical students preparing for transition to working as junior doctors. Developing the clinical teacher is a key Foundation Programme curriculum outcome, however, clinical commitments often prevent junior doctors from achieving this objective. We designed a structured revision programme to enhance the teaching skills of the foundation doctors and prepare medical students for life as a junior doctor.

Summary of Work: A structured 8-week revision course focusing on situations commonly encountered by junior doctors was designed and lead by foundation doctors. A “Teach the Teacher” session was organised to equip doctors with teaching skills.

Summary of Results: Anonymised feedback revealed students felt more confident in commencing work as a doctor and dealing with emergencies commonly faced on the wards (p<0.05). Pre- and post- course assessment showed significant improvement in knowledge. Junior doctors felt more confident about teaching (7.5 vs 8.1/10) following the “Teach the teachers” session.

Discussion and Conclusions: The project identified a lack of formal teaching education for junior doctors and found that a simple intervention can help improve teaching confidence and the quality of teaching provided. Partaking in a structured teaching programme also improves confidence to provide further teaching. Medical students value the introduction of skills required for working as a junior doctor before the traditional “shadowing period”.

Take-home messages: A single “Teach the Teachers” session improves foundation doctors’ teaching confidence. Foundation year doctors are well positioned to provide near-peer education to final year medical students.
Near peer simulation training for the SJT: a novel approach?

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Background: The Situational Judgement Test (SJT) assesses five professional attributes: professionalism, coping with pressure, communication, patient focus, and team working. This is crucial in foundation selection but receives limited teaching. We feel foundation doctors are well placed to offer insights on these issues. We piloted a near peer simulation programme at the University of Exeter Medical School (UEMS), with a focus on developing the knowledge and attributes to prepare students for the SJT.

Summary of Work: During a 6-week simulation course, foundation doctors from Royal Cornwall Hospital taught thirty-six medical students scenarios involving a situational judgement. Students were assessed with pre and post-session tests, objectively measuring knowledge of NICE/GMC guidelines and subjectively measuring the professional attributes.

Summary of Results: Objective test scores of NICE/GMC guidelines increased from 40% to 71%. Confidence working within a team improved from 42% to 71%, communication skills improved from 46% to 72%, and confidence managing a scenario under pressure, in a professional and patient focused manner, improved from 34% to 71%.

Discussion and Conclusions: Near peer simulation provides a unique learning experience, offering an informal teaching environment. Foundation doctors are immediate role models for students, well placed to teach human factors and offer guidance on issues specific to the SJT. We are proposing to formally run this course for 3rd year students at UEMS. We will utilise a rigorous assessment tool integrating ratified SJT questions and multi-disciplinary feedback with a view to incorporating the course into the UEMS curriculum.

Take-home messages: Near peer simulation teaching can develop the knowledge and professional attributes assessed in the SJT.

Peer-TED, a new exploration of peer learning

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Background: TED (Technology, Entertainment, and Design), under the slogan "Ideas Worth Spreading", is taking the education world by storm, and is likely to improve peer learning for physicians.

Summary of Work: "Peer-TED", a training program designed for trainee taking a free topic speech within eight minutes and receiving feedbacks from the peers and supervisors in two minutes, was introduced to post-graduate year (PGY) physicians. 35 participants were enrolled in the program and were taught to be enthusiastic and confident. The self-assessment questionnaire (all 8 items answered on a 5-point Likert scale) was used for the analysis before and after the program.

Summary of Results: The participants agreed that Peer-TED made improvement in the following aspect, such as being more confident (mean±standard derivation: 4.40±0.084), presenting skills improvement (4.34±0.1), better relationship with peers (4.57±0.09), inspirations of their career (4.43±0.11), stress relief in the clinical environment (4.31±0.14), and was time-worthy (4.34±0.80). Most of them would like to participate this program again (3.83±0.17).

Discussion and Conclusions: When the beginners are familiar with the topics, they will show more confidence and enthusiasm. Soft talks, not limited in medical field but in sharing experience, make the peers closer and improve peer learning. Peer-TED, not only for the presenting skills, but for the mind, is worth spreading to the PGY training.

Take-home messages: Medical education organization should hold Peer-TED to improve peer learning.
Perceptions of junior and senior medical students about the most important attributes of teaching physicians as positive role models - a qualitative study

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Background: Role models may exert powerful influences on medical students throughout their professional education, which seems to depend on student perceptions. Nevertheless, little is known about which role model characteristics are most valued by students, and whether junior and senior medical students differ regarding their perceptions on these attributes.

Summary of Work: Junior (Year 2) and senior (Year 5) medical students from a six-year programme in a single institution participate in focus groups discussions after answering a questionnaire on potentially important role models characteristics. Answers were utilized to derive a guide for the discussions. 10 Year 2 students and 6 Year 5 students participated in focus groups discussions, which were recorded and transcribed in text. Interview's contents were analyzed using standard qualitative research techniques.

Summary of Results: Year 2 students valued mostly professional medical qualities, such as communication with patients and team members, empathy, medical expertise, knowledge about healthcare systems and self-care. Year 5 students also valued some professional qualities, such as good communication with patients and medical expertise, but attributed importance to social accountability and teaching skills as well.

Discussion and Conclusions: Good communication with patients and medical expertise are role model positive characteristics equally valued by both junior and senior medical students. However, senior students ascribe greater importance on other non-medical attributes, such as social accountability and teaching skills.

Take-home messages: Professional and general characteristics are perceived by different groups of medical students as important attributes of positive role models. These findings should be taken into account in faculty development programmes for enhancing influences of teaching physicians on students.

I'm a educator versus I'm a health professional: How role commitment of health degrees teachers affects their participation in training activities

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Background: Professionals who teach in health degrees need to involve themselves in a continuous training process to improve their skills and successfully face their educational role. This training process must include two different topics: a disciplinary one (health issues that are being taught) and a pedagogical one (aptitudes required to teach, assess, etc.). This research analyze the correlation between these teachers' involvement in training activities and their commitment to their disciplinary and pedagogical role.

Summary of Work: Study sponsored by FONDECYT 1110484. 345 teachers from health undergraduate programs of Chile were surveyed. 13 of 15 regions of the country were included. They completed two questionnaires: the Professional Role Commitment for Teachers Questionnaire (in spanish, ECPD) that differentiates how engaged are teachers to their disciplinary and pedagogical role, and the Training Process Involvement Questionnaire (in spanish, CPPD) that assesses how frequently these teachers attend pedagogical and disciplinary training activities.

Summary of Results: Multiple linear regressions identified that a higher involvement in disciplinary and pedagogical topics have a significant correlation to a higher commitment to pedagogical role. Disciplinary commitment has no significant effect.

Discussion and Conclusions: Results highlight that commitment with teacher role is a best predictor of how much effort professionals invest to improve their pedagogical skills, but it impulse them to improve their disciplinary skills too. As opposed to this, commitment with disciplinary role is not a relevant predictor of neither of them.

Take-home messages: Love for teaching seems to be a boost for becoming a better professional as a whole.
#8HH15 (25503)
A study on knowledge, attitude and practices regarding ‘lesson plan’ among the teaching faculty of medical colleges in Tamil Nadu, India

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Background: Medical education with learner centric approach requires every teaching-learning session to be based on learner’s needs, based on which learning objectives lie. Therefore it is essential to plan a lesson to suit the learner. This necessitates a lesson plan. A well planned lesson helps in enhancing the teaching-learning experience. Nevertheless, the implementation of lesson plan by the medical faculty is far questionable. There are few studies done in India regarding the perspectives and uses of lesson plan. Sufficient knowledge in this area will help us in focusing in areas concerning its improvement. This study was carried out to estimate the knowledge, attitude and practices regarding the lesson plan among teaching faculty.

Summary of Work: A cross sectional study was carried out among all the teaching faculty of a medical school with a structured self administered questionnaire. Data was analysed using SPSS software. Ethical clearance was obtained prior to the data collection.

Summary of Results: Among 150 participants, 73% of the participants were aware of lesson plan, but only 34% consider it necessary. Moreover, only 28% use lesson plan.

Discussion and Conclusions: The results of our study are similar to the study by Fattahi Z et al. While 34% felt that lesson plan was mandatory, the results were 83% in a study done by Masomeh Saberian et al. Since the results of the attitude correlate with the prevalence of practice, this clearly proves that a significant knowledge gap exists and this reflects on their practices.

Take-home messages: Adequate external motivation may prove effective in strengthening the teaching learning experience.

#8HH16 (24018)
The role of teacher motivation in the improvement of quality education

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Walter Bordino, Instituto Universitario Italiano de Rosario, Medical School, Rosario, Argentina
Roberto Garcia Turiella, Instituto Universitario Italiano de Rosario, Medical School, Rosario, Argentina

Background: Contemporary pedagogy proposes a challenge in the professionalization and mastery of basic and elementary skills. We define today our general research which analyzes at least 12 University Professor Competencies: Planning, Communication, Motivation, Methodology, Media Integration, Tutoring, Assessment, Research, Institutional Empathy, Innovation, Intercultural and Teacher professional identity.

Summary of Work: The study was conducted with IUNIR teachers and a group of experts from other participating universities. The sample consisted of 145 teachers in health sciences of Italian University Institute of Rosario (IUNIR) in Argentina, which were 81 women and 64 men aged between 22 and 57. The average year of college experience was an 11 years modality (in this or another University). For data collection, a questionnaire was aimed to explore teaching skills as academics, and can assess the motivational competence of teachers in medical school. We’re focusing on the “teacher motivation”,

Summary of Results: The works proposed in order to facilitate the domination of the competence of Teacher Motivation are: 1) Generate didactic transposition of the theory to the practice, taking real-life problems. 2) Analyze the reasons that lead us to continue our professional training and our expectations in this regard. 3) Working collaboratively with the other, plays an important role in learning 4) Establish an institutional empathy and "passion for teaching" and 5) Our results evidence better academic results in students.

Discussion and Conclusions: This study allowed us assessing the competence “Teacher Motivation” and using the results to form a larger program of research and action for their own training and professionalization of teachers in the twenty-first century quality improvement in higher education.

Take-home messages: The consequence of the poor educational practice is precisely decadence of education, lack of teacher’s motivation, and its effects are poor academic performance and student’s dropout. Teacher motivation results in improvement on quality education.
Level of confidence in the 12 roles of the medical teacher. A descriptive study at Faculty of Medicine, Srinakarinwirot University, Thailand

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Background: We use the 12 roles of the teacher framework proposed in the AMEE guide No 20 to identify the level of confidence in teaching roles of our faculty. The study result was intended to serve as an indirect faculty training needs analysis of our institution.

Summary of Work: The online questionnaire invitations were sent via email to all 211 faculty members, and 118 (55.9%) responded. The questionnaire asked about demographic data, teaching experience and their preferred format of faculty development activities. The respondents were also asked to rate their level of confidence in each of the 12 teacher roles on a 5-point Likert scale ranging from 0 (none) to 5 (great).

Summary of Results: The three most highly rated roles on the level of confidence were the clinical teacher (4.11), the on the job role model (4.11) and the lecturer (3.97). The three roles with the lowest rating were the curriculum planner (3.08), the curriculum assessor (3.23) and the mentor (3.31). Age and teaching experience were positively correlated with the level of confidence in 11 and 10 of the 12 roles, respectively. Most faculty members (47.5%) chose the half-day face to face session as their preferred training format.

Discussion and Conclusions: The study results imply that our faculty members are more confident in the “information provider” roles and training should aim towards supporting self-evaluation of teaching, mentoring, as well as promoting facilitative roles of the teachers. Retention of faculty members at the institution is also important as the teaching experience significantly correlate with confidence in the teacher roles.

Take-home messages: The 12 role of the teacher framework can be used to identify training needs within an institution.

The effect of the clinical years on medical student perceptions about the importance of the various teacher roles

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Background: Teachers in medical schools may play various roles. We have previously shown that student perceptions on the importance of teacher roles changes from admission up to the beginning of the clinical years. This study aimed at determining the effect of the clinical years on student views about the importance of the different roles played by their teachers.

Summary of Work: Penultimate (Year 5) clinical year medical students (N=68) who had already participated in the study two years earlier were invited to answer to a standard questionnaire on the importance of 13 different teacher roles. Responses were record in a 5-point Likert scale (score 1-minimal importance; score 5-maximal importance).

Summary of Results: Senior medical students had unchanged perceptions (p>0.10) on the most important teacher roles: “medical expert” (average score: 4.83); “provider of information” (4.79); “curriculum planner-manager” (4.47); “role model” (4.13). Attending the clinical years was associated to increased importance attributed to the “facilitator of student-centered learning” (from 4.01 to 4.33; p<0.01), and to decreased importance to the “lecturer” (4.69-4.17; p<0.0001) and “student’s evaluator” (4.35-4.07; p=0.02) roles.

Discussion and Conclusions: Experiencing medical school clinical years is associated with student perception of increased importance of the teacher as “learning facilitator” and diminished value of the “lecturer” and “student’s evaluator” roles, but did not affect perceptions about the importance of other roles.

Take-home messages: Medical student perception about the importance of most of teacher roles is established earlier in the undergraduate programme, but the clinical years are associated to the perception of increased importance of roles linked to autonomous learning.
#9A Symposium: Debate: Medical Training should be delivered by lay teachers/actors role playing and through simulation rather than the traditional clinical apprenticeship model
Location: Clyde Auditorium

Kevin Jones*, University of Bristol Medical School, UK
Nicki Jackeman*, University of Bristol Medical School, UK
Andrew Stanton*, University of Bristol Medical School, UK
A Levy*, University of Bristol Medical School, UK
P Fletcher*, University of Bristol Medical School, UK

Simulation training in the undergraduate curriculum is becoming an increasingly popular way of delivering clinical teaching to medical students. It can take different forms. It may involve the use of high fidelity manikins (Sim MAN & MOM), actors role playing and increasingly lay people trained as teachers (Clinical Teaching Associates). This form of teaching is associated with high levels of participant satisfaction and has an extensive evidence base to support its educational validity. It is a safe way to acquire clinical experience and because it occurs in a structured environment it is easy to make objective measurements of competence. However, the traditional model of delivering medical education is for students to take part in a clinical apprenticeship at the bedside and learn on real patients with real medical problems. Their competence is then tested using long case exams where the students undergo a form of “driving test” on the wards.

#9B Symposium: IAMSE Symposium – Flipping the Classroom: Imperative or Passing Fad?
Location: Hall 2, SECC

Kathryn N. Huggett*, Creighton University School of Medicine, USA
John L. Szarek*, The Commonwealth Medical College, USA
Boyd Richards*, Columbia University College of Physicians and Surgeons, USA
William B. Jeffries*, University of Vermont College of Medicine, USA

A significant challenge facing medical educators is to incorporate active learning in an environment dominated by large group teaching. To address this, many medical educators are turning toward the “flipped” classroom, in which knowledge acquisition is assigned to occur before the large group session and classroom time is reserved for knowledge application, analysis and evaluation. In this session, we will explore the rationale, advantages and disadvantages of the flipped classroom through the experience of several experienced educators.

This house believes that medical training should be delivered by lay teachers/actors role playing and through simulation rather than the traditional clinical apprenticeship model.
Courses for tutors in problem based learning. Challenges at four Swedish Universities

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Gudrun Edgren, Lund University, Centre for Teaching and Learning, Lund, Sweden
Elisabeth Persson, Uppsala University, Faculty of Medicine, Educational Unit for the Study Programme in Medicine, Uppsala, Sweden
Lars Uhlin, Linköping University/Karolinska Institute, Unit for Medical Education, LIME, Stockholm, Sweden
Marie Lidskog, Örebro University, School of Medicine (ILU), Örebro, Sweden

Background: The essence of the tutor role in problem based learning (PBL) is to help students becoming self-regulated learners. Tutors need training to acquire facilitating skills. The aim of this article is to describe and discuss how tutor training is arranged today at four universities in Sweden and furthermore to analyze how the content and format of the tutor training courses correspond to requested skills and competences described in the literature.

Summary of Work: From the literature, we constructed an analysis frame with categories consisting of specifications of what a tutor should be knowledgeable in, capable of and what he/she can do to support students’ learning processes. We used the following categories in our analysis frame: Knowledge on PBL and pedagogy, Personal traits, Student-centeredness, Ability to handle group processes, and Subject knowledge. We collected descriptions of the course design and content from the four universities, and analyzed if the categories were represented in the courses.

Summary of Results: All categories, including the different aspects on these, are being subject to course content at all four studied universities.

Discussion and Conclusions: In summary, we show that the four tutor training courses studied are all designed to offer personal experiences of what PBL is, a theory base and possibilities to discuss and reflect with peers, though there are some differences in design. According to participants, they get prepared for their role as tutors.

Take-home messages: Tutor training courses in Sweden prepare tutors according to the demands expressed in literature, though tutors need continuous educational support after having started working in groups of students.

It's the emotions stupid: designing PBL for the affective revolution

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Background: Recent discoveries in emotion neuroscience signal an imminent affective revolution in education. (see Damasio, 2011, Panksepp and Biven, 2012). The emotions, it seems, are at the heart of everything that human beings are and do. Life-regulating, protecting, motivating, valuating, inspiring and rewarding, the emotions are what makes life both possible and feel worth living. Yet, in health professions education, the rational-science imperative prevails, scrubbed free of affect, it effectively hinders appreciation of what education is and what it could be. A notable 'victim' has been problem-based learning which, despite its successful world-wide diffusion, has not yielded the conventional performance metrics demanded by imperious reason. Meanwhile, PBL's only undisputed positive outcome - the emotion of enJOYment - remains under-examined, under-theorised and taken-for-granted. It is the author's contention that positive emotions were and still are at the heart of PBL’s success but that other logics besides the science imperative are necessary to explore these. Given that AMEE 2015 features two symposia with an emotion theme the time appears right for such an exploration.

Summary of Work: Since 2002 the author has presented a number of emotion-related PBL papers at AMEE. These topics include: using music metaphors to improve both group process and scenario design; PBL as a transitional object; PBL as a therapeutic experience. In the spirit of Appreciative Inquiry he will combine these to produce an emotional, holistic account of PBL.

Take-home messages: The affective revolution has begun.
#9C3 (27811) Collaborative modernisation of curriculum across six institutions in Central Asia, Caucasian region and Eastern Europe: challenges faced by tutors moving from didactic to PBL based curriculum

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**Background:** The EC Tempus ePBLnet project funded an extraordinary collaboration in three post-soviet countries, transforming traditional didactic curricula into student-centred PBL. This study reviews the challenges faced by trainee tutors during this transition, while surrounded by institutions in more than 15 countries running traditional curricula.

**Summary of Work:** Challenges were identified in four areas: training of PBL tutors and tutor trainers; implementation; change management; faculty response to change. Data was from feedback on documented training processes, and interviews/questionnaires with trainee tutors, students, Faculty and change managers.

**Summary of Results:** Some challenges were familiar to the western European tutor-trainers, but others were unanticipated, varying greatly between institutions and often depending upon change management.

• The inclination to send department heads and senior staff for tutor training had to be resisted.
• Some junior tutors were advised by more conservative staff to dilute PBL approach with conventional teaching.
• In some institutions Faculty were unaware of the changes, limiting their buy-in to the project.
• Reversion to the soviet belief that students are immature personalities who cannot teach themselves.

**Discussion and Conclusions:** Externally-funded collaborations are attractive to International offices and political management, but Faculty learnt of the proposed change too late to be properly involved. Those institutions which followed guidance regarding the qualities needed in prospective tutors and students suited for practice sessions had fewer problems in follow-up training and maintenance of morale.

**Take-home messages:** In many institutions the transformation is expected be long-lasting, but would not have been possible without external grant funding.

#9C4 (27205) Evaluation of a PBL curriculum using content analysis

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**Background:** Faculty of Medicine UGM has implemented PBL since 1985. Seven jump tutorial discussion is applied. In step 5 the students identify learning objectives (LOs) for self-study in step 6. This study checks the alignment of LOs formulated by the Faculty and LOs by the students.

**Summary of Work:** PBL embraces collaborative, contextual and self-directed learning, activation of prior knowledge, integration, and elaboration. A scenario is used as a trigger to stimulate students to identify LOs which are used as the basis for self-study in step 6. For each scenario, the Block Team formulates the LOs which are informed to tutors. Tutors have to facilitate the discussion that the correct LOs are identified. Cardiorespiratory system block is used. A content analysis is applied for this purpose. Sixteen discussion notes (DNs) written by 16 groups from one scenario are analysed. The LOs from the tutor book and DNs are coded separately.

**Summary of Results:** There are 8 Faculty LOs for scenario ‘Blood Donation’. No DNs mention correctly. Many DNs mention LOs which are not in the prescribed LOs, such as requirements and condition of blood donation, lymphatic system, and heart sounds.

**Discussion and Conclusions:** In this scenario, it is clear that 16 groups of students failed to identify LOs correctly. Several causes could be mentioned, namely (1) tutors are unable to facilitate the discussions due to cognitive incongruence and lack of tutoring skills, (2) design of the block is inappropriate - either the LOs are too many for 2 hours discussion or the scenario diverts students’ attention.

**Take-home messages:** Design of block – in terms of contents and sequence of instructions – and tutors’ competence are very important to have the advantages of PBL strategy materialized.
The Organizational Structure of the New Program "Medicine + PBL", Health Faculty of ATSU

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Nato Alavidze, ATSU, Health Faculty, Kutaisi, Georgia

Background: At the Faculty of Health, ATSU the program “Development Group” of Tempus Project 30519-2012 has developed a one-step higher medical educational program "Medicine + PBL", which will prepare certified doctors. The program integrates basic and clinical medical sciences, as well as their supporting courses, social sciences; It is necessary for giving general professional education to the modern doctor / or for promotion.

Summary of Work: The organizational structure of the program is divided into the following steps:
I stage (I-IV semesters) basics. This part of the program reviews the structures and functions of the body’s major systems; it is organized as a modular teaching and is based on the horizontal integration of basic medical sciences around the systems (7 PBL cases are included).
II stage - the phase of preclinical and clinical studies, is mainly organized to understand the important aspects which are related to the health and morbidity of humans., such as: life cycle/structure/control/support/maintenance/protection (42 PBL cases).
III Stage – the stage of Clinical internship. It is mainly the general specialization stage for clinical training, in which the student "masters" on the main clinical bases.

Summary of Results: So-called "Hybrid" program is carried within the program. “The way” for achieving the results of the program is also important, which describes “own” spirals in terms of development of the student’s knowledge, skills / abilities and values. I spiral represents the combination of those professional skills of the future doctor, which is called the doctor-patient relationship. II spiral conventionally represents "public and population health". IV spiral is "the personal and professional development”.

Discussion and Conclusions: PBL teaching method and format enhance the quality of the program integration and provide the possibility of achieving effective learning outcomes of the educational program of certified doctors, through a spiral arrangement of the program content.
Take-home messages: PBL is a instrument of curriculum integration.
#9D1 (23322) Teaching of anatomy with 3D printed models – a randomised controlled trial

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Introduction: Three-dimensional (3D) printing is an emerging technology that allows the production of high-resolution, anatomically-accurate, full coloured specimens. It has the potential to provide cost-effective and readily producible teaching materials utilising data from scanned images (McMenamin, et al., 2014). As a novel teaching tool there is currently little evidence assessing its use in medical education. We conducted a pilot study to assess the performance of 3D printed models for use in teaching external cardiac anatomy compared to cadaveric material either alone or in combination with the new 3D prints.

Methods: With approval from the Monash University Human Research Ethics Committee a double-blind, randomised controlled trial was conducted on volunteer first year undergraduate medical students with no prior formal teaching of cardiac anatomy. A pre-test was administered to assess baseline knowledge of external cardiac anatomy. The subjects were randomised into 3 groups and were provided either cadaveric materials (CM), 3D printed materials (3DM), or both cadaveric and 3D printed materials (CM+3DM). Using these materials, participants were directed to complete a series of self-directed learning activities focusing on external cardiac anatomy (size, position, shape, boundaries, chambers and coronary vessels). Following this, participants were administered a post test on external cardiac anatomy written by a blinded non-investigator third party.

Results: Fifty three participants attended the pre-test and randomisation, with a total of 52 post-tests completed. Age, gender, and time since completion of secondary education were statistically equivalent for all three groups. There was no difference in pre-test scores among the three groups (p=0.231), however mean post-test scores were significantly different (p=0.01). The 3DM group obtained significantly higher mean post test scores (60.83% +/- 19.56%) compared with the CM group (44.81% +/- 14.92%, p=0.02) or the CM+3DM group (44.63% +/- 15.76%, p=0.019). Mixed ANOVA analysis showed no statistically significant interaction between groups and pre/post testing on scores, F(2,49)=1.62, p=0.196. Post hoc testing confirmed a significantly greater improvement in scores for the 3DM group compared with the CM group (p=0.020) or the CM+3DM group (p=0.019).

Discussion and Conclusions: 3D printed materials may offer an alternative to cadaveric material where such material is unavailable for cultural, ethical, cost or practical reasons. This study demonstrates they can act as effective teaching tools for learning external cardiac anatomy. Rather than only showing equivalent results in our post-tests, the 3DM group achieved better scores than the other groups suggesting that in some way the 3DM models may improve the teaching of anatomy. 3D printed anatomy models show at least equivalence and perhaps improved teaching of undergraduate anatomy.

the perceptions and learning experience of healthcare professionals?

**Methods:** We used focus groups and content analysis. Participants were twenty-five healthcare professionals (obstetricians, midwives, auxiliary nurses, anaesthesiologists, nurse anaesthetist and operating room nurses), participating in four focus groups. They were recruited due to their exposure to either ISS or OSS in a multirprofessional randomised trial (1). Setting was the department of obstetrics and anaesthesia, Rigshospitalet, Copenhagen.

**Results:** Initially participants preferred ISS, but this changed after the training when the simulation site became of less importance. There was a strong preference for simulation in authentic roles. These perceptions were independent of the ISS or OSS setting. Several positive and negative factors in simulation were identified, but these had no relation to simulation setting. Participants from ISS and OSS generated a better understanding of and collaboration with the various health professionals and provided individual and team reflections on learning. ISS participants described more experiences that would involve organisational changes than the OSS participants did.

**Discussion and Conclusions:** Many aspects related to the authenticity of the learning experience are important in simulation, but the physical setting of the simulation as ISS and OSS showed to be the least important. The only difference was that ISS participants talked more about issues that would involve organisational practical changes. ISS and OSS participants did, however, go through similar individual learning and team learning experiences. Based on findings from these focus groups the simulation settings in situ and off site were of minor importance for individual and team learning. In situ simulation had more organisational impact and provided more information’s for organisational practical changes than off site simulation. The physical fidelity or context of the in situ and off site simulation were less important, and off site simulation can be used provided all other authenticity elements are respected. These conclusions are in alignment with current discussions about fidelity and context in the medical education literature (1).


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**Allies or adversaries? Identity work in medical student narratives of participation in patient care-related activities**

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**Introduction:** Professional identity formation is a fundamental aspect of a medical student’s education, and is integral to every learning interaction. Identity is a social and cultural phenomenon that emerges as people interact in particular contexts; hence it is inherently relational. It is important to investigate how and what kinds of identities emerge during medical education, with what implications for future practice [1]. In this paper we examine identity in relation to the movement towards a more collaborative approach to involving patients in medical education. Evidence suggests that when helping students gain access to patients during care-related activities, doctors frequently disregard valid consent processes [2]. This paper explores the relationship between student, teacher and patient identities as constructed in medical student narratives about learning in the context of patient care.

**Methods:** This paper reports on one aspect of an ethnographic study investigating medical student and patient identity formation. Data were gathered over a nine-month period of fieldwork in a teaching hospital, and comprised observations of bedside tutorials and ward rounds, interviews with students, tutors and patients, and texts including handbooks, lecture notes and critical incident reports. Themes emerging from the initial examination of the data were explored more deeply by subjecting selected excerpts to a dialogic narrative analysis based on the theory of Bakhtin. This method focuses on how a story was produced and performed in a particular context, including how narrators construct identities as they position themselves in relation to story characters.

**Results:** Analysis of the data revealed that doctors customarily avoided following proper consent processes when securing student access to patient care-related activities. When students were invited during research interviews to reflect on how patients were approached, they acknowledged doctors’ common failure to follow proper consent practices, but often presented arguments justifying this practice. In the process patients were often characterised as adversaries. One student’s story of an incident during a ward round is presented to illustrate how the doctor is characterised as an ally, but the patient is portrayed as an oppositional figure because she does not behave as expected.

**Discussion and Conclusions:** It is understandable that students will come to identify more with doctors than with patients as their clinical education progresses. However, when their teachers or supervisors relate to patients as though they are liable to thwart students’ desire for clinical experience, using deceptive or coercive practices to procure their involvement, this...
can lead students to also relate to patients as if they were adversaries, as a result of their identification with the doctor. This is likely to have undesirable implications for their future practice and limits the potential for patients to be involved as willing participants. Unless they acquiesce to students’ involvement they risk being cast as transgressive. Opportunities can be created for students and their teachers to reflect critically upon how they approach patients, for example in post-event debriefings or reflective groups. This could promote more active and collaborative patient participation in students’ learning, while supporting the ongoing identity work of students and their teachers.


#9D4 (23601) Knowledge development of students in a problem-based course using preclinical patient contacts

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Introduction: Medical experts have access to elaborate and integrated knowledge networks consisting of biomedical and clinical knowledge, interacting closely in clinical reasoning(1). These coherent knowledge networks enable them to generate more accurate diagnoses in a shorter time and to comprehensively explain patient features, using clinical rather than biomedical knowledge(1). Students should be explicitly instructed to acquire this knowledge by confronting them with varied real patient contacts, since they tend to jump to diagnosing without trying to understand the underlying mechanisms and because they find it difficult to apply their knowledge to various patient problems. Findings from an observational study of problem-based small group discussions revealed that real patient contacts stimulated students to discuss biomedical knowledge and clinical knowledge and that students made links between biomedical and clinical knowledge(2). This study, however, did not reveal if this resulted in coherent and integrated knowledge networks and neither if students were able to transfer their knowledge to new patient problems. So, we wanted to explore the development and transfer of knowledge of third-year students (i.e. their last preclinical year) in a problem-based course with real patient contacts.

Methods: We conducted a pre-post course measurement in which third-year medical students think out loud while diagnosing different types of paper patient problems, and explain the underlying pathophysiological mechanisms of the patient features before and after a 10-week PBL course with real patients. Four pairs of paper patient cases were used, describing the same problem type, i.e. underlying pathophysiological mechanism, per pair. Two problem types were discussed during the course (i.e. course cases) and two problem types were beyond the content of the course (i.e. transfer cases). The verbal think-out-loud protocols and explanations were qualitatively and quantitatively analyzed in comparison to model answers. Data were analyzed in SPSS using ANOVA repeated measures in a 2 (pre-versus post-measurement) x 2 (course versus transfer cases) x 2 (problem-type) within-subject design.

Results: Diagnostic accuracy increased, case processing time decreased, and students used less biomedical and clinical knowledge during diagnostic reasoning. The quality of the pathophysiological explanations increased. Students used more model concepts, made more links between model concepts and used less wrong concepts and links. Besides, students used more concepts in their explanations after the course, especially biomedical concepts. The effects were generally less strong for transfer cases as compared to the course cases.

Discussion and Conclusions: Students’ diagnostic accuracy and the quality of their knowledge networks as shown in their pathophysiological explanations were better after the 10-week course, suggesting that students integrated biomedical and clinical knowledge during the course. Furthermore, the reported differences across cases demonstrate that transfer is complex and time-consuming. We suggest offering students many varied real patient contacts with the same underlying pathophysiological mechanism and encouraging students to link biomedical and clinical knowledge.

#9E AMEE Fringe: AMEE Fringe 2
Location: Forth, Clyde Auditorium

#9E1 (26925)
Visualizing the “Big Data” of AMEE Fringe

Janet Corral*, University of Colorado, Aurora, USA

Summary: Big data is an emerging trend encompassing the analysis and visualization of large amounts of information. While common to business settings, the emerging field of learning analytics translates many of the concepts of big data to educational settings. Even though the number of participants attending AMEE Fringe far from the sample sizes used in Big Data, this Fringe presentation aims to experientially convey the basic concepts of information visualization to the medical education community.

Activity: Led by the moderator, the audience will be asked to form several human graphs of increasing complexity; that is, audience members will, based on their personal characteristics (e.g. hair color, highest university degree attained), align themselves in various arrangements (e.g. line chart, pie chart) in the Fringe room. "Aerial" pictures will be taken of each graph, and posted to social media. After the sequence of human graphs, participants will be asked to debrief in small groups about the lessons they learned in the experience as it relates to three metrics: accuracy, complexity of communication of information, and depth of information portrayed. Small groups will be asked to share their observations with the larger group before the moderator debriefs the event.

Outcomes: This interactive activity is anticipated to help participants understand and critically appraise fundamental concepts and issues in visualization of data, including weaknesses and strengths of the depth and quality of information portrayed. Physical outcomes may involve completely re-organizing the chairs in the room, but we'll put it all back when we're done, honest!

#9E2 (27154)
The times they are a-changin’? Death and euthanasia Bob Dylan’s way

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Denis do Sacramento Ferreira, Language Consultant, Rio de Janeiro, Brazil

Summary: Can anyone keep in mind at all times that human beings are mortal?/Can we (doctors/professors) keep in our minds we are mortal too?/How many times will I be forced to remember it?/Whenever a patient has a disease that might be “the one”?/Will I be forced to remember it will happen to me too?/And to the ones I love?/Every single day?/Day, after, day?/Oh, no!/What am i doing here?/Why am I here?/Wouldn’t I have anything easier to do?/How about our pupils?/Can we teach them to deal with death and dying if we ourselves cannot?/And will, probably, never not?/Shouldn’t they learn to put themselves in their patients’ shoes?/*/But, wait a moment, who’s truly willing to wear a dying man’s shoes?/*Wouldn’t this make them suffer so much they might want to quit being doctors?/Or, on the other hand, even worse: would this anguish drive them into a dead end:/their patients and themselves not being human any longer?/*Is there anybody out-there both a good doctor and a good person?/*Is it possible to be a good doctor and a good person?/*And when my day comes?/*Let’s not talk falsely now?/*If I have the chance, can I choose how to die?/*When to die?/*May not I?/*But why?/*Questions after questions. Are the answers blowing in the wind?/*Well, some of them might be seen in this presentation based on Bob Dylan’s songs.

*Dylan’s lyrics.
An art in medicine exhibition: exploring the role of visual art in undergraduate medical training

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Jennifer Kingswell*, University of Bristol, Undergraduate Department of North Bristol NHS Trust, Bristol, UK
Zoe Bakewell*, University of Bristol, Undergraduate Department of North Bristol NHS Trust, Bristol, UK
Akshitha Kesharaju*, University of Bristol, Bristol, UK
Avgi Loizidou*, University of Bristol, Bristol, UK
Justin Morgan, North Bristol Academy, Bristol, UK

Summary: An ‘Art In Medicine’ exhibition and competition for Bristol medical students will be held in March 2015 with the theme: anatomy and pathology. The exhibition aims to encourage and celebrate young artists in medicine. Interviews and surveys of the artists and visitors to the exhibition will be used to explore the experience of creating and observing medically inspired art. Themes from the data we collect and images of the fine art will be presented to the audience.

Then the audience will be asked to participate in a 5-minute drawing exercise of medically inspired still lifes. They will be asked to think, based on their brief experience, about if and how the visual arts could enrich medical education today.

Historically fine art played a large role in the advancement of medicine. Charcot looked towards ancient and medieval paintings to document known syndromes and drew and photographed his own patients(1). The use of visual arts in medical education has resurfaced in recent years with studies demonstrating that developing skills in observing fine art improve observation, description and interpretation of visual information in the clinical environment (2). How then does creating art affect learning in modern medicine?


On your marks, get set....Renal Relay!

David Quinn*, South Bristol Academy, Bristol, UK
Amy Knott, South Bristol Academy, Bristol, UK
Stephanie Wallis
Chloe Eulberg
Jane Sansom

Summary: Acute kidney injury (AKI) is observed in up to 18% of all hospital admissions, representing a significant source of morbidity and mortality.1 AKI is therefore highly relevant to undergraduate education. Renal pathology is perhaps one of the more intimidating areas of the undergraduate curriculum. The nomenclature is often inaccessible and the pathological processes difficult to assimilate into an organised framework. A widely adopted structure for considering causes of kidney injury is the triad of pre-renal, renal and post-renal causes. A novel, interactive lecture was developed for third year medical students. The learning was entitled, ‘The Renal Relay’. The students were divided by the arrangement of the chairs into 3 separated groups; a pre-renal, renal and post-renal team. A kidney, renal artery and ureter were marked out on the floor of a large lecture theatre using simple brown, red and yellow coloured insulation tape. The interactive session segment involved the student teams standing on their designated team structure. On a buzzer, one student from each team was required to search around the room for pathological processes that related to their teams division of AKI. They could then return to their team to confer and handover a baton allowing another team member to search for another pathology. For example, Hypovolaemia would need to be retrieved by the pre-renal team.

The session won ‘Best Teaching Session’ in University of Bristol third year medical student nominations. This simple and cheap interactive model for learning could easily be adapted for further learning applications.
What lessons did we learn from Children's films? – and how did they teach us?

Sanchita Pal*, Cambridge University NHS Foundation Trust, Rosie Hospital, Cambridge, UK

Summary: Disney, Pixar and other animated filmmakers play a role in shaping our childhoods, our development and therefore shape who we become as adults. Re-watching the classics, the common themes of friendship, overcoming adversity, hope and love remain key to the stories. This interactive talk will try to understand why we remember these films, what and how we learn from them. Following this, we will discuss how we could implement these learning tools into the medical education environment. Why are they so memorable and useful learning tools? Firstly, the experience of the films can be powerful; with emotions packed into these influential stories. More powerful learning is associated with emotional involvement or immersion. Should this power of these emotions be intentionally used for learning? Secondly, the power of the story; simple story telling and character arcs. Thirdly, they are overwhelmingly positive stories of overcoming adversity irrespective of your background/resources, the underdog story which appeals to our innate sense of fairness. The current controversies surrounding these films, such as the need for stronger female leads with ‘normal’ size proportions and independent goals has been highlighted. This is reflected within medicine; with current moves to increase recruitment of females in some surgical specialties and management roles. So children’s films mirroring medical education and now changing together to develop the new generation of adaptable doctor.

Welcome to the Dance Dome: Exploring Barriers & Tools for Meaningful Feedback

Michelle Taylor*, Mayo Clinic, Laboratory Medicine and Pathology, Rochester, USA
Justin Kreuter, Mayo Clinic, Laboratory Medicine and Pathology, Rochester, USA

Summary: In this presentation, a Supervising Physician and Trainee will perform a professional dance to demonstrate the dynamic challenges of feedback. Part monologue, this comedic performance will begin with both dancers discussing their barriers to feedback. Part dialogue, the dancers will show just how many toes can be stomped before meaningful feedback is given. Are the Supervising Physicians ready for that feedback? What can be done to facilitate these critical conversations between Physicians? These and additional questions will be explored with the audience.
#9F  Short Communications: Clinical – Undergraduate Assessment

Location:  Argyll I, Crowne Plaza

#9F1 (28279)
Inter-rater Reliability of Oral Evaluator in Student Oral Case Analysis

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Background: Oral examination has a long history as an assessment tool while medical educators have successfully used many different methods of assessing students, both written and oral. The oral examination method enables to assess many aspects and address critical areas of knowledge, but there remain some critical concerns about its use including the validity and reliability. The concerns regarding subjectivity of the evaluator are raised among this assessment method implementation. The aim of this study was to analyze the inter-rater reliability among evaluators and the factors that may influence it.

Summary of Work: This study was retrospective, quantitative analysis of evaluator feedback to a single phenomenon. Some students were videotaped during the presentation of their case analysis to a specific clinical case. Some evaluators from different backgrounds gave their feedback using a standardized grading sheet to guide examiner scoring. The feedback then analyzed its inter-rater reliability (the agreement between scores independently assigned by the two concurrent examiners) using Cronbach alpha.

Summary of Results: The inter-rater reliability between pass and fail and also final mark was good. There was no significant difference between clinical and preclinical background of the evaluator. The same phenomenon also occurred regarding evaluator working experience, curriculum involvement and educational background. Meanwhile, there was a significant difference between tutor and non tutor.

Discussion and Conclusions: Reliability was assessed as to how consistently the same result is observed under different circumstances. Good inter-rater reliability in our oral examination may result from strong examiner standardization, standardized grading sheet and case specificity. In addition to that, the strong involvement of the evaluator during the tutorial process gives added value to the evaluator during student performance evaluation, although some bias may occur since they know their student better. This good reliability is very important so this examination can be reproduced.

Take-home messages: Evaluator standardisation process of scoring sheet and case specificity play a great role in gaining high inter-rater reliability.

#9F2 (27456)
Implementing an e-Portfolio for undergraduate medical students

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Jonathan Round, St George’s, University of London, Institute of Medical and Biomedical Education, London, UK
Terry Poulton, St George’s, University of London, Institute of Medical and Biomedical Education, London, UK

Background: Medical students at St George’s, University of London are required to complete a range of workplace-based assessments for both formative assessment and to provide evidence of their achievements. In 2014, an e-Portfolio system was introduced, designed to increase the value of these assessments to student learning and reduce the associated practical difficulties for students and staff.

Summary of Work: The web-based Myprogress system allows assessments to be completed on mobile devices without requiring network access. Students on the undergraduate Medicine course were enrolled on the system and provided with Android tablet devices, onto which their assessments were downloaded.

Summary of Results: Ongoing feedback was collected, with positive comments having been received from students and staff. However, providing tablet devices to students posed several practical difficulties, raising issues and considerations around network access, preparing and provisioning the hardware, and ensuring adequate data safety controls.

Discussion and Conclusions: The process of implementing this change was hugely complex, in ways both expected and unanticipated. Challenges included how to adapt assessments to suit the electronic format and finding ways to engage with key stakeholders during the project. The e-Portfolio system provides significant benefit to learners, but also presents unique challenges. Identifying effective means for supporting students, academic and clinical staff is key, while the system’s ability to work offline on mobile devices was key to its acceptance.

Take-home messages: An e-Portfolio system that supports existing learning practices can be an extremely valuable tool for learners.
#9F3 (25574)
Medical students mastering mastery

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Jo Bishop, Bond University, Faculty of Health Sciences & Medicine, Gold Coast, Australia  
Tracy Nielson, Bond University, Faculty of Health Sciences & Medicine, Gold Coast, Australia  
Patricia Johnson, Bond University, Faculty of Health Sciences & Medicine, Gold Coast, Australia  
Victoria Brazil, Bond University, Faculty of Health Sciences & Medicine, Gold Coast, Australia

**Background:** To ensure all students on graduation are able to demonstrate evidence of mastery of (programme specific) procedural skills. Historically, students would be required to undergo assessment of procedural skills during OSCE examination only.

**Summary of Work:** Within the Practitioner theme, a range of competencies have been identified that require demonstration of mastery as appropriate for the specific year of learning. The term “mastery” is not used as a term of excellence, but as a level of expected proficiency. Each procedural skill is taught by demonstration & small group teaching, supplemented with videos developed by faculty for students' self-directed learning along with the marking criteria. Students are assessed individually each year and given verbal and written feedback. The 'mastery assessment' takes place using a simulated patient or task trainer with a trained educator. On reaching the required level of skill, students were deemed to have achieved “mastery”.

**Summary of Results:** Minimal numbers of students have required repeat attempts; 1 – 2% of students per year have needed more focused instruction and more attempts to achieve mastery.

**Discussion and Conclusions:** This approach has ensured that students are confident in procedural skills with opportunities to demonstrate ongoing competency in later years. Staff have enjoyed the teaching format, with published outcomes, giving students a clear understanding of what is required to achieve a pass.

**Take-home messages:** To ensure all students on graduation are able to demonstrate evidence of mastery of procedural skills without the need to perform these procedures under stressful conditions; students are able to master the precision these skills require.

#9F4 (28098)
Test-enhanced learning with key feature questions: Video-based exams are more effective than text-based exams

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Katharina Meyer, University Medical Centre Göttingen, Cardiology & Pneumology, Göttingen, Germany  
Sven Anders, University Medical Centre Hamburg-Eppendorf, Department of Legal Medicine, Hamburg, Germany  
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**Background:** According to the retrieval hypothesis, repeated testing is more effective than repeated study in terms of knowledge and skill retention. This randomised cross-over trial investigated whether video-based key feature exams are associated with better learning outcome than text-based key feature exams.

**Summary of Work:** In winter 2014/15, fourth-year undergraduate medical students attended 10 weekly electronic seminars during which they completed video-based or text based key feature exams on internal medicine. Student performance was assessed in a 30-item key feature examination at the end of term. The primary outcome of the study was student performance in items tested with video cases (n = 15) compared to items tested with text cases (n = 15).

**Summary of Results:** Out of 120 students who provided written consent to participate in the trial, 13 were excluded due to contamination (violation of presentation format assignments) or missing data. While there was no difference between intervention and control item scores in the ITT analysis (10.6 +/- 2.7 vs. 10.7 +/- 2.9; p = 0.66), a significant difference favouring video key features was found when the analysis was restricted to students who had received the full intervention (11.6 +/- 2.3 vs. 11.0 +/- 2.8; p = 0.04).

**Discussion and Conclusions:** Long-term follow-up data are needed to assess differences in sustained effects of the two presentation formats.

**Take-home messages:** Video key feature exams are not generally more effective than text-based exams. However, students who received the full intervention scored higher in a final test of clinical reasoning.
#9F5 (24686)
CIRCLE: Innovative Interprofessional Mini-CEX Assessment Tool for Directly Observed Contextual Competency for Health Professionals in the Clinical Environment

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Background: Clinical performance assessment is context specific and complex. Competence is a contextual habit of mind and requires lifelong learning. There is lack of a uniform multisource workplace-based assessment tool for assessing interprofessional competencies in evolving interprofessional collaborative practice (ICP). There is a need for an assessment process across, and within, disciplines that improves clinical appraisal and cohesion in ICP teams.

Summary of Work: We propose to develop and validate a synthetic framework for a formative assessment called CIRCLE based on ICP competency domains: Communication, Information management, Reasoning, Collaboration, Learning, and Empathy.

Summary of Results: We have identified six core skills and attitudes that can be directly observed and can be framed in line with the Mini-Clinical Evaluation Exercise format. Communication: The communication skills of the healthcare professionals with patients, families, communities, and health professionals. Information Management: Verbal, written, and electronic information for use in patient care and transition of care. Reasoning: Diagnostic and management reasoning based on contextual and evidence based practice. Collaboration: Effective teamwork and team based practice. Learning: Desire and ability for lifelong and reflective learning. Empathy: Demonstration of empathetic concern (cognitive, emotional and cultural) in ICP settings. We have developed the CIRCLE items and scoring rubric to be used within and across disciplinary groups to inform teamwork practice and handover processes within the clinical environment.

Discussion and Conclusions: CIRCLE creates a more reliable and valid flow of appraisal information about competencies between professional groups and thus develops a seamless method for dialogue within and between clinical teams.

#9F6 (23672)
The usefulness of a course in non-verbal communication for training the team-leader function with musical exercises

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Background: Non-verbal communication is not a field in medical education. It is known that an orchestral conductor uses this communication in his work. Aim: To investigate the usefulness of musical exercises to focus on non-verbal communication in order to optimize the team leader function in the clinic.

Summary of Work: With the use of musical exercises medical students were trained in the team-leader function. The course focused on authority, eye contact, body language and cooperation. The students received personal feedback during the course from an orchestra conductor. The students evaluated immediately after the end of the course and subsequently one year after in order to describe transfer the clinic.

Summary of Results: The immediate evaluation of the course was very positive and the students reported that they could use the techniques learned. After 1 year, the students described that they found the personal feedback useful. Focusing on the elements they were recommended to work with had a significant difference in their ability to act non-verbally.

Discussion and Conclusions: Personal feedback on non-verbal skills had great transfer to the students’ behavior measured after one year.

Take-home messages: Musical exercises are useful in training the teamleader function in the clinic. Personal feedback from the conductor’s point of view has great impact on medical students’ behaviour.
#9G Short Communications: Transition 1

Location: Argyll II, SECC

#9G1 (25105)

Transition issues for medical students starting clinical training: a qualitative enquiry

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Background: Medical students at Imperial College undergo a transition in their training in Year 3, moving from a lecture based course to clinical placements in hospitals. This particular transition in medical students has been described in the literature from a mostly limited individual cognitive perspective. An argument is developed for investigating transition from a sociocultural perspective to usefully inform course development.

Summary of Work: An empirical study using focus groups of Year 3 students was used to carry out a phenomenological enquiry into the experience of transition, and its consequences to those undergoing it. An inductive approach was used. Emergent codes leant themselves towards the development of a descriptive narrative.

Summary of Results: Social workplace learning is key to understanding how students develop socially mediated identities, which has strong resonance with current sociocultural views of workplace based learning.

Discussion and Conclusions: Transitions are inevitable and present both an opportunity and threat, involving a fundamental re-examination of who we are. Recommendations are made, informed by these findings, about students and teachers learning interactions.

Take-home messages: Facilitating transition requires more than an individualistic approach to rectifying some perceived lack of skill, or piece of knowledge, before starting training - although these may be important. Changes are also required within the clinical environment. Adopting a holistic approach - paying particular attention to; inductions; points of contact and communication with staff; assigning meaningful roles; debriefing students; and teacher training - has the power to transform students’ experiences and imbue the skills and attributes within them, that patients deserve.

#9G2 (23936)

Tensions in the learning environment of medical students in clinical settings: an Activity Theory analysis

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Background: During clinical rotations, the learning environment of medical students becomes more complex as they transit from lecture- to patient-based learning. Such complexity can emanate from tensions, a phenomenon according to Activity Theory (AT). Through the perspectives of medical students and healthcare professionals, this study aimed to delineate the tensions that students encounter in the clinical environment.

Summary of Work: Thirty one semi-structured in-depth interviews were conducted with doctors (n = 12), nurses (n = 8), and medical students (n = 11). AT was used as the analytical framework. Interviews were recorded, transcribed and analysed for unifying themes to identify systemic tensions, known as contradictions in AT.

Summary of Results: Seven themes were identified to be relevant to two contradictions – role contradiction in faculty members, and differing perceptions in the relationship between theory and practice. For the first contradiction, faculty members face tensions from the concomitant need to enact the role of a clinician and educator simultaneously, where the requirement of one role can conflict with the other. For the second contradiction, tensions arise as medical students construe a unidirectional relationship between theory and practice, while faculty members adopt a bidirectional stance.

Discussion and Conclusions: These contradictions are possibly contributing to complexities in the learning of medical students in clinical settings. The use of AT analysis is new in medical education research, but has provided a useful framework in advancing understanding in this domain.

Take-home messages: Systemic tensions exist in the learning environment of medical students during clinical rotations. These tensions should be addressed to enhance the learning of medical students.
Educational Innovations to Enhance the Transition of Junior Medical Students into General Medicine Ward Teams: Development, Rationale and Lessons Learnt

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Background: Advances in medical simulation have led to novel learning methods to better transit students into incumbent ward teams. This study compares two recent educational innovations: 1) Embedding (2010-2011) and 2) Simrounds (2013-2014). By examining the data and learning theories underpinning each method, Situated Learning Theory and Cognitive Load Theory, we aim to determine how Simrounds has complemented Embedding in enhancing the transition of junior medical students into general medicine ward teams.

Summary of Work: We used mixed methods to analyze qualitative and quantitative data from both Embedding (n=35) and Simrounds (n=72) based on survey responses from third-year students doing their medical clerkship in Tan Tock Seng Hospital. For Embedding, we performed thematic analyses of open ended responses to corroborate themes identified from explorative factor analysis. These themes were then compared with the Simrounds data to determine program effectiveness.

Summary of Results: In embedding, despite the learning relevance and increased resident interaction from situated learning, students reported difficulty integrating into the ward team. They were unsure of their role, felt overwhelmed and unable to cope. Simrounds addresses this by enabling deliberate learning in a controlled and authentic setting with interprofessional participation. The reduction of cognitive load enabled students to assimilate the necessary knowledge and skills.

Discussion and Conclusions: By reducing the cognitive load through deliberate practice in a secure and authentic environment, Simrounds complement embedding and facilitate the integration of junior students into the community of practice of incumbent ward teams.

Take-home messages: Simrounds complements Embedding, enabling students to integrate better into General Medicine ward teams.
‘From classroom to care provider’ – helping students transition into effective members of the multidisciplinary team

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Background: Effective team work is the corner stone of good patient care but medical students have reported feeling vulnerable, unwanted and in the way during clinical placements. They often struggle to integrate into the ward and the team. Traditionally, nursing staff have played a minimal role in the direct education of medical students and have a limited knowledge as to their skills and thus how they may be a useful part of the ward team.

Summary of Work: Working with nursing staff, we wanted to find creative ways to involve students more in the whole clinical environment and team during their short placements. Following a pilot, third year students now work 1:1 with nursing staff for six hours during a rotational placement. During this time the students experience patient handover and morning care.

Summary of Results: Evaluation continues by questionnaire and focus groups to students and staff involved.

Discussion and Conclusions: Initial student feedback suggests that their involvement with this project has empowered them to move from being passive transient observers to more visible and valued members of the ward team. Nursing staff value the opportunity to share their patient care and management roles with the student and positive relationships are built.

Take-home messages: Working with nursing staff:
• consequentially helps students feel more comfortable on the ward. They are recognised as and welcomed as part of the team.
• acts as an effective way to help students consolidate their clinical and communication skills.
• opens doors and breaks down barriers to enable a greater understanding of true holistic patient care.

Simulation based training: Should it be an integral part of departmental induction for junior doctors?

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Background: Junior doctors routinely rotate every 4 to 6 months in most ENT departments. These doctors encompass a broad range on non-speciality foundation doctors and general practice trainees. Also, due to the European Working Time Directive junior doctors from other specialities cross cover ENT during out of hours. Most have no postgraduate training in ENT but they need to be equipped to provide safe and efficient patient care from day 1. Therefore the departmental induction of junior doctors is critical. It is now already established that simulation based training provides a safe and realistic environment for junior doctors to practice clinical scenarios without causing any harm to patients.

Summary of Work: We have introduced hands-on simulation based training for managing common ENT emergencies as a part of ENT departmental induction for junior doctors. This is in addition to the usual departmental induction.

Summary of Results: All the junior doctors felt more confident and much better equipped to deal with common ENT conditions and emergencies after the hands-on training on simulators.

Discussion and Conclusions: Junior doctors are an important part of a team and are key to delivery of safe and effective care. They rotate between departments as frequently as 4 months. The local departmental induction should facilitate this changeover with minimum service disruption without compromising patient safety and the quality of care.

Take-home messages: A practical simulation based induction improves the abilities of junior doctors and give them much more confidence in managing common emergencies.
Effects of manual dexterity in laparoscopic simulation-based training on medical students’ career preferences

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Background: Laparoscopic simulators enable novice medical students to learn basic surgical skills. We have recently introduced laparoscopic surgical simulation training in a clinical clerkship. In this study, we examined the effects of manual dexterity on career preferences of medical students.

Summary of Work: Two hundred seventy-four fifth-year medical students in Fukushima Medical University who participated in laparoscopic simulation-based learning were examined. Students had three different laparoscopic task trainings (grasping/clipping, bimanual coordination, and spatial recognition) using a laparoscopic simulator. After each training, their performance was objectively measured by 16 parameters such as time taken and accuracy. Students were asked to self-assess their manual dexterity (very dexterous, dexterous, neutral, clumsy, very clumsy) and to choose a future career preference (internist, surgeon, not determined).

Summary of Results: Thirty-two percent of the students preferred internist, 19% surgeon, and 49% not determined. The number of students who self-assessed as clumsy or very clumsy was significantly higher among those preferring internist than those preferring surgeon (p<0.01). However, 14 objective parameters showed no differences between students preferring internist and surgeon. Students preferring surgeon showed superior results only in two tasks with time limit (p<0.05). Interestingly, there were no differences in the objective parameters between students who self-assessed as clumsy or very clumsy and those as dexterous or very dexterous.

Discussion and Conclusions: In this study, students preferring internist showed lower self-assessment regarding manual dexterity than those preferring surgeon, although there were little differences in the objective parameters.

Take-home messages: Self-assessment of manual dexterity seems to affect future career preferences of fifth-year medical students than objective parameters in simulation-based learning.
The use of shortlisting and selection centre assessments for recruitment to run-through training in neurosurgery in the UK

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**Background:** In 2008 the National Neurosurgery Selection Board (NNSB) was established to conduct the application process with support from experts in occupational psychology.

**Summary of Work:** The development of the selection process comprised four phases, 1. Formulation of person specifications. 2. Development of a short-list scoring matrix. 3. Development of multiple Selection Centre tasks. 4. Review of feedback. At the Selection Centre, professional competencies including technical knowledge and clinical expertise, judgement under pressure, problem solving, integrity and communication skills are assessed in 5 tasks. A sixth station evaluates basic surgical skills (5% of overall score). Feedback has led to developments for 2015 including removal of personal statement shortlist scoring, introduction of a presentation, specific training of telephone task assessors. Overall rank is based upon short-listing (20%) and selection centre score (80%).

**Summary of Results:** Competition ratios have been between 7 and 12:1 since 2008. In 2014, the slightly negatively skewed normal distribution of selection centre scores indicates room for refinement. Inter-rater reliability and internal reliability were high (r>0.75 and α >0.9). The shortlisting total did not correlate with the overall selection centre score supporting the contribution of both scores to the overall rank. Applicants agreed or strongly agreed that the conduct of stations was fair (94%) and appropriate (92%). Selector feedback was strongly supportive.

**Discussion and Conclusions:** National Selection for Neurosurgery applications is robust and is considered appropriate and fair by selectors and applicants. Annual review of the process is necessary to effect refinements.

**Take-home messages:** A robust process of high-stakes selection requires careful review of person specifications and shortlist scoring criteria. Selection centre material must assess specific competencies across several tasks. Feedback is essential to demonstrate fairness and enable future improvements.

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Is the standardized letter of recommendation a useful tool in the pediatric residency admissions process?

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**Background:** The objective was to develop and provide validity evidence for the use of the Standardized Letter of Recommendation (SLOR) as part of a pediatric residency admissions process (2012-2013).

**Summary of Work:** Content for SLOR items was based on CANMEDS roles and desired competencies for pediatric residents. Validity evidence was gathered for internal structure, response process, relationship to other variables, and consequences.

**Summary of Results:** 114 raters completed 142 SLOR forms for 71 applicants. Average overall assessment was 3.0 out of 4 (SD=0.59). Cronbach’s alpha was 0.93. G-coefficient was 0.59. The decision study showed that four SLOR forms are necessary to reach a G-coefficient of 0.73. ICC for the SLOR was 0.51 (95% CI 0.43, 0.59). SLOR scores were correlated with the Structured Interview (r=0.28, 95% CI=0.05,0.51), Global Rating scores (r=0.36, 95% CI=0.13,0.58), and the acceptance decision (r=0.25, 95% CI=0.02, 0.46). SLOR scores were not predictive of the admissions decision (OR= 1.67, p=0.37).

**Discussion and Conclusions:** To our knowledge, this is the first reported SLOR developed for pediatrics. The SLOR was internally consistent but inter-rater reliability was moderate at best. Applicant variance was high (28.5%) indicating differentiation among applicants. SLOR correlated with other selection instruments but scores were not predictive of the admissions decision suggesting that SLOR scores should be weighed less heavily in the admissions decision compared to other selection instrument scores.

**Take-home messages:** The SLOR may provide more information than the traditional letter of recommendation; however, validity evidence for the SLOR is lacking and further work should address how the letter of recommendation should be integrated into the admissions process.
#9H5 (26937)
Analysis of the residency entrance test in Portugal

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Background: In Portugal, access to residency is based on a 100 multiple choice questions test – the same test for all the residency programs. A few months after graduation, and every year for more than three decades, hundreds of recently graduated doctors take this test. That test’s mark sets the order in which each junior doctor gets to choose where and what to specialize in. The validity of this exam has been questioned for long due to bad item writing quality. Despite that, this method of seriation has endured. No data on validity of this exam was previously published.

Summary of Work: Based on previously published criteria for multiple choice questions, exams from 2000 to 2014 where analysed by the authors: a total of 19 exams and 1900 questions. Questions were classified as acceptable or not acceptable using those criteria.

Summary of Results: Summarising results of the analysis of the last 2014’s exam, less than 10% of the questions were acceptable. The main issue was negatively worded stems (75% of the questions). Also, options were invariably very different in length or too detailed.

Discussion and Conclusions: Although not strictly forbidden, negatively worded stems should be used with care, which is a major issue in this case. Unfortunately, other problems were encountered. Some attempts to change this exam have been made recently, even though the new format is not yet known. Being the only method for residency entrance seriation, questions should have followed published recommendations for multiple choice item writing.

Take-home messages: Multiple choice item writing criteria should be seriously taken into account, especially in high stakes exams such as residency entrance tests.
#9I Short Communications:
Postgraduate Education 2
Location: Alsh 1, SECC

#9I1 (24456)
An Empirical Model of How Junior Trainees Approach Patient Follow-up and Documentation

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Background: In teaching hospitals, junior trainees (first year residents and senior medical students) are responsible for patient follow-up and documentation under the supervision of senior team members. In order to support trainees in their role, supervisors need to understand how they approach these tasks and how to coach them to develop best practices over time. To date this has not been explored.

Summary of Work: Constructivist grounded theory was used to guide the collection and analysis of data regarding follow-up and documentation by 17 junior trainees. Data sources included field notes, field interviews, and de-identified copies of patient charts. For the purpose of return of findings and elaboration of our model, two focus groups were held with eight attending physicians.

Summary of Results: Large variations in follow-up and documentation practices were observed and explained based on seven approaches to practice: Comprehensive Care Provider, Diligent Care Provider, Diligent Data Gatherer, Inconsistent Care Provider, Responsive Data Gatherer, Minimalist and Unresponsive Learner. Each of the seven approaches differed based on trainees’ perceived role on the team; relationship to the team (collaborative, independent or dependent); reading and composing practices; and perceptions as to the purpose of follow-up. In some cases, trainees’ espoused practices did not match their actions. While some approaches clearly represent appropriate developmental milestones, others may reflect disengagement and issues with professionalism.

Discussion and Conclusions: Our approaches model of follow-up and documentation offers new insights into best practice, developmental trajectories and concerning behaviors. Depending on trainee approach, supervisors may need to direct attention to changing attitude and supporting professional identity formation.

#9I2 (24854)
Evaluation of Mentors by Postgraduate trainees in a Structured Mentoring Program in the United States

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Background: In graduate medical education trainees have different academic and professional growth needs throughout their career. These differences are not well studied.

Summary of Work: Since 2011, we have a structured mentoring program in the Department of Medicine. Academic scholarship is a major emphasis of this program. We conducted IRB approved questionnaire based on prior literature. Twenty one questions were grouped into four categories using the four point agreement scale based on the mentor’s personal attributes (honesty, integrity, privacy, enthusiasm, advocacy, and communications), action characteristics (inspiration, feedback, encouragement, and availability) and the short term and long term career goals of the mentee. A total of 60 junior trainees (Residents) (PGY 1-3) and 39 senior trainees (Fellows) from ten specialties of internal medicine (PGY 4-7) completed the survey at the end of the academic year 2014. We used Student’s T Test, Pearson Chi Square and Fisher Exact test for statistical analyses.

Summary of Results: Senior trainees were more satisfied with their mentors than junior trainees (p=0.017). The fellows were more satisfied with their mentor’s action characteristics than residents (P=.045). All trainees with declared research interest were more satisfied with mentors attributes for their long term goals. (P=0.046) Junior trainees perceived that their mentors were not able to challenge them enough or beyond the check list exercise.

Discussion and Conclusions: The junior trainees may require different skills and attributes from faculty mentors compared to fellows. All trainees with established research interests may benefit with help for long term career goals from mentors.
#9I3 (24902)
Assessment of patient handover skills: Validity evidence supporting the use of a structured clinical observation tool to inform entrustment decisions

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**Background:** Patient handovers at change of shift are an important source of miscommunication leading to medical errors and have been identified as an Entrustable Professional Activity (EPA) in the USA. In previous research, we showed that training residents to use the I-PASS high reliability structured communication method to handover patients was associated with reduced medical errors and patient harm. Because handover assessment methods are lacking, we developed the I-PASS structured clinical observation (I-PASSco). The goal of this study was to generate validity evidence to support using I-PASSco scores to inform entrustment decisions.

**Summary of Work:** The I-PASSco was developed by expert consensus and consisted of 10-items rated on a 5-point frequency scale (never, rarely, sometimes, usually, always). From 2011-13, faculty observers rated residents handing over patients at change of shift in 9 pediatric residency programs in North America. We assessed validity using exploratory factor analysis (principle component method), a 2-facet (occasion and item) Generalizability study and a Decision study.

**Summary of Results:** We rated and analyzed 657 patient handovers. We identified two factors: (1) adherence to I-PASS structured communication (Cronbach’s alpha [α] =0.71); (2) other handover skills (α=0.72). Major sources of score variance were: Resident (variance [percent of total]) (0.21 [28]); Resident-Occasion interaction (0.08 [11]), Resident-Item interaction (0.12 [16]); Residual (0.32 [42]). The average score of 3 assessments produced ratings reliable for norm-based (G-coefficient [0.81]) and criterion-based (phi [0.80]) high-stakes decisions.

**Discussion and Conclusions:** Scores from the I-PASSco have very strong validity evidence for internal structure supporting use in high stakes decisions.

**Take-home messages:** The average score of 3 separate assessments of an individual resident has high reliability to inform decisions about entrustment.

#9I4 (26689)
Trainee experiences in health care centres

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**Background:** As a part of their specialization training all graduated and licensed young doctors work 9 months in a health care centre in Finland. The trainee has to assess the training and learning environments. The purpose of this study was to evaluate how the trainees experience the training they have received.

**Summary of Work:** All evaluation forms (400) trainees had answered during academic years 2010-2014 have been analysed. There were both open and closed questions as well as a given list of statements the trainee was suggested to assess on a Likert scale 1-4. Results are presented as average of Likert-figures.

**Summary of Results:** It was possible for trainees to work in many fields (e.g. doctor’s appointment, maternity care) inside the general practice (3.6/4). Learning environment has helped them to orientate to the context in primary care (3.5/4). Working community supported the trainee’s learning (3.3/4). Trainees were quite satisfied with their supervising and guiding; their nominated trainers have been able to book time for tutor sessions (3.1/4), essential themes in general practice have been treated in tutorials (3.0/4), trainees own learning needs have been taken into account (3.0/4), and they got less feedback on how to focus learning (2.7/4).

**Discussion and Conclusions:** According to this study it is possible to conclude that trainees feel primary health care centres to be quite good training environments. Getting feedback should be improved and many “training the trainers”-courses have been organized to improve this.

**Take-home messages:** Trainees feel that they have good training environments. Trainers should learn to give more feedback.
Evaluating a ward-based Foundation Year 1 (FY1) system in an orthopaedic setting

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Background: Various models of hospital in-patient cover arrangements for junior doctors have been utilised in the UK. Some settings follow a ward-based system for junior doctors. The aim of this study was to determine staff’s satisfaction rates with regards to a ward-based system for Foundation Year 1 (FY1) doctors in relation to continuity of patient care and doctors’ training.

Summary of Work: The Orthopaedic department of a District Teaching Hospital in the UK moved to a ward-based system for the FY1s from a previous team-based system. A questionnaire was administered to FY1s, nursing staff and senior doctors asking their satisfaction rates.

Summary of Results: 42 practitioners were questioned. They included 15 FY1s, 15 ward nurses and 12 senior doctors. 73.3% of FY1s were satisfied with the ward-based system with regards to continuity of patient care and 40% of them were very satisfied/satisfied with the it with regards to achieving training objectives. All nurses, 66.7% of FY1s and 66.7% of senior doctors were very satisfied/satisfied with the ward-based system for achieving service provision (p=0.053). All nurses and 60% of FY1s preferred the ward-based system (p=0.017). All nurses and 66.7% of senior doctors rated the ward-based system as being much better/better than team-based at achieving service provision (p=0.028).

Discussion and Conclusions: Our results suggest that a ward-based system for FY1s can be successfully implemented in an orthopaedic setting.

Take-home messages: Ward-based system confers high satisfaction rates with regards to care provision and continuity of care. Taking into account training needs and substitutes for structured team work would be an area for improvement.

The academic foundation programme in the north west of England: An evidence based critique of early academic engagement

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Background: Academic medicine is perceived to be in crisis, with multiple reasons purported. In the UK integrated academic training was introduced to try and address some of the problems. The Academic Foundation Programme (AFP) is the first part of this pathway. If funding for these programmes is to continue or increase then evidence of their benefits is needed.

Summary of Work: Systematic review of the literature on efforts to encourage careers in academic medicine. Supplemented with literature specific to the AFP and program evaluation. An online questionnaire sent to academic foundation trainees in the North West investigating expectations and experience of the programme. One-to-one interviews with AFP supervisors focusing on the academic foundation experience.

Summary of Results: The literature revealed evidence for the efficacy of a number of interventions. All but one programme was from North America and the strength of the findings, while limited, supports specific programmes. Responses to the online survey revealed a mixture of positives and negatives with participants meeting real barriers but also achieving tangible success. Supervisors enjoyed working with foundation doctors and in general found them motivated and capable. Difficulties faced by trainees reflect the ongoing difficulties in balancing clinical and academic commitments.

Discussion and Conclusions: The AFP is one the key components of current efforts to maintain and develop academic medicine within the UK. By critically evaluating the literature and the current situation within one region the delivery of the programme can be developed locally.

Take-home messages: These results can allow those involved with delivering similar programs to reflect on the applicability of the result to their own programs.
#9J Short Communications: Empathy

2
Location: Lomond Auditorium, SECC

#9J1 (27935)
Professionalism Cultivation Study: Association of Empathy and Medical Humanities Curriculum and Service Learning

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Russell Oliver Kosik, Stanford Medical School, Radiology, San Francisco, USA
Qi Chen, Nangji Medical University, School of Medicine, Nangji, People’s Republic of China

Background: Although the importance of professionalism in medical education has been well recognized, the specificity of each kind of educational trainings on the effects of such cultivation in medical students is not clear. Previous students in this regard are few and inconsistent, neither the role of empathy, medical humanities curriculum, and service learning is fully investigated in medical students.

Summary of Work: Two hundred twenty three Taiwanese and Chinese medical students have filled out the Jefferson Scale of Physician Empathy, General Health Questionnaire Chinese Version, and survey on chronic fatigue symptoms, depression, and questions on the medical humanities and service learning courses taken.

Summary of Results: Significant associations were found between empathy and depression, and empathy and quantity of medical humanities and service learning courses taken.

Discussion and Conclusions: Professionalism is mandated by world medical organizations for training the future medical doctors. It plays central role in medical practice, but objective evaluation and validation are required for medical educators to design the training for our students in order to achieve the stipulated objectives.

Take-home messages: Significant associations were found between empathy and depression, and empathy and quantity of medical humanities and service learning courses taken.

#9J2 (26067)
Empathy does not decline during clinical training – a cross-sectional study in Singapore

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Phong Teck Lee, National Heart Centre Singapore, Cardiology, Singapore
Julian Loh, National Heart Centre Singapore, Singapore
Khung Keong Yeo, National Heart Centre Singapore, Singapore

Background: Empathy is a desirable trait in medical professionals, correlating with positive health outcomes. Previous studies generally show empathy levels declining during training but results have been contrasting and inconclusive. Our previous work has shown a declining trend of empathy levels in medical students. It is not known whether this trend continues as students graduate and progress through residency training.

Summary of Work: In a cross-sectional study, the Jefferson Scale of Physician Empathy was completed by 881 medical students and 247 residents in a single university and training institution in Singapore. An empathy profile of the residents was constructed and analysed, with comparison against that of the students.

Summary of Results: Empathy scores did not decline with progressive years in residency training. However, there was a significant difference between empathy levels in residents and medical students. The largest decline occurred when students entered the clinical years, with no significant year-on-year change in the following years of medical school and residency. Female residents had higher empathy levels than males. There was no significant difference between medical and surgical or clinical and non-clinical specialties.

Discussion and Conclusions: The transition into clinical training which occurs as a student may be the most vulnerable point of empathy decline in a trainee’s career, and the most valuable focus for future study and intervention. Empathy can remain stable during residency, possibly due to increased maturity and stronger support systems.

Take-home messages: Empathy decline is greatest in medical school and need not occur thereafter. Studies should consider the entire education process from medical school to residency as a whole.
#9J3 (25627)
Where is the devil? Decreased empathy perception during internship among Taiwan medical students and PGY-1 trainee

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Shuu-jiun Wang, National Yang Ming University, Faculty of Medicine, Taipei, Taiwan

Background: Empathy is one of the key abilities for patient care. Many studies indicated medical students undergo a loss of empathy during medical school whereas some studies reported different results. Understanding the empathy perception change helps to develop empathy-promoting strategy.

Summary of Work: Under the cross-sectional design, 265 medical students (fourth to seventh-year) and 32 postgraduate year one (PGY1) trainees from a single medical center in Taiwan completed validated questionnaires assessing empathy perception (Chinese Healthcare Providers Version of Jefferson Scale of Empathy, JSE). We compared their self-reported empathy according to medical school or postgraduate year (grouped as follows: preclinical – fourth year; clerk – fifth and sixth years; intern – seventh year and PGY1), gender and future career interest.

Summary of Results: The mean JSE scores of preclinical students, clerks and PGY1 trainee were 109.5, 109.4 and 111.4 respectively and have no statistical difference. The JSE scores (103.2) were significantly lower in the intern group. Female group had higher empathy perception than male (109.6 vs. 106.5). No difference in JSE scores was detected according to their future career interest.

Discussion and Conclusions: The result showed an empathy perception decline only during the intern year. The reason of such decline needs further evaluation but is possibly related to higher stress, even burnout when these students started “true” clinical work. In line with other studies, female have better empathy perception than male students/trainee.

Take-home messages: Medical students might have a marked empathy perception decline while starting their clinical work. The program directors and clinical teachers should be aware of this phenomenon to enhance patient care.

#9J4 (25050)
Medical Residency: Raiders of Lost Empathy

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Marco Antonio Carvalho Filho, UNICAMP, University of Campinas, Brazil, Emergency, Campinas, Brazil

Background: Empathy is a key component for a successful doctor-patient relationship. During medical residency, the young physician faces heavy workload and intense emotional experiences, which could lead to Burnout Syndrome and possibly impair medical empathy.

Summary of Work: Medical residents (n=84) of different specialties filled out the Jefferson Scale of Empathy(JSE) and the Maslach Burnout Inventory(MBI) at the beginning of the residency program and at the end of their first year.

Summary of Results: We observed a significant decrease in JSE empathy levels, from a pretest of 123.2 to 119.7(p<.001). The loss of empathy was greater among residents from surgical and technology-oriented specialties (n=41; pretest JSE=124.4; posttest JSE=116.3), when compared with residents from clinical specialties(n=43, pretest JSE=123.2; posttest JSE=119.7). There was a negative and significant correlation between JSE mean score and Depersonalization domain of MBI (r=-0.43; p<0.0001), and a positive and significant correlation between JSE and the Personal Accomplishment domain of MBI(r=0.5196; p<0.0001).

Discussion and Conclusions: Medical residency’s first year may have a negative impact on resident’s empathy levels, especially for those of surgical or technology-oriented specialties. The depersonalization related to Burnout syndrome may contribute to this loss. On the other hand, the professional satisfaction may have a protective effect. These findings suggest that negative feelings towards the patient and the perception of a worse doctor-patient relationship, both related to the Burnout Syndrome, may be linked to the loss of empathy observed during medical residency.

Take-home messages: The loss of medical empathy observed during the first year of medical residency may be related to the development of Burnout Syndrome.
Empathy in Allied Health Technologies: a cross-sectional study

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Irene P. Carvalho, School of Medicine, University of Porto (FMUP), Clinical Neurosciences and Mental Health, Porto, Portugal

Background: Empathy is considered an important skill in the performance of healthcare professions. However, little is known about the existence of differences in the profiles of students choosing programmes from different areas of Allied Health Technologies (AHT), or over increasing school years. The goal of this cross-sectional study is to compare empathy in students from different AHT programmes and attending different school years.

Summary of Work: A sample of 240 first- and third-year undergraduate students from two areas of the Evaluation and Therapeutic Intervention programme (Physiotherapy and Speech Therapy) and from two AHT Laboratory areas (Pharmacy and Pathological Anatomy) completed the Interpersonal Reactivity Index (IRI; Alves, 2010) and the Jefferson Scale of Physician Empathy - student version (JSPE-S; Magalhães, DeChamplain, Salgueira & Costa, 2010).

Summary of Results: Analyses are expected to show higher empathy scores among students attending programmes in the domain of Assessment and Therapeutic Intervention than among students in the Laboratory area of AHT. These differences are expected to remain or even increase in later years of training. The results are discussed in the context of the competence profile of each programme and regarding implications for professional practice. Effects of training are also discussed.

Discussion and Conclusions: These results are important for the characterization of the communicational profile of AHT students and for the inspection of the effects of training in empathy. Future longitudinal studies will cast additional light on these effects of training over time.

Take-home messages: Results will contribute to understand whether empathy is a salient skill in AHT, especially when patient care is involved.

Empathy - a complex phenomenon under constant change

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Background: Empathy is an indispensable skill in medicine and an important part of the patient-doctor-relationship and is a part of the curriculum of most medical schools, often with its own learning outcomes. Medical educators as well as students and doctors have voiced concern regarding a decline in empathy among medical students and doctors. Studies have focused mainly on a quantitative approach, opening for qualitative investigations of empathy.

Summary of Work: In 2014, 8 medical interns in Umeå, Sweden, were interviewed about their experiences of empathy, in working life and during their education. Interviews were analyzed using a mix of qualitative content analysis and interpretative phenomenological analysis. Two main themes were generated: Empathy - a multifaceted/ambiguous and conflictual phenomena? Empathy - changeable and maintainable if given an effort? The themes covered areas such as everyday challenges, educational contribution and strategies for maintaining and developing empathy.

Discussion and Conclusions: Empathy is ambiguous and sometimes causes conflict of interest in the daily work as a doctor. Educational efforts are considered to contribute to development of empathy, still hidden curriculum and lack of time forms obstacles for empathy. Efforts are needed to encourage self-reflection and other strategies among medical interns and students, to maintain and further increase empathy.

Take-home messages: Empathy is a complex phenomenon under constant change; influenced by external and internal factors - improvable yet delicate.
Affordable, Practical, Innovative, and Scholarly eBooks: Supporting faculty in the teaching and assessment of the intrinsic CanMEDS roles

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Colla MacDonald, uOttawa, Faculty of Education, Ottawa, Canada
Emma Stoddell, uOttawa, Postgraduate Medical Education, Ottawa, Canada

Background: The Office of Postgraduate Medical Education at the University of Ottawa is in the process of implementing a comprehensive program to assess residents on the full spectrum of CanMEDS roles. A Multi-Focal Assessment System framework was developed to guide this process.

Summary of Work: A literature review was conducted and interviews were conducted with 60 Postgraduate Program Directors to identify the current state, barriers, and needs related to assessing residents. Based on these findings, faculty development workshops were designed, delivered, and then evaluated using post-workshop surveys. Companion eBooks (http://ipad-fm.ca/pgmeebooks/) were developed to provide preceptors with easy access to practical ideas and tools for teaching and evaluating these roles that they could take away and access at the point of teaching.

Summary of Results: Evaluation of workshops and eBooks were excellent. Supervisors learned how easy it can be to incorporate the teaching of the intrinsic roles into their clinical teaching; how to give effective feedback; how to evaluate the roles; and the key competencies of the roles. Faculty members described using strategies to introduce the roles to learners; utilizing tools to evaluate learners; focusing more on teaching the intrinsic roles; and keeping better records regarding the roles. Preceptors appreciated having convenient, practical, just-in-time resources available to them.

Discussion and Conclusions: Preceptors reported that developing strategies to integrate the intrinsic CanMEDS roles into their day-to-day teaching and having access to convenient, practical, innovative, and scholarly eBooks will improve the quality of teaching and evaluating the CanMEDS roles.

Take-home messages: eBooks are an interactive, affordable, practical and user-driven platform that can help educational leaders and clinical supervisors readily adapt their practice in preparation of competency-based education frameworks.

Take-home messages: This curricular intervention enhanced attitudes and skills in residents and may result in improved care for patients with SUDs.

## Background
We received funding from NIDA to create 2 DocCom-like modules (see http://webcampus.drexelmed.edu/nida/) on substance abuse screening and counseling. We then received a grant to study whether the first module titled “The Clinical Assessment of Substance Use Disorders” combined with small-group debriefing can improve medical trainees’ attitudes and communication skills toward patients with substance use disorders (SUDs).

## Summary of Work
In 2011–2012, 129 internal and family medicine residents and 370 medical students at two medical schools participated in a cluster randomized controlled trial, which assessed the effect of adding a two-part intervention to the SUDs curricula. The intervention included a self-directed, media-rich Internet-based learning module and a small-group, faculty-led debriefing. Primary study outcomes were changes in self-assessed attitudes in the intervention group (I-group) compared with those in the control group (C-group) (i.e., a difference of differences). For residents, the authors used real-time, Web-based interviews of standardized patients to assess changes in communication skills.

## Summary of Results
The authors found no significant differences between the I- and C-groups in attitudes for residents or students at baseline. Compared with those in the C-group, residents, but not students, in the I-group had more positive attitudes toward treatment efficacy and self efficacy at follow-up (P < .006). Likewise, compared with residents in the C-group, residents in the I-group received higher scores on screening and counseling skills during the standardized patient interview at follow-up (P = .0009).

## Discussion and Conclusions
The intervention combining the online module “The Clinical Assessment of Substance Use Disorders” with small-group debriefing produced improved attitudes and communication skills toward patients with SUDs among residents.

## Take-home messages
This curricular intervention enhanced attitudes and skills in residents and may result in improved care for patients with SUDs.
The Anatomy of E-Learning Tools: Does software usability influence learning outcomes?

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Background: Increasing class sizes and a reduction in laboratory hours have increased the popularity of commercial anatomy e-learning tools. It is critical to understand how the functionality of such tools can influence the mental effort required during the learning process, also known as cognitive load.

Summary of Work: Using dual-task methodology, we examined two anatomical e-learning tools to determine the effect of their design on cognitive load during two joint learning exercises (elbow and knee). ADAM Interactive is a simplistic, 2-dimensional tool that presents like a textbook and utilizes a sliding tab to dissect image layers, while Netters has a more complex 3-dimensional usability that allows structures to be rotated. We hypothesized that longer reaction times on a Stroop visual observation task would indicate a higher cognitive load imposed by the anatomy software, which would interfere with learning. Undergraduate anatomy students from Western University, Canada (n=70) were assessed using a baseline anatomy knowledge test, Stroop task response times, and an anatomy post-test.

Summary of Results: Results showed that different software packages had no influence on reaction time or post-test outcomes (reaction times: 1518ms±356 and 1530ms±414; post-test scores: 7.71±2.01 and 7.77±2.01, for Netters and ADAM respectively, p>0.05). Post-test scores differed significantly based on which joint was studied (8.22±1.93 and 7.42±1.62 for elbow and knee respectively), however this was not impacted by the software itself.

Discussion and Conclusions: This suggests that a simple e-learning tool, such as ADAM, is as effective as more complicated tools, such as Netters.

Take-home messages: The results of this study could constructively inform software developers about future design considerations.

Gender and previous studies affect students’ self-efficacy beliefs also in mobile learning

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Eeva Pyörälä, University of Helsinki, Finland

Background: University of Helsinki started a pilot in mobile education in 2013. First years students were delivered iPads for personal study use. The first two study years are problem-based. Students use iPads in all learning activities, for example in taking notes, reading, seeking and sharing information.

Summary of Work: The participants of the study are students with one year experience on iPad use. Data were collected with a web-based questionnaire. This study focuses on the following questions: (1) How students gender and previous university studies effect their self-efficacy believes? (2) How their self-efficacy believes correlates to their iPads study use?

Summary of Results: The response rate was high 80% (40% men and 60% female). The majority (66%) of students had previous studies. Previous studies and gender affects students' self-efficacy believes. There were differences in statements measuring students' self-efficacy believes both between genders and students with or without previous studies. Men (82%) had high confidence in command of the most difficult tasks in studies (female 68%). 65% of men and only 28% of female reported to adopt iPads for study use in one to two weeks. Similar trends were detected between students with or without previous studies.

Discussion and Conclusions: There is a gender difference in students self-efficacy believes and the time needed to learn iPad study use. Also their previous studies strengthened their belief in their ability to understand basic concepts of their field and learn the professional competences.

Take-home messages: General and iPad study skills support needs to be tailored to different student groups.
Changing the curriculum with virtual patient integration: The VP authors’ perspective

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Panagiotis Bamidis*, Aristotle University of Thessaloniki, Medical School, Greece

Background: Virtual patients (VPs) are powerful educational tools leading to effective learning and supporting clinical skills reasoning. The Medical School of AUTH in an attempt to assimilate this trend in a curriculum change towards Problem Based Learning has recently proceeded with the creation of a pool of VP cases.

Summary of Work: The VP authoring team consisted of 64 medical educators and research associates and led to a creation of a pool of 35 VP cases (through a train-the-trainers process). Access to this VP pool was given to a total of 312 medical students in the first instance. The VP authors self-evaluated the whole process with an aim of asking themselves whether the design and implementation of clinical VP scenarios. For that purpose an on line questionnaire including different types of questions (Likert-type, multiple choice, open-ended, dichotomous) was made available to them.

Summary of Results: The majority of the VP authors responded that this procedure worked well with multiple benefits, such as the increase of their research interest for the associate illnesses/disorders, the enhancement of a work atmosphere of team spirit and the strengthening of interaction between different medical specialties. Besides, they considered VPs as an important additional training process and a valuable tool for acquisition of clinical skills.

Discussion and Conclusions: For curriculum development purposes, we expect that insight into medical teachers’ perception of VP creation and implementation will enable faculty developers to tailor their activities to the needs of a more Problem Based Learning curriculum.

Take-home messages: VP authors found the VP implementation process as an efficient procedure not only for their students, but also for their own lifelong melioration.

Incorporating iPads into medical education fosters collaborative learning

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Kalle Romanov, Faculty of Medicine, University of Helsinki, Clinicum, Helsinki, Finland
Teemu Masalin, Faculty of Medicine, University of Helsinki, Medicum, Helsinki, Finland

Background: Students today have grown up with the Internet and use mobile and digital technologies in their everyday lives. Since 2013 the Faculty of Medicine at the University of Helsinki has provided the first year students with iPads.

Summary of Work: This is an action research, in which students, teachers, technical and educational experts have for two years examined and developed the ways students incorporate iPads into their learning activities. The participants are student cohorts who started in 2013 and 2014 (170 students per year). The research data are biannual questionnaires on iPad use and focus group interviews. The survey response rates have been high (80-91%).

Summary of Results: In 2013 cohort, 81% of students had smartphones and 21% tablet computers, but only 10% mastered iPad study use, and for 16% it took at least eight weeks to command it. Along the analysis of the first-year experiences, the focus of the iPad project shifted from technical aspects to supporting the students to integrate iPads into their learning activities. Students use iPads individually for information seeking, reading and taking notes. iPads have enhanced new type of collaborative learning in PBL-tutorials and other educational contexts, and in students’ own networks in social media.

Discussion and Conclusions: Our research project detected that students of 2013 had challenges in integrating Pads into their learning activities, and we increased support for the 2014 cohort. Students have been innovative in adopting new type of formal and informal collaborative learning.

Take-home messages: iPads foster collaborative learning, but at start students need versatile support in adopting iPads into learning.
Exploring the challenges of using mobile devices in the clinical setting through Interpretative Phenomenological Analysis

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Background: Mobile learning in theory offers students the opportunity to learn without limitations of time and place thereby constructing a more creative and learner-centered focus. The aim of our study was to explore ways in which mobile devices are used to support and manage students’ learning in a clinical setting.

Summary of Work: Interpretative Phenomenological Analysis (IPA) was used as the method of enquiry to understand participants’ experience and how they themselves make sense of their experiences.

Summary of Results: We identified three main themes centering on challenges of using mobile devices in the clinical setting:
1. Learning in a clinical situation using mobile devices created its own set of problems which included distraction and ownership of information.
2. Consolidating one’s professional identity was difficult to establish as students were balancing between forming their own professional self-identity and developing their professional identity in front of patients and clinicians.
3. The transition from student to doctor was seen as an apprenticeship and students evolved their role from listening and learning to discussing and doing with their clinical teachers.

Discussion and Conclusions: Understanding challenges of using mobile devices in the clinical setting allows us to build processes into our curriculum to address and rebalance these challenges.

Take-home messages: Using technology to facilitate learning can provide its own unique set of challenges.
Mobile app use improves trainee doctors’ patient care

Katie Webb, Cardiff University, School of Postgraduate Medical and Dental Education, Cardiff, UK
Rebecca Dimond, Cardiff University, School of Social Sciences, CUREMeDE, Cardiff, UK
Mark Stacey, Wales Deanery, Cardiff, UK
Presenter: Alison Bullock*, Cardiff University, Cardiff, UK

Background: Funded by the Wales Deanery, the “iDoc” project offers newly qualified doctors (Foundation F1/F2 trainees) an app with five medical textbooks formatted for mobile devices and DrCompanion© software with cross-search facility.

Summary of Work: The iDoc evaluation uses mixed methods. This presentation reports findings from a subset of 642 case reports (qualitative, structured accounts of app use) collected between 2012-2014. To explore impact on patient care, we selected only reports detailing ‘complex’ scenarios (n=142, submitted by 114 F1/F2s), excluding those solely reporting simple information checks. We coded these against components of the Institute of Medicine’s Quality Improvement (QI) Framework: safety, efficiency, effectiveness, timeliness and patient-centredness.

Summary of Results: QI framework components overlap. We identified sub-themes and indicate number of case reports assigned to each.
- Efficiency: quicker access to information (n=88); saving colleagues’ time (n=42); saving own time (n=22); requesting appropriate investigations (n=32).
- Timeliness: timely treatment/tests (n=13); immediate decision-making (n=19); positive consequences (n=34).
- Effectiveness: making evidenced informed decisions (n=39); information reliability (n=25).
- Safety: checking (n=52); specific reference to safety or harm avoidance (n=15).
- Patient-centredness: improving patient explanation (n=16); using iDoc with patients (n=14).

Discussion and Conclusions: Although simple information checks are important for safe practice, our evidence shows these doctors’ use of the iDoc app also enhanced the efficiency, effectiveness and timeliness of their patient care. Some also used it to consolidate their patient-centred approach. To conclude, one remarked: “I am a better doctor with iDoc as a resource” (F1). Take-home messages: Mobile apps provide viable tools to support trainee doctors’ patient care.

Online assessment tools: What do users want?

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Alison McAllister, Flinders University of South Australia, Speech Pathology and Audiology, Adelaide, Australia
Bronwyn Davidson, University of Melbourne, Speech Pathology and Audiology, Melbourne, Australia
Anne E. Hill, University of Queensland, Speech Pathology, Brisbane, Australia
Rachel Davenport, Latrobe University, Speech Pathology, Melbourne, Australia
Louise Brown, James Cook University, Speech Pathology, Townsville, Australia

Background: All speech language pathology clinical educators and students in Australia and New Zealand have used an online assessment tool to assess clinical competency on placement since 2009. Changes to the competency framework created an opportunity to draw on the experiences of all users to inform a national project to inform the upgrade to the assessment interface and related resources, and to identify training needs.

Summary of Work: The following data was collected across Australia and New Zealand:
1. Clinical Educators and Students a) Online questionnaire with closed questions and free comments was distributed via all universities using COMPASS®, and; b) Focus groups.
2. University coordinators: Semi-structured interviews Responses to closed questions were collated and the key content of other data identified, themed and classified into two data sets: technical changes, and training and support.

Summary of Results: Thirty clinical educators and 32 students participated in focus groups, 381 clinical educators and 293 students responded to the online questionnaire and 18 university coordinators were interviewed. The focus of feedback and suggestions for technical improvements to the interface and training/resources was that all users were seeking an interface that more effectively supported them in their teaching/learning as well as assessment roles.

Discussion and Conclusions: A design brief informed by these findings was implemented and a revised version of COMPASS® Online was launched in 2014. Take-home messages: Design of online assessment interfaces must attend to the impact the tool has upon the learning and teaching processes it engages.
Why do trainee doctors use a medical textbook app?

Susannah Olive*, Cardiff University, Cardiff, UK
Alison Bullock, Cardiff University, Cardiff, UK
Katie Webb, Cardiff University, UK
Mark Stacey, Wales Deanery, UK

Background: The Wales deanery offers its Foundation doctors a smartphone app (“iDoc”) that provides instant access to key medical textbooks. The aim of the initiative is to support Foundation doctors through the transition from medical school to doctor by providing a reliable, evidence-based information tool to aid just-in-time information to support learning and practice.

Summary of Work: One part of the wider iDoc evaluation aims to understand doctors’ motivations for using the app. We conducted thematic analysis of Foundation doctors’ qualitative, structured accounts of app use (n=317 case reports) submitted in 2013-2014.

Summary of Results: Most frequently reported motivations for using the app included: other information sources (books, ward-based PCs, senior colleagues) being unavailable; the app’s accessibility; reliability of information; and ease of use. App use was driven by trainees’ requirements for immediate information as well as their longer term learning needs.

Discussion and Conclusions: Trainees appreciated the ready access to reliable information provided by the app, which helped to alleviate some of the stress arising from increased responsibilities and the challenges of practice. The app enabled the new doctors to maximise learning opportunities and supported their evidence-informed practice. Our data suggest that the iDoc app fulfils new doctors’ need for just-in-time information in work environments where other sources are often unavailable.

Take-home messages: New doctors use the iDoc app because it gives instant access to reliable information which supports their immediate and longer term learning needs.

Maximising potential of mobile apps within medical education

Susie Rebelo Hopkins*, University of Southampton, Faculty of Medicine, Medical Education, Southampton, UK
Sunhea Choi, University of Southampton, Faculty of Medicine, Medical Education, Southampton, UK
Andy Pulman, University of Southampton, Faculty of Medicine, Medical Education, Southampton, UK

Background: Patients and clinicians use medical apps in clinical practice; however, quality control is an issue and integration in the medical curriculum varies. Medical professionals need to quality control, review and disseminate apps. Guidelines are needed to assist evaluation in medical education.

Summary of Work: This was an action research study using several methods to enhance digital professionalism and increase students and staff awareness of potential and pitfalls of medical apps. Our aims were to evaluate use of apps within the medical school, explore staff views on their role within the curriculum, and establish guidelines for critical reviewing apps.

Summary of Results: Over 70% of students used apps to enhance learning and expected staff to recommend apps. Staff use of apps was remarkably lower and barriers to their use for teaching included expanding selection of apps, lack of resources and quality issues.

Discussion and Conclusions: Apps in clinical practice are increasing whilst use in education is still low. Medical apps enhance learning but their increasing numbers, low quality control and limited resources available to support staff prevent their integration into teaching. A collaborative process for quality assurance of apps across different medical schools is necessary to address this. Enhancing digital professionalism of medical students and staff concerning the potential and pitfalls of medical apps is needed to accompany their increased use in clinical practice.

Take-home messages: A collaborative peer review of medical apps across medical schools is necessary to share the burden of auditing and developing apps and enhancing digital professionalism.
**#9M Short Communications: Curriculum Content 2**  
**Location:** Carron 1, SECC

**#9M1 (24322)**  
Less is more! What anatomical knowledge medical students really need to know

Stephanie Bull, University of Exeter, University of Exeter Medical School, Exeter, UK  
Vikram Deveraj, University of Exeter, University of Exeter Medical School, Exeter, UK  
Tudor Chinnah*, University of Exeter, University of Exeter Medical School, Exeter, UK  
Claudia Leitner, University of Exeter, University of Exeter Medical School, Exeter, UK  
James Taylor, University of Exeter, University of Exeter Medical School, Exeter, UK  
Karen Mattick, University of Exeter, University of Exeter Medical School, Exeter, UK

**Background:** Teaching anatomy in a modern medical curriculum can be challenging. Tutors cite insufficient time to cover the breadth and volume of material required. The need to identify appropriate learning outcomes is critically important yet there is little empirical evidence to support this process. We reviewed our anatomy curriculum derived from the Anatomical Society of GB and Ireland, to ensure the learning outcomes supported students to learn in their clinical years.

**Summary of Work:** Ten junior doctors undertook card-sorting exercises to identify the learning outcomes that they had applied in their early clinical practice. Eight senior clinicians from mixed hospital specialties then reviewed the learning outcomes that junior doctors hadn’t used and debated whether they were needed in the undergraduate curriculum. Partnerships of doctors and biomedical scientists were formed to work with the findings and modify teaching activities. They focused upon delivering learning at the appropriate level of depth, contextualised by common clinical conditions, and appropriate clinical tests and management.

**Summary of Results:** Sixty-one of 227 (27%) learning outcomes had not been used by junior doctors in their first year of clinical practice and, 23 of 227 (10%) were deemed unnecessary for undergraduate education following senior clinician review. The curriculum was modified and changes were evaluated using questionnaires, the findings of which will be presented.

**Discussion and Conclusions:** Anatomy in the early years must be relevant and contextualised. Over detailed learning outcomes may impact on the student’s ability to build on their learning in a clinical environment.

**Take-home messages:** An empirical approach and clinician-scientist partnerships have delivered change to our anatomy curriculum.

**#9M2 (26927)**  
Education of geriatrics at medical schools in Japan

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**Background:** Since elderly people represent over 25% of the population in Japan, it is essential to have a medical education system capable of producing physicians competent in the care of elderly people.

**Summary of Work:** We performed a national survey to find problems in the geriatric education at medical schools in 2005. We repeated the survey to evaluate changes in 10 years. We sent questionnaires to 80 medical schools and currently we have received the answers from 42 medical schools. This is the interim summary and the final results will be reported at the meeting.

**Summary of Results:** The number of medical schools which had geriatric departments (group A) did not increase significantly (30% in 2005 vs 33% in 2015). Whereas the number of medical schools where a single department other than geriatric department such as family medicine took care of geriatric education (group B) increased (11% in 2005 vs 24% in 2015). In the rest, various departments taught subjects related to geriatrics (group C). Although 69% of medical schools in group C felt that their geriatric education needed to be improved, no medical school was planning to have a geriatric department. The average self-evaluation score about national geriatric core curriculum was highest in group A (Group A 55.8, B 52.8, C 49.9).

**Discussion and Conclusions:** Although group A medical schools gave better geriatric education, the number did not increase significantly in the last 10 years.

**Take-home messages:** It is important for medical schools to have geriatric departments to provide better geriatric education for students.
#9M3 (25665)
Writing and the Assessment of Writing Ability in the Medical Context

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Background: To work in English language contexts, doctors for whom English is not the first language often need to demonstrate their proficiency in the language. Assessment of this ability is facilitated when there is close correspondence between the assessment task and the tasks doctors actually perform—that is, when the test has construct validity. In this paper, we report on a study that considers the written modality in relation to the writing component of the Occupational English Test (OET), a specific-purpose test of English language ability for the medical context that is recognised by various regulatory bodies.

Summary of Work: First, interviews and surveys were conducted to identify the writing tasks that doctors perform as part of their work. The findings from this part of the study were then used to evaluate the extent to which the OET writing task and assessment criteria reflected doctors’ writing requirements.

Summary of Results: The results show that most frequently used writing genres include patient notes, emails and letters, filling in forms, and writing referral letters.

Discussion and Conclusions: For language assessment purposes, patient notes and forms are not ideal, yielding a minimal sample of language. Linguistically, referral letters are arguably most likely to pose a challenge, requiring a relevant response characterized by appropriate detail and conciseness, clarity, organization, tone, and correctness.

Take-home messages: It is concluded that the OET Writing task—a referral letter based on case notes—remains appropriate and relevant, as do the marking criteria covering the desired qualities mentioned earlier.

#9M4 (26450)
It’s not just the language – linking simulation and English for medical purposes (EMP) training enhances motivation and self-confidence in undergraduate medical students

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Background: Previously, the framework of Azer et al. reported in Medical Teacher in 2013 has been proposed and modified by the authors to enhance the implementation of an undergraduate longitudinal English for Medical Purposes (EMP) curriculum. The present study focuses on the integration of skills training, simulation patients and EMP into a structured course for undergraduate medical students using this framework to see if this has an effect on motivation and self-confidence in undergraduate medical students in using EMP.

Summary of Work: A pilot course for undergraduate medical students was designed as an elective with 12 teaching units including a SP scenario with linked skills training each. The scenarios focused on topics linked to the learning objectives of the preclinical curriculum. The course assessment consisted of an essay and presentation of the students to EMP-related topics, which are presented here.

Summary of Results: All essays and presentations (n=12) focussed on the following themes: 1) why medical students need EMP, 2) why EMP is not just about learning the language and 3) what teaching formats are ideal for EMP teaching.

Discussion and Conclusions: A longitudinal EMP curriculum for undergraduate medical students is regarded as essential by the students themselves, and integration of communication and skills training into EMP sessions seems necessary to achieve a higher level of mastery in EMP.

Take-home messages: Integrating skills training and SP scenarios into EMP courses enhances motivation and self-confidence as well as understanding for the relevance of EMP in the medical curriculum among undergraduate medical students.
#9M5 (26464)
Defining Generalism Within the Context of Medicine – a Systematic Review

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Background: There is a lack of a common definition of the term “generalism” as it relates to medicine, and specifically, medical education. This has impeded discussions regarding health human resource (HHR) planning, medical education and most importantly, patients’ ability to gain access to appropriate care. The objective of this study is to develop a working definition of the term “generalism.”

Summary of Work: This is a systematic review of the literature that includes an extensive grey literature search. Systematic searches were conducted in MEDLINE and EMBASE databases and grey literature searches were done using Google™ Internet search engine. A thematic analysis method was adopted to code and identify common themes and broad categorizations of definitions included in the study.

Summary of Results: The research team has screened 8928 articles with 1456 meeting the inclusion criteria. The team generated six major themes: nature of generalism, broad reach of care, cognitive process, approach to care, educational focus, and generalist role. These themes informed the development of the proposed definition.

Discussion and Conclusions: This is the first systematic review exploring the definition of generalism using such broad criteria for inclusion. An unambiguous understanding of generalism will facilitate discussions of both HHR and the health care system and assist in the creation of targeted policies and strategies. This research makes an important contribution to the literature by providing scientific, evidence-based value in defining generalism.

Take-home messages: A clear definition of the term “generalism” provides a solid foundation to ensure future healthcare workforce planning and development of medical education curriculum that meets societal health needs.

#9M6 (28214)
TBL as a Continuous Assessment Tool in Neurosciences Block in a Hybrid PBL System

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Neuroscience is perhaps one of the most intriguing areas of study in medical school; yet, however, it is one of the most challenging and burdensome to some. Alfaisal University in Riyadh, Saudi Arabia strives to offer its students the most effective learning strategies in its integrated hybrid problem-based learning curriculum. Neuroscience is delivered as an integrated block where various disciplines are taught in a ten-week span including neuroanatomy, neurophysiology, neuropathology, clinical neurology, microbiology, pharmacology, among others. Stemming from the belief that proper assessment is just as crucial as a proper syllabus in a curriculum is, we decided to introduce an innovative idea in the neuroscience block during the spring semester of academic year 2014-2015. The idea was to introduce Team Based Learning (TBL) as a means of continuous assessment and learning tool in parallel with the original running PBL system. Previously, the students used to have a midterm exam in the middle of the block followed by a final exam at its end, which together carry the greatest weightage, where the remaining part the grading weightage goes for PBL and professionalism. The idea behind this decision was to explore this phenomenal change in assessment, i.e. investigating the effects on students’ preparation, overall performance, and grades when they experience an actual continuous assessment component in the presentation, we shall discuss the exciting trends and findings of this compelling experiment that the students loved.


**#9N Short Communications: Assessment – Progress Test**

**Location:** Carron 2, SECC

**#9N1 (26370)**

**Competency-oriented concepts in a formative progress test with questions constructed by students**

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**Background:** In 2013 and 2014 a formative competency-oriented progress test with questions constructed by students was developed and implemented. The progress test contained MC-items and Situational-Judgement-Test (SJT) items. Clusters of “competency domains” and “subject groups” were combined to a two-dimensional competency-oriented blueprint for the MC-items. The “competency domains” include theoretical clinical, practical clinical, communicative, scientific competencies and professional behavior. To provide meaningful competency-oriented feedback for students and faculties regarding test results on “competency domains”, sufficient reliability and discriminant validity of these domains are required.

**Summary of Work:** After a comprehensive training program students from eight medical faculties constructed MC-items and SJT-items. A competency-oriented feedback concept was developed. To establish the discriminant validity of the “competency domains”, a discriminant analysis of principal components of the data was conducted.

**Summary of Results:** About 800 students from nine medical faculties in Germany and Austria took part in the progress test since 2013. They received feedback about the “competency domains” and “subject groups” and the SJT-items. All “competency domains” showed a high reliability. The analysis of discriminant validity showed that items of the clinical competency domains, communication/professional competence, as well as scientific competence could be verified as three reliable and distinct clusters of items.

**Discussion and Conclusions:** With improved classification of the items, it can be proved, that “competency domains” contain different constructs. Competency-oriented feedback can be given to students.

**Take-home messages:** The competency-oriented concept in a formative progress test shows a good discriminant validity.

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**#9N2 (27685)**

I’ve seen the future: Using progress test predictions to facilitate early interventions

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**Background:** The progress test (PT) facilitates frequent assessment reviews and rapid remediation. The system of grading means students may already be struggling before being identified for remediation. Identifying those whose trajectory across tests gives concern that they will struggle later would allow early intervention and targeted support.

**Summary of Work:** Bespoke software has been developed that accumulates scores for all students, calculates the percentile rank and z-score, and then based on the most recent tests highlights students who are not on a trajectory to meet minimum satisfactory performance.

**Summary of Results:** Optimal data for prediction is found using the three most recent tests. Z-scores provided a slightly more sensitive measure than percentile rank and is our preferred method. Students are flagged if their final test score is below -1sd, or their trajectory is negative. This method has helped to identify students who may struggle before they receive low grades.

**Discussion and Conclusions:** Knowing students may not achieve the level of knowledge required at various stages of the course can facilitate support, but also make students aware of any concerns before they receive low grades. While support structures are available to all, these predictions can help target those who may need support the most.

The PT provides useful information that accumulates over time, so basing predictions on its performance is intuitive and useful for staff and students. Predictions may be refined further with the use of Bayesian score adjustments to improve knowledge estimates.

**Take-home messages:** Longitudinal PT data can predict students who may struggle over coming tests and provide targeted support.
**#9N3 (24449)**

Metacognitive cues, confidence, and performance in progress testing: are they related?

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**Background:** In a variety of medical curricula, students perform a multiple-choice paper-and-pencil progress test multiple times each year in their curriculum. There is an unsolved controversy about the utility of a question mark option and penalty for incorrect answers in this test. Although this approach may enhance reliability estimates of scores through an increased metacognitive reflection and reduced guessing, it may also threaten validity through construct-irrelevant variance (e.g., different attitudes towards risk). This study addresses the relationship between confidence, metacognitive cues, performance, and question mark use.

**Summary of Work:** In a 180-item paper-and-pencil progress test, five-point confidence rating items were presented along with the first 10 items (one topic). Students in each cohort (year 1-5) were allocated randomly over four conditions: the metacognitive cue “It is long ago that I studied the content of this question” (n=29), “I had to think hard about this question” (n=32), both cues (n=33) or none of these cues (n=29) were presented along with confidence ratings.

**Summary of Results:** Multilevel analysis revealed that confidence was on average lowest for question mark responses but not on average highest for correct responses across cohorts. Further, confidence was virtually unrelated to cue presentation, and confidence increased while question mark use decreased in subsequent cohorts.

**Discussion and Conclusions:** Although cohort differences in confidence and question mark use are in the expected direction, differences in confidence between correct and incorrect responses and the potential of metacognitive cues need further study.

**Take-home messages:** While low confidence and question mark use appear to go together, the meaning of high confidence ratings deserves further study.

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**#9N4 (27772)**

Students’ Feedback on the Saudi Multi-institutional Progress Test, How It Kept Improving Through The Years.

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**Background:** Although progress test has been around for many more years, this was the first exposure of Saudi students to the test and the first time we conduct it with that large scale. Central to the improvement of the exam is the evaluation of students’ response to the test, their feedback about test methodology and their opinion about venues for improvements.

**Summary of Work:** This study evaluates student’s feedback of 5 consecutive progress tests over the years 2012-2014. The largest was administered by 3830 students from 12 academic institutions. We obtained students’ feedback through a structured likert scale survey and an open question for suggestions, criticism or reflections. The survey covered exam methodology, timing frequency, satisfaction, opinion about content, don’t know option, question penalty and how they see the exam.

**Summary of Results:** Regarding the first exam 2012, students favored conducting the exam twice a year (63.6%). But were skeptics about the timing in November and April, only 45.5% of them saw it suitable. They were unsure if number of questions in test (200) is suitable. Most of them (59.5%) saw that 72 seconds for each question is appropriate. The majority 74.38% liked the fixed 4 options MCQs. Feedback on the next exam revealed improved satisfaction with most of the feedback questions. E.g Frequency was favored by 73% on 2013, and 77% on 2014, and most parameters followed suit.

**Discussion and Conclusions:** Students feedback about progress test gave us insight about content, methodology and test design and helped us better educate our students about the test, which was reflected in better understanding of the whole process.

**Take-home messages:** Feedback about progress test should be a standard practice in every test so that test makers continue to be aware of the students position on the exam.
Progress Testing – A Novel Use for Practice Objective Structured Clinical Exams Representing a Clinical Office Encounter (Simulated Office Oral) in Family Medicine

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**Background:** Simulated Office Orals (SOOs) are used by the College of Family Physicians of Canada as a method to evaluate family medicine resident readiness for clinical practice and are an integral component of the College’s certification exam. The utilization of practice exams to prepare residents is common place.

**Summary of Work:** During a prospective cohort study conducted at the University of Ottawa, exploring the predictability of practice exam sessions on final certification exam performance, we also explored the prospects of using practice SOO sessions, a structured clinical exam, as a progress test.

**Summary of Results:** Repeated measures analysis of the data using ANOVA resulted in $F(3, 66) = 27.52, p<0.001, \eta^2 = 0.55$.

**Discussion and Conclusions:** Our results demonstrate the feasibility of utilizing a Simulated Office Oral exam, a clinical exam, as a progress test. Combined with other measures acquired during in-training evaluation, the utilization of practice SOOs as a progress test will provide program directors with valuable information on resident progression.

**Take-home messages:** The simulated office oral, an OSCE-like exam can be feasibly used as a progress test in medical education.
Short Communications: Research Skills as a Curricular Outcome

Location: Dochart 1, SECC

#9O1 (28282)

Story of a paper: the value of coming to know how medical research is done

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Background: Medical curricula emphasise acquisition of knowledge, skills & professional attitudes but rarely show students behind the scenes to how research is conducted and knowledge constructed. Story of a Paper is a new teaching approach that reveals socio-politics and culture of medical research communities through the medium of storytelling.

Summary of work: The value of interactions that bring students together with medical researchers was investigated qualitatively by questionnaire after Story of a Paper sessions and through interviews with four student volunteers and four members of academic staff.

Summary of results: The results showed that academic staff and undergraduate students ascribe value to coming to know how research is done, with four facets being evident: insight (dispositions & philosophy, motivations & drivers, culture & practice), practical implications (career trajectory, publishing & funding), identity (access & interaction, life lessons, demystifies researchers), and belonging (legitimacy, authentic participation, empowerment).

Conclusions: These findings indicate that coming to know how medical research is done, its culture, practice norms, discourse and identities of practitioners, has value for student learning and professional practice. This aspect of activity at the research-teaching nexus is not represented on models of learning identified by Healey and Jenkins. A modification to the model is proposed, to include “emphasis on research culture” alongside the existing “emphasis on research content” and “emphasis on research processes and problems.”

Take-home message: The value for student learning of Story of a Paper sessions and other opportunities (like conference attendance) to interact with the medical research community indicates that these would be a worthwhile addition to medical curricula.

#9O2 (27273)

Which health topics inspire medical students to undertake research?

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Peter McLennan, University of Wollongong, Graduate School of Medicine, Wollongong, Australia
Warren Rich, University of Wollongong, Graduate School of Medicine, Wollongong, Australia
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Background: The development and practice of authentic inquiry during medical training can influence future practice through an understanding of research findings and their application to patient care, as well as developing the research interests and research capacity of future doctors. Self-proposed projects are useful ways in which to motivate and inspire medical students to undertake research and to learn more about different health issues.

Summary of Work: During a 12-month clerkship placement, all University of Wollongong (UOW) medical students design and undertake a research project which is of personal interest to themselves and relevant to their regional/rural placement communities. This study explored the most popular self-selected health issues investigated by students as part of their research projects.

Summary of Results: The first five UOW medical student cohorts, placed in ten different regional/rural community settings, completed 370 individual research projects between 2009 and 2013. The most popular research areas investigated by the students included: cancer prevention and screening; medication management issues; immunisation; diabetes management; primary health care and mental health issues; as well as emergency department presentations. Many of these research studies have since been published in peer reviewed journals and presented at national/international conferences.

Discussion and Conclusions: Building research capacity among medical students can significantly contribute to graduating evidence-based practitioners. To effectively engage students in undertaking research it is imperative that they be allowed to investigate health issues which both excite and inspire them to learn.

Take-home messages: Self-selected and self-proposed research projects are pivotal to engage students in authentic learning experiences which can help to influence their future practice.
Evaluation of An Intervention Research Program For Undergraduates Of Rawalpindi Medical College, Pakistan.

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Muhammad Majeed Khan, Rawalpindi Medical College, Medicine, Rawalpindi, Pakistan
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Background: This study was conducted to evaluate the effectiveness of intervention of 10 month’s research training program for undergraduates of Rawalpindi medical College in terms of improvement in their knowledge attitude and practices in Health Systems Research.

Summary of Work: A randomized pretest-post-test single group intervention study was conducted at Rawalpindi Medical College, Pakistan from February 2014 till April 2015. Knowledge, Attitude and practices of 93 students regarding health systems research were assessed through a scoring system. After standardized exposure to a free research intervention program of 10 months duration including basic and advanced research methodology workshops, individual guidance in research methods, a post test KAP survey was conducted. To evaluate the effectiveness of the intervention, pre test and post test scores of Knowledge, attitudes and practices were compared using dependent samples t-test, Wilcoxon signed rank test and McNemars at 5 % level of significance.

Summary of Results: The pretest knowledge scores of students were 7.45±2.57 while post test scores were 10.18±1.95 (p-value 0.00). All the students showed positive attitude towards research, where scores further improved in 76.3% students (p-value 0.00). Contribution to research activities also increased from 33.3% to 78.5% after intervention (p value 0.02).

Discussion and Conclusions: The findings of study are consistent with intervention studies exhibiting encouraging and positive improvement in knowledge, attitudes and skills of undergraduates in research. The study shows statistically significant improvement in the knowledge, attitudes and practices of medical undergraduates after exposure to a research intervention program.

Take-home messages: Study provides substantiation for policy makers to integrate research training at undergraduate level in medical schools.

Predictors of medical graduates’ engagement in scientific research activities

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Background: Physicians’ engagement in scientific research is vital for health care. However, there are concerns over a decline in the number of future physicians who consider engaging in post-graduate research. This study aimed to determine the influence of individual characteristics, academic performance and participation in undergraduate research on engagement in postgraduate research.

Summary of Work: Cross-sectional study with all alumni of the School of Health Sciences, University of Minho, Portugal. Participants were surveyed about engagement in undergraduate and graduate research using a custom-made questionnaire. Answers were verified against institutional records. Data on demographic, personality and performance variables were available in a longitudinal database. Two logistic regression models were used to identify predictors of postgraduate research engagement: one for participation in all types of research and another for participation in more time-consuming structured research (leading to publication or PhD).

Summary of Results: Complete sets of data were available for 275 participants (69% of graduates). 125 (46%) reported participation in graduate research. Structured research was verified for 47 (17%). Neuroticism (ORA=1.35), Openness to experience (ORA=1.50), Conscientiousness (ORA=1.31), higher academic performances (ORA=1.36, ORB=1.47), male gender (ORA=3.22, ORB=7.21) and participation in voluntary undergraduate research (ORB=4.14) enhanced the likelihood of engagement in all types of graduate research (ORA) and in structured research (ORB).

Discussion and Conclusions: Post-graduate research engagement could be predicted by a combination of individual variables, academic performance and involvement in undergraduate research. Male gender weighed the most and voluntary engagement in undergraduate research was very important.

Take-home messages: Medical schools should promote voluntary undergraduate research opportunities, targeting female students in particular.
#905 (23951)
Undergraduate medical research - springboard to future academic career

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Background: Norwegian Medical Faculties established a Medical Student Research Program (MSRP) in 2002, aiming to strengthen recruitment to science. An earlier study suggested that the program increased the recruitment of physicians into medical research (Hunskaar et al. 2009). We have surveyed current students who were enrolled 2010-14

Summary of Work: A web-based questionnaire was distributed (n=269). Students reported on research area, supervision, local support, publication metrics, program administration, overall satisfaction, and intent to pursue a future PhD

Summary of Results: Two hundred and forty students (81%) completed the survey. Seventy (29%) had submitted manuscripts for publication and 61 (25%) had published a total of 138 research papers. Genders contributed equally, 85% were first author on their papers and 50% had published more than once. Unpublished students included 91 (38%) who had only completed 3 semesters since enrollment in MSRP, yet nearly half had presented at scientific meetings. Overall, 179 students (75%) intended to complete a PhD. In all, 76% of students were satisfied or very satisfied with the program. There were no differences between students regardless of publication history

Discussion and Conclusions: This evaluation confirms and extends previous findings. The most striking features were the stable support among faculty and students, the heterogeneity of research, high student throughput, invariance of outcomes between Faculties and across gender, impressive production of scientific papers, and the intent to pursue a PhD degree

Take-home messages: An intercalated research program at Medical Faculties in Norway has lived up to expectations to strengthen research among future physicians.

#906 (26117)
Engaging medical students in the continuum of research: key requirements for a ‘total research experience’

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Background: Research training is acknowledged as an important feature of medical education. However, allocating time for an authentic research experience can be difficult within a busy and demanding curriculum. Identification of the key features important in the delivery of a research program can be helpful for others embarking on the same quest.

Summary of Work: During a 12-month community-based clerkship placement, all medical students design and undertake a research project from development of their own individual research question, through collecting and analysing data, to dissemination of findings. This paper describes key requirements for success identified during the first five years of implementation of an authentic research activity in a new medical school.

Summary of Results: Through a process of regular program review and response, the following were identified as key requirements for engaging students in the continuum of research: dedicated program management; individual academic supervision for students; a mechanism to avoid research ethics review bottlenecks; access to online research resources; and formal assessment to facilitate engagement. Access to research support after graduation supports continuity of engagement.

Discussion and Conclusions: An important enabler in engaging medical students in the research continuum is a 12-month longitudinal clerkship placement, which provides the extended time and setting for the research. Evidence of success of the research program includes improvements in the students’ research capability, peer-reviewed student research publications and national/international conference presentations, and graduates interested in pursuing research as junior doctors.

Take-home messages: It is possible to provide medical students with a meaningful ‘total research experience’ through provision of a well-supported and adaptable program.
#9P Short Communications: Best Evidence Medical Education (BEME)

Location: Dochart 2, SECC

#9P1 (26552)

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 among health professions trainees given the evidence that students from under-represented populations will serve these populations in greater proportion than those from well-represented populations. Interventions have been designed to increase diversity within health professions schools but no review or synthesis of these interventions has been completed. The purpose of this study is to determine the features and impact of interventions designed to promote the recruitment and admission of under-represented students to health professions programs.

Summary of Work: A protocol was established and peer-reviewed a priori. A comprehensive search of the literature was conducted to identify relevant studies. Two independent reviewers completed the title and full text screening and quality assessment of included studies. Detailed extraction tables were created and a qualitative synthesis was performed.

Summary of Results: 4867 titles and 510 full text articles were reviewed, resulting in 100 primary research studies. There was considerable diversity in the types of interventions that have been implemented by health professions schools and the populations that they targeted. The most commonly reported interventions included facilitated admissions, enrichment programs and mixed interventions, with the vast majority reporting positive results.

Discussion and Conclusions: Health professions programs have employed many different interventions to increase diversity. This study reviews these interventions and determines the features of successful strategies. The results may be used to inform the development of effective interventions.

#9P2

Systematically reviewing the evidence about required content of medical curricula; Ecosystems thinking and human health

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Catriona Kemp, Dept: Library/ Information services, Hull York Medical School, UK
Stefi Barna, University of East Anglia, Medical School, Public Health, Norwich, UK

Background: Education about environmental sustainability is required to prepare medical students for future roles as managers and professionals with a mandate to promote health. Extent and nature of discussions about ecosystems in the medical and educational literature is not yet known.

Summary of Work: Narrative synthesis following BEME and ESRC guidance. We systematically searched 14 databases of peer reviewed and grey literature for studies discussing ecosystems and health professional education. Two independent reviewers screened all abstracts. We created a textual description of each paper and applied quantitative and qualitative quality appraisal tools. We used both a predefined framework and thematic analysis to analyse data. We explored relationships between data using moderator variables and concept mapping. Robustness was enhanced through contacting authors of primary studies and critical reflection on the review process.

Summary of Results: 6753 abstracts and 123 full texts screened. 27 studies included. Medical students and doctors displayed some knowledge of ecological issues but lacked understanding, awareness and confidence to enact ecologically-sound practices. Learning about causes, consequences and responses to environmental change is required; few studies identified specific learning needs or objectives.

Discussion and Conclusions: A diverse, international literature explores learning needs about theory and practice related to ecosystems-health links. Further research and direction from standard-setting bodies needed.

Take-home messages: A broad scoping and definitional review is appropriate to explore the international literature in a developing area. A pre-defined framework proved useful. Some areas have limited/no coverage in the literature; conversely literature review highlights areas not sufficiently addressed by the framework and requiring development.
Patient participation in undergraduate medical education in general practice

Sophie Park*, UCL, London, UK
Nada Khan, UCL, London, UK
Alice Malpass, UCL, London, UK
Fiona Stevenson

Background: We conducted a BEME systematic review of undergraduate medical education in the UK general practice setting. This included a meta-ethnography about the interactions and social culture reported in these papers. PatMed is a second research stage, discussing and developing these findings with patients and students.

Summary of Work: We conducted four focus groups with medical students and patients, and 15 in-depth interviews with patients who had participated in teaching consultations in general practice. We used deductive and iterative thematic analysis to explore areas raised.

Summary of Results: The student focus groups have refined our meta-ethnography models and recommendations. Patients, students and GPs are all implicated in a dynamic re-negotiation of power within teaching consultations. While the meta-ethnography positioned the GP as broker of these interactions, students report a temporal shift towards student as broker with their increasing clinical knowledge and experience. Patient interviews will complete in March 2015 and explore patients' perceptions of identity, role, knowledge and relationships with students and GP tutors, as well as identifying areas in need of development to support future patient participation in teaching encounters.

Discussion and Conclusions: We explore 1) how the theoretical issues raised in our meta-ethnography relate to student and patient perspectives about learning in general practice, 2) how patients construct their identity, role and relationship with students and GP tutors, and 3) how patient involvement in undergraduate medical education can be developed.

Take-home messages: The results from this study inform understanding about patient involvement in general practice medical education.
#9P5 (26442)
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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Elizabeth Anderson, University of Leicester, College of Medical and Dental Sciences, Leicester, UK
Marianne Hensman, University of Birmingham, College of Medical and Dental Sciences, Birmingham, UK
Christine Hirsch, University of Birmingham, College of Medical and Dental Sciences, Birmingham, UK
David Morley, University of Birmingham, College of Medical and Dental Sciences, Birmingham, UK
Jamie J Coleman, University of Birmingham, Birmingham, UK
Presenter: Sharon Buckley*, University of Birmingham, Birmingham, UK

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. Our BEME review has considered how the teaching of such ‘tools’ contributes to student learning in the pre-registration setting.

Summary of Work: We have 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 in order to enhance students’ ability to communicate effectively with colleagues. We have considered how such teaching varies with profession and how far it occurs within the context of interprofessional education (IPE).

Summary of Results: From 6,400 citations, approximately 50 articles met our inclusion criteria. Of these, just under half were considered to be of higher quality. Most reports relate to the teaching of SBAR and its variations and, more widely, adaptations of TeamSTEPPs. Reports of interprofessional teaching are uncommon but increasing in frequency.

Discussion and Conclusions: This presentation will report the full findings of our review. It will also consider trends in reporting quality and in the use of theory to support educational innovation.

Take-home messages: (1) Team STEPPs. Available at: http://www.teamsteppsportal.org/ Accessed 12 02 15

#9P6 (28131)
Educational interventions to promote clinical reasoning: The research trends of the last decade

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C.L. Vogan, Swansea University, College of Medicine, Swansea, UK
J. Mckimm, Swansea University, College of Medicine, Swansea, UK

Background: The importance of clinical reasoning for the competency of healthcare professionals and the quality of care they provide to patients has long been established (Stiegler et al., 2011; Graber et al., 2005; Norman & Eva, 2010). Two decades have passed since the Custers et all (1996) review into clinical reasoning and almost one since the review by Norman (2005). Both were landmark reviews in the field, however during recent years many changes occurred calling for the need to re-examine this research area.

Summary of Work: The current work is part of a BEME review on Educational interventions to promote clinical reasoning. In the present work we will focus on mapping the research in this field in the last decade. We will examine the commonly used paradigm stances, methodological choices, rigour and quality of this research area. Additionally commonalities and similarities between disciplines and healthcare professions will be identified.

Summary of Results: This body of knowledge is fractured by disciplinary boundaries, with differences found being associated with research traditions. Many of the educational interventions still lack the support of rigorous research, as a large percentage of the studies focus only on levels 1 and 2 of Kirkpatrick model.

Discussion and Conclusions: Disciplinary and professional silos make research findings less accessible to those who need the most: teachers and educators. Educators developing innovative ways of promoting clinical reasoning should find ways to conduct rigorous research to evaluate its impact.

Take-home messages: Multi-disciplinary, quality research should be encouraged in order to break disciplinary boundaries and increase accessibility of findings; Rigorous research addressing level 3 and 4 of Kirkpatrick model should be encouraged.
Location: Castle I, Crowne Plaza

David Sklar*, University of New Mexico, Albuquerque, USA
Christopher S. Candler*, MedEdPORTAL, USA
Steven J. Durning*, Academic Medicine, USA

Background: Editors from Academic Medicine and MedEdPORTAL will introduce the 2015 AAMC/Academic Medicine publication “Review Criteria for Research Manuscripts” (RCRM), an update of the widely-used 2001 resource, and will use this to frame their discussion of the principles of peer review. This workshop is designed for individuals interested in learning the process of reviewing scholarly submissions.

Intended Outcomes: New or aspiring reviewers will gain understanding of the steps in the peer-review process, the expectations of editors, and the qualities of a successful review. Experienced reviewers and authors will receive insight from Academic Medicine and MedEdPORTAL editors. All participants will practice aspects of reviewing a manuscript and receive feedback from workshop leaders.

Structure: 5 minutes: Introductions and overview of the session.
25 minutes: Editors will present an overview of the RCRM, including principles of peer review for research manuscripts and non-traditional scholarly submissions.
10 minutes: Participants individually read through a sample manuscript for breadth.
30 minutes: Participants work in small groups to carefully review assigned sections of the sample manuscript.
20 minutes: Small groups report their publication “decision” recommendations and factors contributing to those recommendations.
15 minutes: Large-group discussion of small-group findings and determination of the official manuscript “decision.”
15 minutes: Interactive Q&A.

Who Should Attend: Anyone seeking a deeper understanding of the peer-review process, from new and experienced reviewers to authors seeking insight about the publication process. Familiarity with the peer-review process as a reviewer or author will be helpful, but is not required.
Level: Introductory

#9R  Conference Workshop: Bringing Non-Technical Skills (NTS) To Life - The NTS Bingo (26482)
Location: Castle II, Crowne Plaza

Peter Dieckmann*, Danish Institute for Medical Simulation (DIMS), Herlev, Denmark
Debra Nestel, Monash University, School of Rural Health, HealthPEER, Victoria, Australia
Jean Ker, University of Dundee, Dundee, UK
Simon Edgar, NHS Lothian, Edinburgh, UK
Doris Østergaard, Danish Institute for Medical Simulation (DIMS), Herlev, Denmark

Background: Non-technical skills (NTS) are essential to provide quality care to patients. NTS comprise situation awareness, decision making, task management, and teamwork. The underlying concepts are challenging to grasp and to apply for learners across many levels. This workshop aims to make NTS accessible for teaching purposes in the context of modern safety concepts along the thinking of Erik Hollnagel.

Intended Outcomes: The workshop triggers a deeper understanding of the NTS principles. Participants will be able to build NTS into their teaching and feedback sessions and will be able to relate NTS and technical skills to patient safety.

Structure: This workshop is highly interactive.
Intro Workshop (10min),
Intro NTS and Patient Safety (20 min),
Training video (5 min),
Bingo video 1 and discussion (20 min),
Bingo video 2 and discussion (15 min),
Bingo video 3 and discussion (10min),
General discussion (10min).
Participants will observe videos of both clinical and non-clinical situations. Using Bingo Cards with 5 NTS principles on them, they sort observations under the principles on their card. If a participant found elements for all principles, he or she calls “Bingo”. Participants then share their observations of the video and discuss how well each observation relates to which principle. Each small group has an experienced NTS facilitator who leads discussion of individuals’ judgments.

Who Should Attend: Educators who want to make NTS accessible for their learners and who want to learn an interactive method to stimulate reflective thinking in this area.
Level: Intermediate
#9S Conference Workshop:  
Electronic curriculum mapping: what works for you? (25371)

Location: Castle III, Crowne Plaza

Rebekah Brazier*, Imperial College London, School of Medicine, London, UK  
Susan English*, Imperial College London, School of Medicine, London, UK  
Chris Harris, Imperial College London, School of Medicine, London, UK  
Joanne Harris, Imperial College London, School of Medicine, London, UK  
Martin Lupton*, Imperial College London, School of Medicine, London, UK  
Alex Holmes*, Isotoma, Software Development, York, UK  
Andrew Theyers*, Isotoma, Software Development, York, UK

Background: In this age of accountability, medical schools must be able to demonstrate exactly what we teach, when we teach it, and how this maps to national standards. However, the segmented nature of medical education; educators spread across multiple NHS trusts, and a mix of instructional, science-based teaching and clinical placements, can be an obstacle to integration and engagement.

We compiled a database of all intended learning outcomes (ILOs) across the MBBS and tagged each one with metadata; specialties, domains, assessment information and GMC outcomes. The data were then transformed into Sofia, a bespoke, user-friendly, web-based application. With a strong focus on the requirements of each class of end user, and an excellent relationship with the software developer, we have created a multi-dimensional interface allowing content to be explored from different personalised perspectives, and creating the baseline for links with assessment and timetabling.

Intended Outcomes: Participants will be able to:

- Identify the benefits and challenges in curriculum mapping;
- Apply metadata to ILOs to form individual curriculum maps;
- Discuss application in their own institutions.

Structure: A short demonstration of Sofia, a next generation curriculum mapping application, will be followed by a highly interactive session including breakout groups, brainstorming, and large group discussions. Participants will be invited to discuss their own challenges and identify solutions in the field of curriculum mapping, and will be given the opportunity to explore Sofia for themselves on a mobile learning device.

Who Should Attend: Educationalists with an interest in electronic curriculum mapping; particularly those who have faced challenges in structuring such a map.

Level: Introductory

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#9T Conference Workshop:  
Becoming a Successful Educational Manager and Leader (25725)

Location: Gala 1, Clyde Auditorium

Mohammed Meziani*, Maastricht University, Educational Development & Research, Maastricht, Netherlands  
Herma Roebertsen*, Maastricht University, Educational Development & Research, Maastricht, Netherlands  
Mariette van Loon*, University of Bern and Maastricht University, Swiss Graduate School of Cognition, Learning & Memory, Bern, Switzerland  
Annemarie Camp*, Maastricht University, Educational Development & Research, Maastricht, Netherlands

Background: Like any other organization, institutes for medical educational can’t function without good leaders and managers. Staff members are often challenged with the demanding task to lead a multidisciplinary team, even though their professional training did not sufficiently prepare them to become a good manager and leader within an educational setting. How to become more successful in management and leadership in a medical education context? In this workshop, participants are first introduced to leadership styles, and what constitutes effective leadership. Then participants will self-assess their own leadership style and the associated strengths and weaknesses. Finally, it is discussed how to deal with the strengths and pitfalls of their leadership style, and how to become a more successful leader.

Intended Outcomes: Participants become aware of the patterns in their behavior as a leader, and acquire insights into how to become a (more) successful leader.

Structure: This workshop starts with an introduction about behaviors of managers and leaders, and evidence on effective leadership. Then participants analyze their own leadership behavior with use of self-assessment instruments. The workshop ends with a discussion about the insights acquired, strengths and pitfalls, and how to improve leadership.

Who Should Attend: Participants who face the challenges of successfully managing and leading in health professions education or medical education.

Level: Advanced
#9U Conference Workshop: “Change is the only constant.” – Lead it with Success (26322)
Location: Gala 2, Clyde Auditorium

Denyse Richardson*, Royal College of Physicians and Surgeons of Canada/University of Toronto, Medicine, Toronto, Canada
Linda Snell*, Royal College of Physicians and Surgeons of Canada/McGill University, Medicine, Montreal, Canada

Background: “Change is the only constant.” – A statement made over 2000 years ago, by the Greek philosopher, Heraclitus, couldn’t be truer today. The field of Medical Education is no exception. Whether it be reflected in curriculum renewal, implementation of new teaching or assessment strategies, influencing colleagues to adopt new methods or by the introduction of education innovations, change is everywhere. Many of the approaches to leading change, such as SWOT analyses, Lewin’s Change Process, Rogers Diffusion of Innovations, and Kotter Eight Steps, have come from the business world. However, much can be easily applied to managing change in medical education, leading to more success.

Intended Outcomes: By the end of this workshop, participants will be able to:
• Articulate an approach to analyzing and implementing change
• List steps in ‘Leading Change’
• Use their own change initiative, to create a plan to successfully implement an educational innovation, organizational or curriculum change.

Structure: Workshop activities will address “So What, Who Cares” about change, why it can be a struggle, and approaches to leading change for success. The discussion and learnings will inform an application to practice, by participants working on a plan for change in their own environment. Case study examples will be used to illustrate various models of change and the CANMEDS2015 initiative will be used to illuminate a change model in action. The workshop will be interactive with small group and individual exercises framed by a handout.

Who Should Attend: Education leaders, program directors, faculty developers, education innovators
Level: Intermediate

Debra Klamen*, Southern Illinois University School of Medicine, USA
David Skar*, University of New Mexico School of Medicine, USA
David Pearson*, Hull York Medical School, UK
Iain Robbe*, Memorial University of Newfoundland, Canada
David Marsh*, Northern Ontario School of Medicine, Canada

#9V Conference Workshop: Excellence in Social Accountability: how can we help develop Medical Schools as agents to improve the health of communities? (23807)
Location: Staff, Crowne Plaza

Jim Rourke*, Memorial University of Newfoundland, St Johns, Canada
Charles Boelen*
Trevor Gibbs*, AMEE, Dundee, UK

Background: This interactive workshop will share good practice in Social Accountability from Schools successful in previous bids for ASPIRE awards. It will consist of an expert panel of colleagues involved in developing the Social Accountability Criteria for ASPIRE and other international bodies and a series of mini vignettes across a range of SA criteria by previous ASPIRE award winners.

Areas of focus will include:
Social Accountability as a mission of the Medical school-strategic and organizational embeddedness
Education of doctors and other professionals – Social accountability in research programmes – alignment and conduct of research
Medical Schools in community development and health service partnerships.

The ASPIRE Social Accountability Faculty also wish to share ideas with the many Schools who are making progress towards doing excellent work but are not yet recognized by the ASPIRE panel.

Intended Outcomes: At the end of the workshop participants will have: Gained insight into good practice in social accountability and explored ways of overcoming obstacles to achieving excellence.
Shared their experiences and ideas with colleagues and ‘experts' in the field
Been inspired and informed to return to their own Schools and make a difference.

Structure: Introductory case study – the context of social accountability; medical schools making a difference to their community.
Small groups: identifying strengths and challenges in developing social accountability.
Further case studies from previous ASPIRE awards winners.
Panel discussion[s) “what is social accountability in a medical school context?” – reflecting on case studies and participant experiences.
Looking forward –the development of social accountability in participant’s own schools.

Who Should Attend: Workshop will be of interest to those wishing to develop this aspect of the mission of their own medical schools or institution, and others interested in the subject seeking ideas and inspiration for their own education, engagement or research work.
Level: Intermediate
Background: There is growing awareness in medical education that feedback is a central element of effective learning and competency development. However, despite a wealth of experience and practice with feedback, the conceptual basis and empirical evidence on how to give feedback is still sketchy. Giving negative feedback, i.e. specific feedback that points to shortcomings in learners’ knowledge or performance is especially challenging as it might question a person’s self-concept or self-confidence (Fedor et al. 2001). This in turn might weaken the constructive and conducive potential that feedback might have for personal and professional development. Against this background, we will discuss different models for feedback and focus on how to give negative feedback in particular.

Intended Outcomes: Participants will 1) share and reflect their feedback experience, 2) give negative feedback, observe and reflect on feedback in a controlled setting, 3) discuss models and conceptual frameworks related to feedback in medical education.

Structure: Initially we will present and discuss different feedback models used in Medical Education and their underlying rationale. Participants will than have the opportunity to exchange their best feedback practices and reflect on why they are doing, what they are doing. We will than practice giving negative feedback in triads (1 feedback giver, 1 feedback recipient, 1 observer) and let people reflect on their experience. Finally, participants will work out take home messages and we will wrap up the workshop.

Who Should Attend: Everybody who is interested in deepening his or her feedback competencies.

Level: Intermediate
#9AA  ePosters: Teaching and Assessing Communication Skills

Location: Morar, SECC

#9AA01 (27161)
Google Glass™: hindrance or help to communication skills teaching

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Heather Holyoak, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Centre for Medical Education, London, UK
Oliver Trampleasure, Virtual Medics, Education Academy, The Royal London Hospital, London, UK
Ali Jawad, Virtual Medics, Education Academy, The Royal London Hospital, London, UK
Dané Goodman, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Centre for Medical Education, London, UK
Shafi Ahmed, Virtual Medics, Education Academy, The Royal London Hospital, London, UK

**Background:** This study explores the use of Google Glass to capture the interaction between medical students and simulated patients during communication skills teaching. Google Glass is a wearable technology whereby the user has a camera integrated into eyeglasses, which records both sound and vision of the wearer. This enables students to see and hear both their own performance and that of their patient. To our knowledge this is the first study in the field with this dual perspective.

**Summary of Work:** Google Glass recorded all the students' interactions, alongside a static camera, and they were able to review their videos through the Virtual Medics portal. The portal also offered a feedback process, to stimulate the students' reflection on the videoed work. To capture the students' learning from this process a mixed method approach was used, including one to one interviews, an online questionnaire and focus groups.

**Summary of Results:** All students noted seeing themselves from the patient's perspective as a positive experience – through providing both verbal and non-verbal information. Wearing the Glass appeared to create mixed feelings from the students, with early analysis noting a sense of unfamiliarity.

**Discussion and Conclusions:** Google Glass recordings gave detailed and unique feedback of students' communication skills. The key value of Google Glass is in providing student feedback through the eyes of the patient.

**Take-home messages:** Google Glass is an innovative and exciting approach to teaching communication skills, which allows students to see their interaction from a variety of perspectives – most crucially their patients'.
#9AA03 (25551)

Does education on communication skills improve efficacy of acute medical condition management?

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Larisa Sabath, Faculty of Medicine, University of Maribor, Maribor, Slovenia
Sebastjan Bevc, Clinic for Internal Medicine, University Medical Centre Maribor, Maribor, Slovenia

Background: Simulation scenarios focused on improving teamwork have been recognized as one of the mechanisms to improve patient safety. The aim of our study was to assess students' efficacy in management of acute medical condition depending on their knowledge on team communication skills.

Summary of Work: We prepared clinical scenario of acute deterioration of chronic obstructive pulmonary disease (COPD) using iStan patient simulator. 18 year-6 medical students randomly divided into six groups were included. A lesson about communication in medical team (use of Situation Background Assessment Recommendation (SBAR), Closed loops communication approach, importance of being a leader/follower) were given to three groups only. We analyzed five steps (correct patient position, adequate oxygen supply, use of salbutamol nebulizer therapy, aminophylline administration, decision about hospitalization) in management of COPD and measured time groups needed to complete the scenario. We compared the results between groups with and without a lesson about communication.

Summary of Results: The groups without communication lessons achieved 66.7% points on average (G1:73.3%, G2:73.3%, G3:53.3%) in comparison to average of 75.6% points achieved by groups with education on communication skills (G4:73.3%, G5:60%, G6:93.3%). All groups that were given the lecture about communication completed the scenario faster (G1:22min42sec, G2:25min26sec, G3:26min25sec, G4:15min5sec, G5:7min39sec, G6:13min5sec).

Discussion and Conclusions: The groups that received additional education managed simulated clinical scenario more efficiently and needed less time to complete the task. Better communication skills enabled students to work as a more organized team.

Take-home messages: Education on communication skills in management of acute medical condition should be encouraged in order to improve medical students' communication and clinical competence.

#9AA04 (26018)

“Challenging patients don't take a young doctor seriously”: Medical students' self-assessed communication skills at the end of their studies

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Eeva Pyörälä, Faculty of Medicine, University of Helsinki, Medipeda, Clinicum, Helsinki, Finland

Background: Communication skills studies (CCS) were started 20 years ago in the Faculty of Medicine at the University of Helsinki. The curriculum is under reform, thereby also CCS are under scrutiny.

Summary of Work: This study aims at examining how graduating students assess mastering communication, how they learn these skills and what challenges they have in communication. The data were collected in the final study year in an optional course entitled “Doctor’s good communication skills”. The students answered an anonymous questionnaire including statements using 5-point Likert scale and open-ended questions. The students were asked an informed consent, and 95 students (97%) participating in the course in 2013 and 2014 admitted.

Summary of Results: The students expressed they understood the value of communication in medical practice. They assessed that they mastered communication skills well (mean varying from 3.17 to 4.45). They rated lowest their ability to discuss risks of complications, effectiveness of care and malpractice with the patient. They considered that the best ways of learning communication were interaction with real patients, observing senior physicians and simulations with actors. The greatest challenges they faced in communication were encountering challenging patients, being able to convince the patients as a young doctor and time management.

Discussion and Conclusions: Students expressed they were prepared for professional communication, but lacked confidence is some areas. The views of the graduating students provide us with valuable insights into what are the areas in need of development.

Take-home messages: Students' self-assessment of their command of and challenges in communication skills at graduation is valuable in the development of CCS.
Communication skills assessment in undergraduate medical students

Sun Jung Myung, Seoul National University College of Medicine, Seoul, Republic of South Korea
Kyung Duk Park*, Seoul National University College of Medicine, Seoul, Republic of South Korea
Yerim Chang, Seoul National University College of Medicine, Seoul, Republic of South Korea

Background: Communication breakdown is a factor in the majority of all instances of medical error. Despite the importance, a relative paucity of time is invested in communication skills in medical education. In this study, we tried to find out the correlation between self-rated communication skills & patient rating and students’ needs for education for communication.

Summary of Work: One hundred fifty-five fourth year medical students at Seoul National University College of Medicine (Seoul, South Korea) participated in this study. The students took clinical performance examination and were asked to answer the questionnaire. Correlation between physician-patient interaction (PPI) score rated by standardized patient (SP) and self-rated communication skill was analyzed.

Summary of Results: PPI score rated by SP was significantly correlated with students’ self-rated communication score (correlation coefficient, 0.339; P=0.000). Most of the students answered that their communication skills are fair or better, but most of them felt hard in communication with patients and their family. Eighty-four percent of students answered that they need education program regarding communication and 50.7% of them wanted education especially communication in special situation such as medical disputes.

Discussion and Conclusions: Students’ self-rated communication score had a significant positive correlation with SP’s rating, but the correlation was not high enough to explain students’ communication skills. Most of them answered that they have difficulties in communication with patients and their family. Tailored education program is needed.

Take-home messages: Self-rated communication skill of medical student has a positive but small correlation with SP’s rating.

Students’ perception of the clinical communication course

Anna Kocurek*, Jagiellonian University Medical College, Department of Medical Education, Kraków, Poland
Michał Nowakowski, Jagiellonian University Medical College, Department of Medical Education, Kraków, Poland

Background: Clinical communication course based on the simulation and role-playing was introduced for 3rd year medical students. It runs parallel and complements introductory courses of medicine, paediatrics and surgery. Cultural issues and lack of previous exposure of faculty and students to this type of conduct was perceived as a possible problem. No data about this type of approach is available from similar cultural circle. We wanted to evaluate students’ perception of this course.

Summary of Work: Anonymous questionnaire was given to students at the end of the course. It consisted of students’ satisfaction test (5 point Likert-type scale) and the open-ended questions about areas for improvement. Descriptive statistics and the Spearman’s rank correlation were calculated.

Summary of Results: Return ratio was 83%. Student satisfaction was high (12% of very high, 58% of high grades). 6% assessed the course as poor. Answers show high correlation with the perception of the quality of the course. 62% of respondents claimed it is necessary or very necessary in the curriculum. 80% of students perceived the difficulty as appropriate. Altered approach and added training resulted in excellent results in communication skills on OSCE. Each student was evaluated 3 times, none of students failed more than 1 assessment and there was 13 failures of 645 assessments (2%).

Discussion and Conclusions: Responders precisely identified some technical issues and difficult topics for future course expansion. More data is needed to clarify why 38% of students were not sure if the course is needed.

Take-home messages: Role-play and simulation based course is well accepted among Polish students. Good coordination with clinics is essential.
Skills, knowledge and confidence in brief motivational interviewing: Using standardized patient encounters to train healthcare providers

Elizabeth J Edwards*, Bond University, School of Medicine, Gold Coast, Australia
Peta Stapleton, Bond University, School of Psychology, Gold Coast, Australia

Background: Studies have shown that patient interactions based on education or advice-giving do not necessarily translate into health behaviour changes. Alternatively, brief motivational interviewing (brief MI) has shown success when applied to lifestyle issues, among other concerns, exercise and dietary changes. A review of brief MI training investigations revealed differences in trainees, training formats and curriculums, however many studies fell short of including adequate; baseline measures, control group comparisons, behavioural skills assessments, follow-up data, and post-training support.

Summary of Work: We investigated the effectiveness of training healthcare providers (e.g., doctors, nurses, social workers, psychologists, counsellors) in brief MI using standardized patient (SP) encounters and targeted eating and exercise behaviour change. We recruited 163 healthcare providers; 128 participants completed a one-day experiential brief MI training workshop including SP encounters, followed by electronic peer-support, and a further 35 matched controls did not receive the training.

Summary of Results: Participant’s knowledge of brief MI and confidence in their ability to counsel patients using brief MI significantly improved following training (p < .05) and remained at 3 and 6-month follow-up (p < .05). Brief MI skills assessed during the SP interactions indicated a significant improvement across two practical training blocks (p < .05).

Discussion and Conclusions: In sum, healthcare providers can learn brief MI skills and knowledge quickly and confidence in their counselling abilities improves and is sustained over time. These results provide a baseline for implementation of brief MI training into the practice of a range of healthcare workers.

Take-home messages: SP encounters are useful in building skills, knowledge and confidence in brief MI.

Simulation of the Professional Conversation

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Kirsten Merete Jessen, Metropolitan University College, Copenhagen, Denmark
Marianne Pilegaard, Metropolitan University College, Copenhagen, Denmark

Background: Communication is one of the major challenges in interactions between the lay public and healthcare professionals. Quality of healthcare delivery requires effective communicators. To support this requires the development of innovative learning methods.

Summary of Work: The project team from the Metropolitan University in Copenhagen, Denmark has developed, tested and evaluated a communication training module for healthcare professional students. This innovative method creates the possibility for students to practice and have an understanding of professional conversations via simulation-based education involving a professional actor. 98 students from five healthcare professions degree programs have participated in a simulation-based training on professional conversations with videotaping and constructive feedback from both students and instructors. The healthcare professions included were midwifery, nursing, occupational therapy, radiography and social work.

Summary of Results: 89.8% of the students indicated that the simulation-based training with an actor has been supportive for their learning outcome ‘in high degree’ to ‘in very high degree’. 83.7% of the students indicated that they expect that the simulation-based education could be beneficial for them in their future profession ‘in high degree’ to ‘in very high degree’.

Discussion and Conclusions: Based on both verbal and written evaluation, the students stated that the simulation-based training with a professional actor was very authentic, motivating and instructive and enabled them to practice “real world communication”. Due to the positive response from students, this training has been incorporated into the regular curriculum of some of the healthcare professional programs.

Take-home messages: Simulation-based training in professional conversations with an actor provides an authentic and motivating educational opportunity with great potential for knowledge and skills transfer to future healthcare professions.
Using simulation-based interprofessional interventions to improve communication skills of providers can enhance quality of care and patient outcomes in type 2 diabetes

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**Background:** Effective self-management behaviors by patients with T2D can reduce co-morbidities, mortality risk, and overall healthcare costs. Challenges in inter-professional (IP) communication in primary care teams (PCTs) and effective patient-provider communication contribute to patients’ disengagement, non-adherence and undermine HCP’s confidence and professional fulfillment.

**Summary of Work:** Our strategy was to provide evidence about importance of communication on T2D patients’ outcomes and to empower PCTs to practice effective communication skills within the context of the disease management. The intervention was a half-day workshop including expert-led lectures, small group break-outs with standardized patients, interactive discussions and take away tools delivered 10 times across the US.

**Summary of Results:** Mixed-methods, time-series, evaluation consisted of pre/post self-assessment questionnaires, evaluation questionnaires and 3 month post qualitative interviews, and pre/post 6 month patients’ chart audit with control. Increased knowledge of promoting positive self-management behaviors and confidence in ability to assess patients’ readiness to adopt treatment plans were observed (both p≤0.001). PCPs’ understanding of the impact of their communication approach on positive self-management behaviors and their role in facilitating adherence both increased significantly (p≤0.001). Patient chart audits revealed significant increase in a number of health management indicators. Patients reported changes in PCPs attitudes and functioning of the PCTs.

**Discussion and Conclusions:** Findings provide evidence of positive impact of IP, simulation-based interventions empowering PCPs to better communicate as a team and with their patients on clinical efficiencies and quality of care.

To ensure sustainable practice changes, it would have been beneficial to conduct additional reinforcing activities post-intervention.

**Take-home messages:** Skills and strategies learned can be effective in other disease management settings.

**#9AA01 (25591)**

Study to validate the assessment checklist used by different facilitators in a Communications Workshop

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**Background:** Be it doctors, nurses, allied health professionals, clinicians or frontline staff, effective healthcare communication is the key to exceptional patient care. Developing an effective communication teaching programme is a challenge. The focus of the 2 day workshop at the Singapore General Hospital is for participants to demonstrate their current skills level in a role play with a standardized patient using standardized care scenario & checklist and then comparing them post workshop using the same scenario & checklist to assess their improvement.

Participants are taught various communications tools: attending behaviours, listening skills, goal-setting & closure, which form the assessment checklist.

**Summary of Work:** The pilot study is to evaluate inter-rater reliability of the facilitators using 10 (out of 36) video clips of participants, recorded for both pre & post workshop. These video clips are graded with a 3 point scale (0, 1 & 2). The hypothesis is that the Grading scale used for evaluating communication skills does not have significant differences between different facilitators or assessors, ie inter-rater reliability or consistency. A training session of an hour was given to the identified facilitators to review 2 video recordings and agree on the various skills in the assessment check list.

**Summary of Results:** The kappa k correlation coefficient for inter-rater reliability will be calculated.

**Discussion and Conclusions:** The Grading scale used for evaluating communication skills does have slight differences between the different facilitators. Not all the skills assessed are consistent among the facilitators. This could be subjective, based on the facilitator’s experiences, expectations and biasness.

**Take-home messages:** Qualitative measurement of skills assessment is very subjective. To have an effective measurement, the checklist has to be “tight” so that individual facilitators’ experiences, expectations and biasness can be limited.
Communication skills learnt through skills based training methods

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Background: For Health care professionals, effective and good communications is essential for quality patient care and safety. Communication consists of a number of skills that are not easy to teach using the usual didactic or even practical class demonstration method and even harder to assess for competency.

Summary of Work: Participants attended a 2-day communications skill training workshop and were required to demonstrate their current skills level in a role play with a standardised patient using a standardise case scenario commonly encountered in the health care environment with patients, supervisors and colleagues. Communication tools were taught in the 4 categories: a. Introductory and non verbal skills; b. Listening and summary skills; c. Motivation and Goal setting skills; d. Summary and closure skills.

Summary of Results: 75 participants from 5 workshops participated in the workshop. There were 8 skills in the 4 communication categories that were assessed and on the repeat role play, there was a significant improvement of the scores by the participants in all the 8 skills using Wilcoxon Signed Rank tests.

Discussion and Conclusions: Results from each cohort of trainees have confirmed that this method of skills based training using role plays before and after teaching to assess their competency does have a great impact on their learning. Almost every trainee found the workshop useful in learning communication skills and that they could also continue to practice with their colleagues, friends and family.

Take-home messages: Communication requires complexed skills that are not easily acquired unless taught in a skills based method.
Open Source AV solution supporting In Situ Simulation and Clinical education

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Background: In situ simulation is simulation done in the actual clinical environment exceeding the simulation immersion compared to that of the embedded simulation centers and facilitating an increased realistic learning experience. Doing this without compromising (all) the educational principals used in simulation centers, we sought to include an audio-visual (AV) system for video assisted debriefing (VAD). The difference being that components must be portable and adaptable to a range of clinical environments. A mobile AV system would ideally feature: Multi camera video capture capability; Time tagging; Rapid or instant playback capability; Lightweight and compact design; Non-cabled AV recording; Simple, reliable set up and operation.

Summary of Work: Commercial products did not meet our requirements why a programmer was hired to design and program the software to meet our expectations for a portable AV system for VAD. The system would make use of components widely available and easily replaceable. The developed AV software and coding is contracted to be available as Copyleft Open Source to ensure low cost and a potential continues improvement and expansion of the AV system.

Summary of Results: GintasView ver 1.3 includes the possibility for time tagging using a mobile device. After simulation the time tagged file is exported to the AV software on the laptop and appears as an integrated video feed/timeline.

Discussion and Conclusions: We have found that it is possible to deliver multi-camera video assisted debriefing in a mobile, in situ simulation environment using an AV system constructed from “off the shelf” components and Open Source software.

Evaluation of chest compression during cardiopulmonary resuscitation using a high-fidelity simulator

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Background: High-fidelity simulators are increasingly being used in healthcare education. At our university, physiology is taught to students majoring in healthcare informatics for the purpose of learning basic life support (BLS). Use of a high-fidelity simulator makes it possible to perform a quantitative learning assessment. In this study, we report assessment of BLS performed by our students.

Summary of Work: The subjects were 12 first-year students. After being taught how to perform cardiopulmonary resuscitation (CPR), the students then practiced CPR and finally were evaluated in a BLS scenario. In this scenario, an adult male suddenly becomes unconscious and goes into cardiac arrest. Students were asked to perform CPR for 90 seconds. CPR performance was assessed using log data from the high-fidelity simulator and student peer review.

Summary of Results: The compression depth decreased from 45 mm to 35 mm on average from the start of CPR to 90 seconds later. Compression depth and the time of performance of CPR showed a strong negative correlation (r = -0.823). The mean number of compressions was 130 per minute during CPR and the number of compressions was only weakly correlated with the time of CPR (r = 0.276). Student peer reviews for all sessions indicated that “students performed CPR precisely”.

Discussion and Conclusions: As time passed during CPR, the number of compressions remained almost constant, but chest depth decreased gradually. This result indicates that the students learned the correct compression rate, but that the depth achieved was still poor. This shows that the peer evaluation of the chest compression depth was incorrect. Thus, the quantitative evaluation used in the study is thought to be effective for BLS training.
Development of an In-situ Team Based Postpartum Hemorrhage Simulation Curriculum and Simulator Modifications

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Background: Postpartum hemorrhage is among the leading causes of maternal mortality in the United States and the highest in the developing world. Recognizing potential risk factors, symptoms, and active management of the third stage of labor are essential for identifying and treating postpartum hemorrhage. The goal of this project was to extend the SimMan3G Advanced Patient Simulator capabilities to include postpartum hemorrhaging suitable for high-fidelity obstetric team based simulation. The simulation is part of a larger curriculum that focuses on closed loop communication using the TeamSTEPPS model and process improvement.

Summary of Work: A SimMan3G was retrofitted with a modified Simulab episiotomy trainer. The episiotomy trainer was modified to have hemorrhaging capabilities, a more realistic female genital anatomy with a 4th degree vaginal tear. This model was designed to be used in conjunction with a custom designed postpartum simulation scenario for a multidisciplinary team involving physicians, nurses, secretaries, and other allied health disciplines. The simulation is part of a larger curriculum that focuses on closed loop communication using the TeamSTEPPS model and process improvement.

Summary of Results: Initial anecdotal reviews had favorable responses. The participants did not require additional familiarization with the model.

Discussion and Conclusions: Comprehensive team debriefing with attention to reflective practice was essential to reinforce learning objectives and gauge participants understanding. Future research will include assessing if the participants in the postpartum hemorrhage simulation scenario improved competency and ultimately if this reflects in an improvement in clinical patient outcomes.

Take-home messages: In our experience interdisciplinary team-based simulation is an effective learning tool for teaching postpartum hemorrhage management.

Flipped Learning Simulation Practice in ACLS and ATLS, a Life Saving Procedure

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Background: Teaching procedural skills comprise of non-patient cycle practice both in knowledge and skill. However, in some skills that are very crucial because it means live or death to the patient such as advanced cardiac life support (ACLS) and advanced trauma life support (ATLS), practice must be far beyond simple checklist.

Summary of Work: Thai Medical students learned ACLS and ATLS and practice with manikin in their fifth year. Sixth year medical students at Hayai Hospital were assigned to self review simulation scenario from VDO before simulation practice in class. In ACLS scenario one medical student was assigned to be a doctor, three medical students will be nurses in CPR team. In ATLS scenario one medical student will be emergency physician, another two will be nurses in a team. The rest will closely observe and feedback to a team, then medical teacher will emphasize critical errors. Satisfaction score was evaluated using 1-5 rating scale.

Summary of Results: Forty four medical students participated in ACLS and thirty eight participated in ATLS. Mean satisfaction score for ACLS was 4.70 and 4.58 in ATLS. The participants were satisfied with this kind of flipped learning and asked for much more scenario for further practice.

Discussion and Conclusions: Simulation, based training in simulated environment is valuable means of teaching high risk procedure, it can emphasize and correct critical errors to improve patient safety.

Take-home messages: This simulation practice should be done and it could be Interprofessional education to practice team working skill.
Effectiveness of Simulated Aneurysm Diagnosis & Coiling in Cerebral Angiography

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Background: Cerebral angiography is a minimally invasive, but complex procedure requiring acquisition of both fine motor and spatial reasoning skills. Current patient-dependent training methods pose significant cost, time, and patient risk. Simulation training can subside these unfavourable risks, while providing individualized educational modules. This study assesses the benefit of simulation training in cerebral angiography using an alternating curriculum.

Summary of Work: Eight residents (4 radiology/4 neurosurgery) and 8 anatomy graduate students were administered 3 tests each to assess visuospatial ability, as well as an anatomy e-learning module and competency test. The participants were trained on the Simbionix™ angiography simulator in order to assess skill acquisition. Participants had 8 and 6 sessions learning to diagnose cerebral aneurysms and treat them by filling them with coils, respectively, practicing with either consistent or alternating cases.

Summary of Results: After 8 sessions of diagnostic angiography training, amount of contrast injected decreased by 50%, number roadmaps used decreased by 35%, amount of fluoroscopy used decreased by 77% and total procedure time decreased by 76%. An error analysis is currently being completed to gage appropriate vessel selection in spatially problematic anatomical regions for the trainees, such as the brachiocephalic trunk.

Discussion and Conclusions: This data can be used to tailor training case scenarios in order to create efficient medical pedagogy.

Take-home messages: Simulation can provide effective, individualized training for spatially complex procedures, such as angiography, while providing quantitative performance data and reducing risk, cost and strain on attending physicians.

SMART, Simpad Manikin And Relevant Training

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Background: This project started with a willingness to answer the following questions: (1) How can we make the simulation as a learning tool more accessible? (2) How can the CSC (Clinical Skills Center) create an instrument where the departments themselves can continue its work with CRM principles after ordinary simulation training in the Clinical Skill Center?

Summary of Work: The group will simulate SMART and should be representative of the workplace (maximum 8 persons). The simulation should be able to play out "in situ". For example, the overlap time between dayshift and nightshift where two scenarios should get done within 60 minutes. The instructor is usually a person from the department who have got a SMART instructor training at CSC. The purpose of the simulation is clarified by using the CRM deck (a vital part of the SMART-concept). Each playing card that is laid out on the table is a CRM perspective with its explanation on the back. Before the simulation the group will clarify the meaning of these five cards (eg what constitutes a closed loop?). The instructor emphasizes that these cards should be the basis of their way to work in teams during the simulation. The simpad is pre-programmed to react to the participants' actions (eg. improving the patient's oxygen saturation at adequate oxygen administration.) After the scenario, participants gather for debriefing.

Take-home messages: By identifying departmental needs, we believe that CSC can find new simulation forms where implementation and participation can lead to a lasting simulation work with CRM and with patient safety in focus.
Simulation, students assessed, treated, and updated the chart of a simulated patient: 78-year-old man with suspected pneumonia. Students listened to the chief complaints, assessed the physical signs, and charted relevant data.

**Summary of Results:** Students performed the simulated consultation within 2–7 min. Using EMR data and video recordings of each training session, we evaluated the charting skills, e.g., during consultation or examination whether critical signs, such as wheezing, indicating serious pneumonia patient in the patient were overlooked.

**Discussion and Conclusions:** Our students recognized severity of a health condition during a medical consultation session and appropriately updated the patient’s medical record.

**Take-home messages:** Teaching medical charting using patient simulators is highly effective for improving HIM skills and is better than the previous training methods.

#9BB08 (24380)  
Limited efficacy of a single cardiac-auscultation training class using a high-fidelity simulator during pre-clinical clerkship

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**Background:** Efficacy of high-fidelity simulators in medical education is still controversial.

**Summary of Work:** A total of 324 fourth-year medical students (93-117/year for 3 years) were divided into groups of 7-8 students, and participated in 3-hour cardiac-auscultation training using patient simulators (“K”, Kyoto Kagaku). After a mini-lecture and facilitated training, the students took two different tests using the simulators. In the first test, they listened to three sounds of Category A (C-A) (non-split S2, respiratory split S2 and abnormally split S2) in random order, but being informed that those three were from C-A, and identified each sound. The students answered in the same way regarding C-B (S3, S4 and S3+S4) and C-C (aortic stenosis, aortic regurgitation, mitral regurgitation and mitral stenosis).

In the second test, the students listened to only one from each of the three categories in random order without any category information, and identified each. The accuracy rates were 87%, 86%, 93% for each sound of C-A, 73%, 73%, 67% for each of C-B, and 89%, 81%, 78%, 77% for each of C-C, respectively (n=324 for each). In the second test, the accuracy rates were 51%, 59%, 60% for C-A, 49%, 65%, 43% for C-B, and 95%, 71%, 78%, 67% for C-C, respectively (*P<0.0001 vs. first, n=77-114 for each).

**Discussion and Conclusions:** The accuracy rates were lower in the second test, which was closer to clinical setting than the first test.

**Take-home messages:** A single training class using a high-fidelity simulator alone may not be sufficient to achieve competence necessary for clinical clerkship.
Incentivising laparoscopic deliberate practise in Core Surgical Training

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Background: Frequent practise using laparoscopic simulators improves subsequent live operating skills. Achieving automation of motor movements prior to live training optimizes training by freeing the trainee’s attention for higher skills. Despite these advantages, trainees tend not to avail themselves of opportunity for laparoscopic practice. We aimed to address this by incentivising frequent laparoscopic practise within Core Surgical Training.

Summary of Work: 27 Scottish Core Surgical trainees in their first general, urology or paediatric post were given take-home laparoscopic simulators with instrument-tracking software and assigned six online modules to complete. Support was provided via social media and a helpdesk. Achievement of metric targets and uploading pre-specified data merited an eCertificate. Once achieved, supervisors progressed trainees from camera-holding to operating (the incentive). Trainee views of the intervention and laparoscopic practice were assessed by questionnaire.

Summary of Results: Trainee self-rated anxiety of laparoscopic operating reduced after the study. 94% of participants thought simulator practise was worthwhile, and a useful adjunct to training. 76% would recommend this programme. 88% reported improved confidence and motor skills. 41% of participants completed > 1 modules. 19% completed all. Comments indicated reasons for this, including the need to integrate simulation into curricular structures.

Discussion and Conclusions: Despite incentivising practice, with 24/7 access to simulators and high acceptability to surgical trainees, uptake of simulation and deliberate practice remained poor. Feedback provides clear indicators of how to maximise uptake of laparoscopic simulator practice.

Take-home messages: This first study to “incentivise” laparoscopic practice, indicates that, to fully engage trainees, laparoscopic practice must be fully integrated into training and assessment of progress within training.

The role of whole body video monitoring and feedback in a laparoscopic simulation laboratory

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Background: Awareness of posture and ergonomics is lacking in many surgeons performing laparoscopy. Position and technique need to be stressed early in training. No randomized study has shown the usefulness of videography giving feedback to a surgeon during the procedure. This is a randomized prospective study of videography feedback in a laparoscopic simulation laboratory.

Summary of Work: We provided a short introductory laparoscopic instrument and handling teaching session to medical students, and asked the students to return after 3 weeks to reassess their skills. Students were randomized into a videography and non-videography group to practice their skills and perform a peg transfer. The videography group reviewed their individual video before practicing and performing the timed task again at the interval assessment. The time difference was calculated between interval and initial times. A univariate analysis was performed for our outcome and possible confounders.

Summary of Results: A total of 18 participants with 36 assessment times were studied. Age and gender were similar between the two groups (p= 0.66, 0.63 respectively). There was no association between gender and time difference (p=0.38). The time difference for the videography and non-videography group was significantly different (mean time = 49.00+/−6.4, and 29.11+/−6.4 seconds respectively; p = 0.034).

Discussion and Conclusions: The group receiving video postural feedback was able to perform the timed task faster on average.

Take-home messages: Video feedback can increase the efficiency of laparoscopic teaching, and may be a useful tool in resident education and training.
How hands-on virtual reality simulator sessions improve career expectation in medical students – a Romanian study

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Background: Little research addresses how medical students develop their choice of specialty training in Romanian medical schools. This study examined if previous exposure to real-life and simulated immediate care specialty-specific scenarios has a role when medical students formulating their specialty choice.

Summary of Work: 75 Romanian medical students from preclinical and clinical years were asked to participate in a survey regarding factors influencing specialty choice. Each medical student was required to pursue theoretical gastroenterology training, training in patient management for gastroenterology various medical and surgical specific scenarios, hands-on endoscopy and ultrasound simulator sessions, followed by an examination to validate all technical aptitudes. We qualitatively analyzed the data to identify factors students consider when choosing a future medical specialty.

Summary of Results: 75.87% of students found the demonstrations highly valuable, and students perceived a significant increase in their understanding of gastroenterology specialty (P<0.01). Additionally, 62 per cent of students with previous interest in gastroenterology and 10 per cent of students without previous interest in gastroenterology reported increased interest in pursuing gastroenterology careers. Preclinical experiences or simulation sessions in the curriculum and aspects of patient care such as the clinical ward environment, charismatic mentors were important factors for choosing the specialty. Real-life experiences were better received than simulated practice.

Discussion and Conclusions: Preclinical and clinical exposure to real-life situations, as well as role models are reported by Romanian students as important factors when choosing a future specialty. Additionally, hands-on demonstrations generate interest in gastroenterology that would otherwise be absent in the preclinical years.
#9BB13 (28301)
Mannequin-based Simulation versus Mobile Content for Improving the Confidence of Preclinical Medical Students performing Leopold’s Maneuvers

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Background:  Leopold’s maneuvers is the most common skill performed in obstetrics. Incorporating a mannequin and mobile content into training provides a safe, low-stress environment in which preclinical medical students are able to gain skills and receive formative assessment.

Summary of Work:  This study aimed to determine medical students’ performance and confidence in Leopold’s maneuvers after using 2 instructional media; mannequin (M) and video based mobile content (V). All of them attended traditional lecture, and learned from video based mobile content prior to performing maneuver using mannequin. At the completion of the block, they were asked to complete the questionnaire which assesses knowledge and self-confidence in Leopold’s maneuvers. Paired T test was used to analyze difference in knowledge and confidence between those instructional media.

Summary of Results:  Sixty medical students completed the obstetric clinical skills training. There was more gain in knowledge and understanding after learning with M than that with V significantly (P<0.001 and P=0.03 respectively). In the same way, the students’ skill showed more improvement after the practice with mannequin (P<0.04). Whereas, there was no difference in Leopold maneuver interpretation between both groups (P=0.52).

Discussion and Conclusions:  Mannequin increased both knowledge and confidence in ability to perform Leopold maneuver, when compared with mobile content at the completion of introduction to clinical medicine block rotation. Interpretation after Leopold maneuver should be performed with medical staff to check accuracy and feedback to medical students.

Take-home messages:  Mannequin reported increased knowledge and confidence in ability to perform Leopold maneuver added onto traditional lecture.

#9BB14 (27607)
Simulation-based Competency Assessment in Crisis Resource Management (CRM): A Framework for EM resident evaluation

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Background:  The EM milestones consist of 23 core competencies in EM practice. Since non-technical skills are more difficult to evaluate objectively, we introduce high-fidelity mannequins to evaluate the performance of ED residents in core competencies of EM milestones.

Summary of Work:  The Emergency Department of Chang Gung Memorial Hospital employs high-fidelity mannequins to accurately judge ED residents by using “scenarios” during board exams. 24 persons participated resident exams in 2013 summer, 2013 winter, 2014 summer, and 2014 winter. Each exam contains 2 OSCE scenarios. Each scenario takes 10 minutes, and is evaluated by checklist. We divide the checklist into 4 domain; primary assessment, diagnostic actions, therapeutic actions, and communication. Statistical difference between 4 components of the EM resident levels is performed.

Summary of Results:  Interrater reliability for the scores was good but varied between scenarios. We found a statistically significant difference in performance across 4 components of the EM resident levels. Senior residents outperformed in all scenarios than junior residents (p < 0.001 to 0.01), especially in therapeutic actions and communication.

Discussion and Conclusions:  CRM skills are progressive abilities, and simulation is a useful modality for tracking their development. Our study supports the use of CRM ability in individual learners over the course of residency training in EM.

Take-home messages:  High-technology simulation is seen increasingly as an important learning aid. This study suggest the creation of a high-fidelity simulation assessment tool for trainees in emergency medicine.
A study of high fidelity simulation in pre-clinical to clinical transition in third year medical students

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Background: High fidelity simulation training is used at a range of different stages throughout medical training in the UK. We hypothesize that high fidelity simulation in the early clinical training of medical students may ease the transition and anxieties experienced by students.

Summary of Work: Third year medical students at a UK medical school in their first week of clinical training were selected to take part in A-E assessment of an unwell patient small group high fidelity simulation scenarios using SimMan.

Summary of Results: 35 participants were recruited. Confidence in A-E assessment significantly increased by mean difference of 31.86% [n=35 (95% CI 24.23-39.48, p<0.0001)]. Participants felt simulation had a specific role in easing the transition from pre-clinical to clinical training, mean increase in agreement 7.90% [n=35 (95% CI 1.32-14.50, p=0.02)] after simulation.

Discussion and Conclusions: Many trusts use simulation for their junior doctors to teach technical and non-technical skills for their transition from medical school to foundation training. It is possible simulation in early clinical training aids transition. Students found simulation to be a highly effective way of learning clinical medicine. It increased their confidence in A-E assessment as well as alleviating anxieties in approaching acutely unwell patients.

Take-home messages: Simulation can be a highly useful learning experience for students early on in their clinical training. It also is a highly effective method of teaching and learning specific skills and attitudes.

Effects of training methods for rectal palpation in cattle on students' performance and self-evaluation

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Background: Veterinarians in large animal practice tend to become herd health managers. Successful fertility management is a key component to good dairy herd management. Educational programs have changed only marginally to match this requirement. Integration of a bovine rectal palpation simulator into an undergraduate veterinary curriculum could be demonstrated (Baillie et al. 2005). Effectiveness of prevailing teaching methods is vague to first hands-on sessions in rectal palpation of genital organs in cattle.

Summary of Work: Aim of this study was to find out to what extent integration of simulators has advantages in comparison with theoretical instructions, especially previous to first hands-on experience. Therefore students (n=73) were asked to participate in one training session either including the use of simulators (Haptic Cow© n=25, Breed’n Betsy© n=25) or a theoretical session (n=23). Furthermore, students’ self-evaluation was subject to a questionnaire.

Summary of Results: Results show that simulator training has positive effects on student self-efficacy. Especially perceived success during assessment is greater in groups who underwent simulator training than in the group with a theoretical training session. Simulator training results in a more realistic performance rating as well as in a more successful performance during assessment on live animals. No significant difference was found between the different simulators used.

Discussion and Conclusions: Previous knowledge (e.g. anatomy) and haptic experience can influence the results. While the focus in education should be put on animal welfare, using simulators is recommended in teaching first hands-on experience in rectal palpation in cattle.

Take-home messages: Beside animal welfare aspects, simulator training is an effective technique for students to obtain certainty in skills.
AnatomyTable: An interactive designed experience for veterinary anatomy and physiology education

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Background: 3D digital simulation represents a new phenomenon in veterinary education. When such technology is leveraged to prepare students for clinical encounters it should map to the curriculum and solve challenges associated with traditional instruction.

Summary of Work: AnatomyTable provides a 3D canine model displayed on a large touch screen and can be dissected by body system. Additionally, students are able to complete virtual surgical techniques. To reinforce course objectives AnatomyTable allows faculty to link to course notes. IRB approved focus groups were conducted to evaluate acceptance of this technology to support existing curriculum and glean feedback for AnatomyTable enhancements.

Summary of Results: A sample of 66 students was surveyed. 95% found AnatomyTable Very Helpful (n=39) or Somewhat Helpful (n=24); with 50 (66%) Very Willing to use it and 14 (21%) Somewhat Willing to use it. Finally, 40 students (61%) were Very Satisfied with AnatomyTable and 14 (21%) Somewhat Satisfied. Qualitative results form open-ended questions were consistent with quantitative results.

Discussion and Conclusions: Students in this study were accepting of educational technology as a tool to support their existing curriculum. By involving students in the technology piloting process researchers discovered important design information and insight about the technology. Additionally, through completed student questionnaires and focus group discussions researchers gained feedback for technology and content enhancement.

Take-home messages: The presented information provides impetus for inclusion of digital simulation for veterinary education. While researchers believe students are accepting of the presented technology, teachers and researchers alike should understand further investigation is required to determine if this technology has an effect on learner outcomes.
#9CC01 (24119) 

The stairway to health: A community-based education programme on exercise promotion in a University Hospital

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Background: Community-based education (CBE) refers to learning activities that use the community extensively as a learning environment. CBE enables students to experience the health needs of society. In our urban community, lack of physical activity is a priority health problem.

Summary of Work: We designed a CBE teaching programme for medical students. Twenty six students in 4 groups supervised by teachers designed, implemented, analysed and reflected on an intervention to promote exercise in the community. The study included 4 phases; each phase lasted 2 weeks on consecutive weeks. Students acted as observers. The first phase consisted in registering the number of persons entering the hospital using the stairway (SW) or the escalator (EC). Each intervention was added to the previous. The first intervention consisted of the display of calories wasted in each step with stickers (S); the second one, announcements (A) posted at the beginning of the stairway and the third one, the distribution of brochures (B). Chi-square test was used for comparisons.

Summary of Results: Phase one (no intervention) included SW 880 and SC 9,264 persons; phase two (S), SW 1124 and SC 9029; phase three (S+A), SW 1514 and SC 9784; and phase four (S+A+B), SW 1213 and SC 7159 (all differences p< 0.00). Also, comparisons showed an incremental significant difference of approximately 2% for each intervention in favour of the use of SW (p<0.00). Students reflected about the impact of community interventions on the promotion of exercise.

Discussion and Conclusions: CBE is fundamental for students to develop the ability to incorporate principles of behaviour change appropriate for specific populations within a community.

#9CC02 (27072) 

Community healthcare activities in the areas devastated by the Great East Japan Earthquake elicit favorable changes in medical students in Japan

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Background: We provided medical students in Japan (MS) with 3 or 4 day community healthcare activities in areas devastated by the Great East Japan Earthquake (DA) during long vacations.

Summary of Work: 82 MS participated in our program between July 2011 and March 2014 at different times. After the activities, we asked them if they thought that this experience would change their attitude to study (AS), their career plan (CP), and if they wanted to work in the DA in the future. We asked the same questions in a follow-up study in December, 2014.

Summary of Results: Just after this program, 91% and 87% of the participants answered that their AS and CP would be changed, respectively. 88% answered that they wanted to work in the DA. 52 participants answered the same questions in the follow-up study. 60% of the respondents answered that their AS had actually changed - they were studying harder than before. 50% answered their CP had changed - they had become interested in community medicine or working in the DA due to the program. At least 7 of the 38 participants who have now graduated are actually working in the DA as physicians.

Discussion and Conclusions: More than 50% of respondents answered that their AS and CP had actually been changed by this program in both the first and the follow-up study. Participating in the program changes the AS and CP of MS.

Take-home messages: The experience in the DA causes favorable changes in the participants. It may increase the number of physicians who contribute to community medicine.
Experiences with clinical rotations in nursing homes in medical education

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Background: Tomorrow’s physicians have to deal with a rapidly growing ageing population. Despite being the largest institutional level in our health care system, Norwegian medical students have so far not been trained in nursing homes as part of their undergraduate training.

Summary of Work: In 2013, a pilot program of two weeks clinical rotation in nursing homes for medical students was established at the Faculty of Medicine in collaboration with the Oslo municipality. The students, who were in the last years of the study, were supervised by a physician at each nursing home. They were trained in clinical skills and procedures according to a written manual. Evaluation of the pilot was done by interviews of students and supervisors.

Summary of Results: The pilot included 38 medical students and 22 supervisors at 16 different nursing homes. The evaluation showed that both students and supervisors found the training very useful. The students reported improved skills in communication with elderly patients and their next of kin. They were engaged in multidisciplinary team work, particularly in medication review and in the end-of-life care. The students were surprised about the large extent of advanced medical treatment in nursing homes.

Discussion and Conclusions: Nursing homes are important learning arenas for undergraduate medical students. This work-based training should be part of the medical curriculum. 

Take-home messages: An aging population calls for physicians skilled in treatment of elderly patients. Nursing homes are important learning sites for work-based training in clinical skills, communication and multidisciplinary teamwork.

Home visit experience: A Medical school curriculum

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Background: Incorporating home care in medical school training for students to understand psychosocial, economic and community factors as the determinants of health, we have set home care sessions for undergraduate medical students at Faculty of Medicine, Ramathibodi Hospital, Thailand.

Summary of Work: The fourth year medical students have scheduled to visit chronic patients during Family Medicine rotation with multidisciplinary team. They had two half-day home visit sessions (one-month-interval) and chart review for preparation prior to each visit with multidisciplinary staffs. Finally, there is summary session for discussion with further plan.

Summary of Results: Half of fourth year medical students were included in the study (N=84). The 5-point Likert scale was used to evaluate the home visit attitudes, skills training, and satisfaction. The scores revealed higher in domain of attitudes towards home visit practice for 4.03±0.56 (mean±SD). However, they scored lower in the domain of confidence in performing home based therapy and home visit skills for 3.42±0.75 and 3.65±0.52 respectively, with at least 8 students felt considerably unconfident. Moreover, the students’ satisfactions with our home care curriculum was scored just 3.67±0.59.

Discussion and Conclusions: Our three sessions of home visits and discussion may be effective to establish home care attitudes for students, however it was not sufficient to make the students gain confidence and enough skills. Thus, more home visit lessons should be implemented into the curriculum. By the way, the students had only moderate satisfactions with our home care lessons and staffs, so we plan to revise the home care curriculum in next semester.

Take-home messages: Home visits have allowed the students to understand the patients’ contexts, home service delivery, the multidisciplinary team work and community as the quality medical care. However, our two half-day lessons had provided only the attitudes but not enough confidence and experience.
Medical student reflection on palliative home care experience

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Background: Palliative care has been identified as a core component in undergraduate medical curriculum in many medical schools. Educational technique may vary in each medical school. Prince of Songkla University provided learning experiences to students including lectures, communication skill workshop, palliative home care and case conference.

Summary of Work: Since 2012, fifth year students who rotated to the division of family medicine were assigned to do 3 palliative home visits and attend 1 case conference. Students were divided into small groups. Each group visited 1 palliative care patient. After their first patient visit, students discussed palliative care issues with their assigned preceptor. Then, they conducted a further home visit. Later, each group prepared a case presentation to multidisciplinary palliative care team. After the conference, students do one more home visit. At the end of the rotation, students wrote their reflection on their palliative home care experience.

Summary of Results: Students reflected that they had some experience to work with home care team; they gained palliative care knowledge and skills; they will use palliative care concepts with their future practices; they had gained more insight about ways of life and human life cycle; this experience reminded them of their role to take care of their own family members in the future.

Discussion and Conclusions: From students’ reflection, palliative home care experience has several aspects of recommended educational strategies for palliative care education including experiential learning, multi-professional learning, occasion for self-reflection and group discussion and integration of ethical and psychological considerations. Palliative home care experience is one method of an effective educational experience.

Take-home messages: Palliative home care experience gives an opportunity for medical students to learn palliative care issues.

Attitudes and satisfaction of medical students of the Faculty of Medicine, Vajira Hospital, Navamindradhiraj University, towards community service

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Background: The Faculty of Medicine, Vajira Hospital, Navamindradhiraj University is located in the center of Bangkok. Therefore, improving quality of life of communities around the hospital is one of the main policies. Thus, community service activity is now integrated into several subjects including the clinical pathlogy course.

Summary of Work: A questionnaire was used as a tool to assess the attitudes and satisfaction of 72 third-year medical students enrolled in the clinical pathology course and participated in the community service activity.

Summary of Results: The attitudes and satisfaction of the students toward the community service activity were at the high level (mean = 4.00 and SD = 0.63) and moderate level (mean = 3.08 and SD = 0.59), respectively. In addition, a significant relationship between attitude and satisfaction of the students was observed with p value of 0.0001 and correlation coefficient of 0.7765. There was no significant different between male and female students.

Discussion and Conclusions: The results from this study suggested that the most of the students had positive attitudes and satisfied with the community service activity. However, the results can be used to improve the management of this programme to benefit not only students but also people in the community.

Take-home messages: Community service activity can be used as a mean to enhance medical students’ attitudes toward their community and society.
Pre- and post-attitude and change towards elderly care of second-year medical students after activity participation at a retirement facility

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Background: The aging population is growing at an alarming rate. The physician’s attitudes, awareness and skills require constant improvement. The study objective is to identify the medical students’ attitude and change towards Elderly care before and after participating in the elderly’s health promoting activity at Tammapakorn Retirement Center.

Summary of Work: This experimental study utilizes the second year medical students from Suranaree University of Technology. A self-answer questionnaire is used as a data collecting tool. The collected data is then divided into three categories consisting of general characteristics of the sample population, the pre-attitude and the post-attitude towards elderly care after activity participation. The questionnaire used was translated from the validated UCLA Geriatrics Attitude Scale measuring rating scale. The full score rating is five. The related statistical data analyzed in this study are Mean, Standard Deviation and Paired Sample T-Test.

Summary of Results: From 79 medical students, 78 answered the questionnaire representing 98.73% in which 53.8% are male and 46.15% are female. The students’ GPA falls in the range of 3.0 - 3.5 (50%). Per knowledge and experience in elderly care, most students have little to none (66.67%). The analytical comparison of elderly care, pre- and post-attitude is found to have distinction in statistical implication (p<0.01). In addition, the average score for each question is found to be higher for the post-attitude’s score.

Discussion and Conclusions: The medical students’ attitude towards elderly care is found to be positive. After the activity participation, the positive attitude is changed to be more positive.

Take-home messages: This attitude change can be implemented in medical school curriculum in order to continuously promote positive attitude towards elderly care and geriatrics which leads to social and planning for the growing aging population.

Transformative Medical Education in community: Attitude toward research base learning and problem base learning

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Background: This study aim to assess the medical students’ attitudes toward research base learning (RBL) in community and compare their attitudes between problem bases learning (PBL) in the classroom.

Summary of Work: 4th year medical students from medical school of Suranaree University of Technology (2014) participated in this study. A comparison was made of attitudes toward the epidemiology subject between students in two, continually, the problem base learning, knowledge and skill of epidemiology taught predominantly by medical teacher in the format of PBL in classroom and RBL with community diagnosis, survey in the community and then students referred to as the Questionnaire.

Summary of Results: The results, a total of 48 (22 Males and 26 Females) students completed data collection. Attitude scales were administered in two successive classes of students. The good level attitudes toward PBL and RBL, were received in which the higher level attitude toward the RBL (p<0.01), respectively. Most of participants was highly satisfied with this RBL and its pressure their perceived value of epidemiology.

Discussion and Conclusions: In conclusion, this finding shows that modification in educational methods in general and relevant, RBL in community experience in particular can favorably influence students’ attitudes toward epidemiology.

Take-home messages: Transformative Medical Education in community: modification in educational methods in general and relevant, RBL in community experience in particular can favorably influence students’ attitudes toward epidemiology.
Chemical risk assessment of the farmers using applied occupational medicine tool by medical students

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Background: Risk assessment in occupational medicine is a good way to identify problems and to determine safe working practices. Therefore medical students learned about risk assessment by using an occupational medicine tool which involved camping out in the community as well as formal classes.

Summary of Work: A camping experience for medical students was coordinated by the hospital on the subject of health promotion, to examine the working practices of farmers in relation to chemical use. The students interviewed the farmers using a questionnaire as an applied-occupational medicine tool. The data were collected and analyzed by descriptive statistics.

Summary of Results: The results from 54 respondents were that the chemicals mostly used are paraquat and glyphosate. The unsafe actions of the farmers are that they did not wear protective rubber gloves (51.58%) and that they ate or drank in the workplace (50%). The medical students analyzed and applied the results to give the correct advice and knowledge to farmers.

Discussion and Conclusions: Most of the farmers have moderate to high risk in chemical use and lack the understanding for working with chemicals. Health care workers should be aware of this and medical students’ experience can be of use in the future.

Take-home messages: Learning from real application of risk assessment using an occupational medicine tool allows medical students to assess risks, to plan and to give advice on safe working practices.

What had students really learned in community-based hospital?: a qualitative evaluation of learning program

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Background: The 4th year medical students were assigned to spend one week program in community-based hospitals which expected them to improve knowledge, attitudes, and clinical skills (history taking, physical examination, and provisional diagnosis). This study aimed to explore what they had really learned and to evaluate their achievement of learning objectives.

Summary of Work: A qualitative evaluation was conducted among 50 students who had experiences of learning in a community hospital. They were invited to write their reflection regarding what they had learned and to participate in focus groups. All students participated in written reflection and 8 students were selected based on their reflective writing took part in 2 focus groups interview. The discussions were audiotaped and transcribed for content analysis.

Summary of Results: Main contents of learning were understanding about hospital administration, informing health promotion and health education, realizing role of physicians in primary care, and adapting to work in rural area. They reflected that they had rarely learned practicing clinical skills. Most of them indicated that one week was too short to learn in needed topics.

Discussion and Conclusions: We found that contents what students had learned unmet the prerequisite learning objectives. Clinical skills may not appropriate for one-week program in community-based hospitals. Curriculum should be revised to ensure the achievable objective objectives. Learning in a community hospital can form the medical experiences for students as physician in primary care. Then, exploring the specific content what they had really learned in that context is necessary to develop appropriate program to enhance active learning and conduct effective educational experiences.
Elective community extension activities: contributions to the undergraduate training of health professionals

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Background: In the training of health professionals, community outreach activities comprise the elective care network, qualifying the training of students and health care. This study investigated the standpoint of students about the contributions that participation in community extension project offers for their education.

Summary of Work: Through a descriptive exploratory design, this study addressed 24 students from four different health courses (semi-structured questionnaire -Google docs). Qualitatively, content analysis identified empirical categories (open questions); in quantitative terms the frequency of categories was obtained.

Summary of Results: Along the study period (2010-2012) 59 students received scholarships from the Community Extension Program, in 36 approved projects in FMRRP-USP. A predominance of projects involving the direct care to the community (61%) was identified. The content analysis of 117 testimonials allowed the identification of three categories on the main contributions to the training of undergraduates.

(1) “Developing specific skills” (40.7%), (2) “Personal / Professional Development” (39.3); (3) “Integration theory-practice” (20.5%).

Discussion and Conclusions: The speeches revealed that guided insertion of practical activities from the beginning of undergraduate through community extension activities allows the approach of students to the field of action and specificities of the profession, enabling them to develop skills that may not have been acquired in the lectures. The elective extramural activities also found to be important for enabling the acquisition of procedural skills, a challenge to the training of health professionals.

Take-home messages: The diversification of learning scenarios is a powerful tool for curriculum transformation, approaching students of people's lives and developing critical scholars glances, facing the real population needs.
Community psychology as “Door to community” can help medical students in Inter-professional skill: A qualitative research

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Background: Working with others and understanding the patient’s cultural background and beliefs lead to acceptance and sympathy for the patient. As teamwork is important in patient care, the medical students of Vachira Phuket Medical Education Center were taught community psychology in 5th year to evaluate the skill to work with patients and medical staff.

Summary of Work: We carried out a group interview of the 5th year medical students (recorded mp3) about concepts of community psychology applied to their daily work with others in the professional health team. We analyzed qualitatively data by using SCAT (steps for coding and theorization).

Summary of Results: The medical students believe this subject is about understanding the different individuals that they have to deal with such as patients, relatives, and colleagues had got the knowledge to work with patients and relatives to the doctor’s treatment. Moreover it can be used for community health projects where they are motivated to adjust their health behavior such as in the Muslim community. One student said “Community Psychology is the door to the community”. This knowledge leads students to understand and accept the patient who refuses the doctor’s treatment and it can be used to get important data from patients, relatives, and the inter-disciplinary health team such as the nurse, pharmacist, physiotherapist, psychologist and nurse aid.

Discussion and Conclusions: The medical students applied community psychology in daily practice as "Door to the community". The majority apply it to patient care, to understanding the patient’s way of life, culture, belief, determination, and acceptance of their doctor’s treatment.

Take-home messages: The medical students should had community psychology skill before they work with the community.

The effect of a study tour in a disaster area on medical students’ interest in local healthcare

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Background: After the Great East Japan Earthquake, disaster areas have faced a serious shortage of physicians, especially on the Pacific coast. In addition, it has been observed that some medical students are uninterested in providing medical services in this area, as they do not know the seriousness of the situation.

Summary of Work: We designed and conducted a compulsory study tour for first-year medical students that consisted of exploring some affected areas and listening to a lecture on the disaster. Then, we administered a questionnaire about the study tour. The main questionnaire items included an evaluation of the tour, students’ impressions of the sites as places where they might want to work, etc. Students noted their responses on a 5-point Likert scale, ranging from 1 (worst or weakest) to 5 (best or strongest).

Summary of Results: The questionnaire was answered by 121 students, 93% of the total number. Regarding the evaluation of the tour, the average rating was 4.08. A comparison of ratings before and after the tour of the places where students said they might want to work showed a significant increase for rural areas (2.90 vs. 3.27), disaster areas (3.33 vs. 3.68), clinics (2.74 vs. 3.03), and small medical facilities (3.25 vs. 3.48).

Discussion and Conclusions: This study tour increased medical students’ interest in working in rural areas, disaster areas, and small medical facilities. Further studies will need to investigate which specific factors were beneficial.

Take-home messages: The study tour in the disaster area was a useful way to increase medical students’ interest in local healthcare.
#9CC15 (24802)
Northern Family Medicine Residency Teaching: A Qualitative Study of the experiences

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**Background:** Across Canada, family practice training takes place in widely distributed sites, including rural, northern settings far from the main campus. At the University of British Columbia, the Family Practice Residency Program is distributed into 16 teaching sites, across the province, over 900,000km2. Over half of the 800 plus family practice preceptors teach in a rural community. Given some of the challenges identified in the postgraduate program at these distributed sites, we wanted to learn more about the teaching experiences of preceptors in northern BC communities.

**Summary of Work:** This qualitative study aimed to develop a better understanding of the teaching experiences of preceptors in rural northern communities. Twelve preceptors (6M:6F) from northern British Columbia completed semi-structured interviews about their day-to-day experiences with residents, teaching in their community, and their relationship with the residency program. Interviews were recorded, transcribed and coded, the resulting data reviewed, and emergent themes identified by the research team.

**Summary of Results:** The data revealed that challenges, facilitators, and rewards of teaching in northern training sites arise from the individual resident, the prior experience and professional identity of the preceptor, the isolation of the community and the larger program characteristics. While some experiences mirror those of preceptors everywhere and in every discipline, some appear to be unique to preceptors in northern communities.

**Discussion and Conclusions:** Preceptor challenges are generally well understood; however, those specific to preceptors in northern rural communities are less well articulated.

**Take-home messages:** With more information, we can design better support mechanisms to ensure sustainability of these preceptors, one of our most valuable educational resources.

#9CC16 (26907)
Perception of Brazilian medical school teachers and students on curriculum integration based in cases from the primary health care

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**Background:** National Directives on Medical Curriculum 2001 & 2014 adopted community-based learning and integrated curriculum between basic, clinical and humanistic science through problematization of the experience in primary health care.

**Summary of Work:** Seven focus groups with 60 students, and semi-structured interviews with 23 teachers in four medical schools were conducted. Two public and two private schools, were chosen to identify factors associated with success and failure of curriculum integration experiences.

**Summary of Results:** Professors perceived as factors leading to success: student participation in clinical practice, patient contact, use of real cases, bringing together teachers of basic and clinical sciences, and commitment to teaching. For students, the success factors are: observing clinical consultations, teacher facilitating learning, teacher’s profile, and small group discussion. As factors that contribute to failure, teachers mentioned: lack of students’ commitment to case discussions, teachers commitment to learning, teaching time dedicated to the integration activity. Students indicated as failure factors: lack of teachers’ commitment with teaching and integration activities, not aligning with integration objectives, and lack of educational program evaluation.

**Discussion and Conclusions:** To reach an integrated curriculum success, the different perspectives involving professor and students should be considered to plan and redesign. Conclusion Teachers and students agree that profile of the facilitator and commitment for the learning process, patient contact, discussing real cases are factors that contributed to the success of the integration strategy. Strategy should continue, and be evaluated periodically.

**Take-home messages:** The use of real cases is a powerful strategy, which is can reach the maximum potential when teachers are prepared to promote reflection.
Factor Influencing choice of medicine as career in Myanmar

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Background: In Myanmar, choosing a medical university as their choice of university can be done after passing matriculation exam which is known as 11th grader. Depending on matriculation marks, they can apply to choose university in Myanmar. Some of the most popular universities amongst are medical universities.

Summary of Work: The aim of this description is to understand perception of young doctors on factors influencing their choice of medicine in Myanmar. A questionnaire survey was conducted to attendants of continued medical education course.

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

Take-home messages: It is essential to know why students chose medicine as their career to develop feedback on updating curriculum development and medical education and training in Myanmar.

“Could I be a doctor? ” Pre-doctor experience camp for Senior high school students in Taiwan

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Background: In the past, the career of Doctor is enviable worldwide. Actually, some medical students give up their learning because they don’t like the “real life” in medical training. Therefore, we try to create an experience camp for senior high school students and help them to realize what is involved in the job of Doctor. It could help them to make the correct choice in the future.

Summary of Work: 40 senior high school students participated in this camp. The camp was held for 5 days. We arranged many medical trainings as Interns/Residents including history taking, physical examination, OSCE, duty on call, and clinical skills.

Summary of Results: During 5 day-curriculum, the result showed 40 students have more interest to be a doctor and their target becomes clearer or more definite by Pre-camp and Post-Camp questionnaires.

Discussion and Conclusions: If we want to choose suitable medical students, we could offer some opportunities to help them realize what their job involves in the future. This Pre-doctor experience camp tries to create a simulated environment to help students make their best decision before they become doctors.

Take-home messages: This Pre-doctor experience camp tries to create a simulated environment to help students make their best decision before they become doctors.
#9DD03 (27653)
Why they choose to be medical doctors?

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Background: Being a physician is a decent and well-paid career in Taiwan. This makes it very competitive to become medical student. Medical schools in Taiwan recruit senior high school students who are not totally sure of what career best fits their personality or interests. Therefore, others’ opinions, such as family, could play key roles. This study aimed to discover why medical students choose medical school, and link their evaluation on medical professionalism.

Summary of Work: The participants are 150 first- to fourth-year medical students in Taiwan. Self-reported questionnaires cover five dimensions—i.e. medical knowledge and clinical skills, interpersonal skills, teamwork, public health duty, and protection of patients’ rights. We ask students to list the most significant motivation. Motivations include family expectation, personal interests in medicine, social status benefits from medical career, expected income, job security, superior academic performance, and intention of saving lives. Data was collected from April to May, 2014.

Summary of Results: Most respondents place ‘personal interests’ as their first motivation. Family expectation comes second. We separate two constructs, internal and external motivation. Internal motivation includes items such as personal interests, and to save lives. External motivation includes family expectation, and superior academic performance. Those who choose internal motivation tend to place five dimensions of medical professionalism more important than those who choose external motivation.

Discussion and Conclusions: It is common that graduates from senior high school choose medical school because of external motivations, such as superior academic performance, and family expectation. Lots of medical students had their career chosen for them instead of choosing their career. Those who are externally-motivated students adapt their professional identity in more passive ways. This study reveals self-motivation plays an important role.

Take-home messages: This study suggests it is better to recruit medical students who want to be physicians on their best intentions. For the self-motivation driven students, they are willing to accept their physicians roles.

#9DD04 (27823)
Students’ early motivations for four medical specialties: results of a comparative study

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Background: Workforce planning to fulfill society needs is a central public health issue and has consequences for medical education. Evidence suggests that career preferences at the beginning of undergraduate training seem to impact definitive career decision. Little is known about motivational factors towards different specialties. We aimed to explore motivational factors and their relationship to students’ degree of motivation for four specialties.

Summary of Work: At the beginning of years 3 and 4 (out of 6), 200 medical students (115 women) indicated on a 6-point Likert-scale their degree of deterrence (=1)/attractiveness(=6) regarding 12 different factors list as well as their degree of motivation (1=low to 6=high) for four specialties (Surgery (SUR), Family medicine (FM), Radiology (RAD), Psychiatry (PSY)). Linear regression was used to analyze how these factors predicted the degree of motivation for each specialty.

Summary of Results: Students reported an average motivation for FM and SUR (3.5) and a lower motivation for RAD and PSY (2.8 and 2.7, respectively). Intellectual challenge was the strongest predictor of SUR motivation ($\beta=.22$), long-term patient relationship for FM ($\beta=.25$), role model for RAD ($\beta=.20$) and career opportunities for PSY ($\beta=.30$). Being a male significantly predicted motivations for SUR and RAD ($\beta=.17$ and $\beta=.21$, respectively).

Discussion and Conclusions: Students’ early motivations were specific to each considered specialty. Male gender predicted SUR and RAD motivations.

Take-home messages: Investigating students’ motivational factors for specific medical specialties could help defining efficient strategies to encourage career choices meeting society needs.
Undergraduate medical education - is inspiration the missing ingredient?

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Background: As medical students we observed lack of motivation for medicine amongst peers that appeared linked to ‘learning-for-exams’ behaviour. We therefore founded a student-run Careers Conference: inspireMEdicine, aimed to inspire, excite and enthuse students about their careers. Research was conducted to establish whether there was low motivation, if the remedial aims were met, and whether it should recur.

Summary of Work: inspireMEdicine consisted of a one-day series of thought-provoking talks, debates, a medical-entrepreneur challenge, poster presentations and workshops. Student leadership and emphasis on inspiration, is what made the day a unique multispecialty-platform for students. Post-conference, 9 semi-structured interviews were recorded with delegates and 10 via email. Transcripts were qualitatively analysed using long-table technique.

Summary of Results: Content analysis confirmed low motivation. Analysis revealed a demand for ‘something to inspire and motivate’ confirming ‘the conference really provided’ that, as it left students feeling ‘empowered,’ ‘reinvigorated’ and ‘proud to join the club,’ inspireMEdicine was viewed as a ‘niche in the market,’ and one that ‘needs to grow and be made available for more students.’

Discussion and Conclusions: inspireMEdicine is unique: it deals with intangible constructs, such as motivation and inspiration. inspireMEdicine’s success highlighted the power of student-lead initiatives and the importance of greater student involvement in their education and careers. Our study confirmed low motivation and found that participation in a student-run initiative seems to have an effect on restoring motivation.

Take-home messages: Student-run initiatives aiming to inspire peers about their careers seem to be rejuvenating, and needs ‘to grow and be made available to more students.’

Mandatory internship increases the number of students considering a career in elderly care

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Background: The number of health professionals specialised in elderly care is insufficient for the aging population. Two out of eight Dutch medical faculties have a mandatory elderly care internship. The research question is whether medical students at these faculties consider elderly medicine significantly more often as their future workfield.

Summary of Work: In November 2013, 14,570 student members of the Royal Dutch Medical Association were invited to participate in a digital survey. Interns were asked whether they completed an internship in elderly medicine and were asked their top three preferred future specializations, including the reasons for choosing or not choosing elderly medicine.

Summary of Results: After two months, 2739 participants were included (response rate: 18.8%) of which 1,278 were interns. 23.5% of interns completed an elderly medicine internship of which 69.3% mandatorily. Interns who completed the internship mandatorily preferred elderly medicine significantly more often than interns who didn’t complete the internship (9.6% versus 3.8% respectively, OR 2.71, 95%CI 1.536-4.765). Reasons for choosing elderly medicine were the patient population (18%), making the difference for the patient (18%) and pleasant experiences (12%). Reasons for not choosing elderly medicine are the patient population (23%), working environment (23%) and unfamiliarity (15%).

Discussion and Conclusions: At faculties where the internship is mandatory, significantly more students consider elderly medicine as their future workfield. Considering the aging population, getting medical students engaged with elderly medicine is of great social importance.

Take-home messages: Unfamiliarity is a major barrier for medical students for choosing a career in elderly medicine. Introducing a mandatory internship could significantly increase the inflow.
Caring for all creatures great and small: a qualitative analysis of senior veterinary students’ career choices

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Background: The career aspirations of veterinary students appear to be mismatched for projected veterinary careers in “One Health.” Currently, graduates tend to predominantly choose careers in species-specific, small animal, private practice. In the meantime, there has been a profound gender shift in veterinary medicine since the 1970’s, from male-dominated (11% women), to highly feminised (80% women). Understanding how students make career choices influences how we prepare graduates better for future career opportunities in the health professions.

Summary of Work: How veterinary students make career decisions was examined, through the narratives that they construct about their career pathways. Data from semi-structured, open-ended interviews with senior veterinary students in a professional programme in the United States was coded and analysed. Particular attention was paid to the influence of gender on students’ career choices, through the lens of feminist standpoint theory.

Summary of Results: The way in which the participants discussed their specialty choices was gendered, with men expressing an aversion to the emotional work of caring, and preferring instrumental specialties and systems-based practice. In contrast, women talked about the appeal of the relational and emotional aspects of practice. Work-life balance was valued by both groups, but influenced career choice differently for men and women.

Discussion and Conclusions: This study provides insight in the recruitment and training of veterinary students for varied career paths, and illuminates some of the causes and effects of feminisation. This has implications for curriculum development and how educators mentor students around career choices.

Take-home messages: Socialised gender expectations influence career specialty choices, and hence the future of the health professions.

Making psychiatry fun: a multidisciplinary approach in teaching medical students

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Background: Evidence suggests a positive experience of psychiatry as a student can increase recruitment to this specialty post-graduation. Imperial College London’s School of Medicine has a novel approach that introduces four key professionals in mental health to students in a ‘speed dating’ format.

Summary of Work: Students across five cohorts in 2014 and 2015 were asked to complete an evaluation questionnaire including these questions:
1. The ‘speed dating’ structure of this workshop improved my awareness of different professionals involved in the assessment of mental illness and their role.
2. My understanding of how professionals liaise with each other and the referral pathways in primary and secondary care has improved as a result of this workshop.
3. I would value more workshops with multiple professionals like this in other parts of the medical course.

Summary of Results: There were 175 respondents in the cohort in total from 215 students, a response rate of 81%. 95% of respondents (n=167) answered ‘Agree’ or ‘Strongly Agree’ to Question 1. Over 90% of respondents (n=159) agreed or strongly agreed with Question 2. 77% of those surveyed (n=134) agreed or strongly agreed with Question 3. The free text responses indicated an improved understanding of the roles of all professionals.

Discussion and Conclusions: Our results suggest that a multiprofessional approach to teaching psychiatry is effective in engaging students and improving their understanding of professional roles, especially those with which they are less familiar.

Take-home messages: There may be potential to apply this method of learning to other specialty modules within the medical undergraduate course.
The Specialty Choice by Fresh Medical Residents in Minas Gerais State, Brazil

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Background: The specialty choice for medical residency and its influencing factors have been investigated worldwide. Despite of an increasing demand, reducing preference for general practice by the undergraduate students is a growing challenge. The knowledge of these factors could be used to propose changes in the medical school curricula, hoping to better match the population needs.

Summary of Work: A population of 277 residents admitted at four Brazilian public medical schools answered a questionnaire containing questions on personal, familial and socioeconomic factors potentially related to specialty choices. The medical specialties were divided in four groups (Primary Care, Clinical, Surgery and Others, the last including a miscellaneous group). Factors associated with choice of Primary Care practice were evaluated with OR and 95% CI in bivariate and multivariate analysis.

Summary of Results: The questionnaire was answered by 188 residents (67.9%). The main influencing factor to any specialty choice was the "controllable" lifestyle and, specifically to Primary Care choice, was the personal interest on this area during graduation (36.6%), increasing 7.3 times the chance to choose a specialty in this area by multivariate analysis (p<0.0001). High workload and disappointing experiences with patients at the specialty training were important unfavorable factors in general.

Discussion and Conclusions: The "controllable" lifestyle was the main general factor to drive the specialty choice. The importance of the personal interest in Primary Care reinforces the relevant role of the medical schools to prepare more doctors for general practice.

Take-home messages: Arouse the interest for Primary Care during the medical graduation may be the bottom line to increase the workforce in this area.

Medical Students’ Interest and Perceived Barriers towards Academic Medicine Careers at Alfaisal University—College of Medicine: The First Published Report from Saudi Arabia

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Presenter: Sana Kadan*

Background: Recruiting high-calibre medical workforces into academic medicine (AM) careers remains an international dilemma. Little is known about the medical students’ interest and perceived barriers towards AM careers.

Summary of Work: An online, anonymous, cross-sectional, self-rating (5-point Likert scale) survey was administered to second- and third-year students at Alfaisal University—College of Medicine, Riyadh, Saudi Arabia. This is the first Saudi Arabian study that explored students’ demographics, interest and perceived barriers towards AM careers. Quantitative statistical analysis was performed.

Summary of Results: 259 students participated in the survey (response rate: 81%). 73 students (28.2%) decided pursuing AM careers. Using chi-square test, the percentage of students desiring AM careers significantly differed by gender (male vs. female: 64.4% vs. 35.6%; p<0.001), previous research experience (yes vs. no: 89% vs. 11%; p<0.005), and teaching interest (yes vs. no: 79.5% vs. 20.5%; p<0.000). The top 3 perceived barriers were: "preference for direct clinical patient-care" (77.9%), "lack of mentors/role models" (76.1%), and "lower financial rewards" (74.6%). Using Mann-Whitney U test, there were statistically significant mean differences between males and females regarding the following barriers: "male-dominated career" (3.2 vs. 4.1; p<0.03), and "work-family imbalance" (3.3 vs. 3.9; p<0.04).

Discussion and Conclusions: Our results largely echoed the Western literature. AM careers remain unpopular among students, particularly females. Highlighting the significance of AM careers, rectifying the gender-biased and institutional disincentives, and affording research, teaching and mentoring opportunities are plausible solutions.

Take-home messages: The future of AM careers remains threatened. It is important to stimulate medical students’ interest (particularly females’) in AM careers. All cultural and institutional related barriers should be resolved.
Supporting the future: developing opportunities for a career in dermatology

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Background: Career tasters aim to support junior doctors make career decisions, but do they deliver the necessary experience? In order to address this issue, the UK’s first week long career placement programme in dermatology was created.

Summary of Work: Aim: To design, deliver and evaluate the dermatology career placement programme. Qualitative, case study design utilising communities of practice theory. Sixteen postgraduate trainees (FY2-ST2) were recruited by competitive national application to five-day career placements from 2010 - 2014. Placements included; induction (identifying learning objectives), shadowing a Specialist Trainee Mentor (STM), observing consultant practice and attendance at trainee teaching sessions. Each candidate compiled a portfolio and received written feedback from their STM and the programme director. Candidates and STMs completed semi-structured questionnaires at one week and at 6 months after placement. Data was transcribed and emergent themes identified and categorised.

Summary of Results: Participants valued the varied programme (14/16), career planning (12/16) and immersion in practice (14/16). Personalised feedback and portfolio creation were considered essential and unique to this programme (16/16). Ten candidates have entered specialist training in dermatology, two are intent on applying and four actively chose alternative careers. STMs valued their role as it broadened their educational portfolio (7/8), developed leadership, supervision and mentoring qualities (7/8).

Discussion and Conclusions: Well designed career placements offering experiential learning through immersion in a community can give high quality exposure to a specialty facilitating informed career decisions.

Take-home messages: Similar placements in multiple specialties should be developed: identify ST trainees to act as mentors, include development of a portfolio and provide individualised career advice.
Factors Influencing Canadian Medical Students' Choice of Specialty

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Background: The purpose of this study is to uncover what factors influenced medical graduates’ career choice in family medicine, surgery, and internal medicine.

Summary of Work: This longitudinal study aggregates data from CaRMS’ Post-Match Survey of Canadian Medical Graduates. The goal of the survey is to address issues concerning medical graduates.

Summary of Results: From 2003 – 2014, interest in family medicine increased (8.9% increase) while interest in surgery decreased (3.9% decrease), and little change was found in interest for internal medicine (0.2% decrease). Differences in factors that influence career decisions have also been found between specialties. Last, significant differences between male and female choice will also be discussed.

Discussion and Conclusions: Graduate discipline choice is an important determinant of the distribution of specialties and associated training locations across the country.

Take-home messages: Understanding the characteristics associated with career choice can assist residency institutions in determining the characteristics, motivations, and needs of residency applicants.

Achieving a Balance with Specialization - Secondary Analysis of a Systematic Review

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Background: The number of medical disciplines in Canada and around the globe increased exponentially. The narrowing scope of practice and expertise, while often appropriate to develop focused expertise in a particular clinical area, may lead to fragmentation of care that can be detrimental to the quality of health service delivery. Which medical disciplines are currently thought to embody generalist principles? The objective of this research is to explore the use of the terms “general…[ism][ist]” in the context of various medical disciplines.

Summary of Work: This study is a secondary analysis of systematic review data. For all included studies, disciplines implying the practice of generalism were tracked. Descriptive statistics were used to analyse the data.

Summary of Results: 1230 articles associated 38 disciplines with the terms “general…[ism][ist].” Disciplines that were most frequently associated with “general…[ism][ist]” included Family Medicine, General Internal Medicine, Pediatrics, General Practice and Primary Care, which represented 87% of the collected data.

Discussion and Conclusions: This is the first study that clarifies which current medical disciplines are associated with embodying generalist principles. Generalism remains a long standing component of traditional disciplines (e.g., Family Medicine). To a much lesser extent, a number of other specialties are embracing generalism as well (e.g., Geriatrics). Our research informs initiatives that promote higher quality of specialized care and elevation of social accountability through experience in diverse learning and work environments while ensuring the right mix, distribution, and number of physicians.

Take-home messages: Based on the published literature, there is a need to emphasize generalist values in multiple existing medical disciplines to prevent unnecessary fragmentation of care.
Tracking Pediatrician Graduates From Prince of Songkla University: Where Do They Go?

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Background: The Department of Pediatrics, Prince of Songkla University (PSU), southern Thailand has been qualified for pediatric residency training since 1985, with 4-6 residents/year during 1985-2002 and 6-10 residents/year since then. Up to the present, 145 pediatricians have been graduated from our institute.

Summary of Work: PSU pediatrician graduates from 1988-2014 were surveyed for their career paths.

Summary of Results: From 1985 to 2014, of the total 157 applicants accepted for pediatric residency training in our institute, 145 (92.4%) graduated while 12 (7.6%) resigned before completing the program. After graduation, 73 (50.3%) finished a further fellow training programs. All 145 pediatric graduates could be located, and their current positions are: 34 (23.5%) in a medical school, 17 (11.7%) teaching in a medical education center, 15 (10.3%) working in a provincial hospital, 10 (6.9%) in a community hospital, 27 (18.6%) in a private hospital in Bangkok, 26 (17.9%) in a private hospital in southern Thailand, 4 (2.8%) in a private clinic, 6 (4.1%) in the USA, 6 (4.1%) currently pursuing specialist training.

Discussion and Conclusions: Overall, 112 (77.2%) were, at the time of the study, working in Southern Thailand and 33 (22.8%) were working in Bangkok. About 60% of them found work in the public sector and 40% in private sector.

Take-home messages: All of our pediatric graduates have achieved career success. We are satisfied that our program is successful, as most of our graduates find work in the field of their specialty.
Evaluation of formal mentoring between faculty and medical students: A Survey of Students and Faculty’s Perception of the Mentorship Program at Alfaisal University

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Background: At Alfaisal University College of medicine, a formal one to one mentoring program was introduced two years ago with a scope covering academics, life cycle counselling along with career plans.

Summary of Work: The main aim of this study is to evaluate the mentors’ as well as the mentees’ feedback regarding different aspects of the mentorship program through a self-developed questionnaire. Two different questionnaires were drawn up: one for the mentors and one for the mentees.

Summary of Results: Medical students from year 1 through 3 filled a total of 384 questionnaires: 59% were female respondents while 41% were male. About 17% of mentees reported meeting with their mentors after exams, whilst 12% reported meeting every other month. Also, 40% of the students reported receiving a response from their mentor within hours. Moreover, lack of motivation and lack of communication were identified to be the main challenges standing in the way of this mentor-mentee relationship. Additionally, only 20% of the students felt that their mentors supported them in time of weakness. A student t-test showed statistically significant responses (p<0.001) for mentors providing constructive critique and demonstrating competence in the student’s area of needs when compared within other groups. Statistical analysis showed that the level of satisfaction from the mentorship program was highest among the year three students.

Discussion and Conclusions: We conclude that an effective as well as tailored program based upon improved communication and easy accessibility will most likely lead to a successful program. Furthermore, providing mentors with mentees’ academic results can lead to improved mentor-mentee relationship.

Take-home messages: Formal mentorship program is helpful in guidance, academic growth and professional development of students.

The role of preclinical GPA in a predictor of clinical GPA and cumulative GPA in medical students

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Background: GPAs are the results of learning processes. Early detection of incompetent medical students via GPAs is necessary for helping them. The relationships between preclinical GPA and clinical GPA should be evaluated.

Summary of Work: GPA records were collected from 153 medical students at the Maharaj medical education center between 1999 and 2008. The relationships between preclinical GPA and clinical GPA and cumulative GPA were analyzed using Pearson correlation and a mixed-effects linear regression.

Summary of Results: The mean cumulative preclinical GPA, cumulative clinical GPA and cumulative GPA were 2.89, 2.95 and 2.94, respectively. We found a positive correlation between cumulative preclinical GPA and cumulative clinical GPA (r = 0.77; P< 0.0001). For every 0.5 scale increases in cumulative preclinical GPA, cumulative clinical GPA increases 0.35 (P< 0.001). In addition, the correlation coefficients between GPAs and cumulative GPA ranged from 0.41 to 0.89. Moreover, the third-year had a highest correlation with both cumulative clinical GPA and cumulative GPA. As the third-year GPA increases 0.5 scale, the cumulative clinical GPA and cumulative GPA increase 0.29 (P< 0.001) and 0.35 (P< 0.001), respectively.

Discussion and Conclusions: Preclinical GPAs had positive correlations with both clinical GPAs and cumulative GPAs. The third-year GPA was more suitable to predict both cumulative clinical GPAs and cumulative GPAs. Students with a low preclinical GPA should have been advised and supported.

Take-home messages: Preclinical GPA can be used as a predictor of medical student competency in clinical years.
#9EE03 (27157)
Plan B: Clinicians’ perceptions of an innovative Fitness to Practise program

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Background: The impact of underperforming students upon clinical educators has been documented. In a demanding role, the common paradigm is to provide ‘more of themselves’ to students with ‘limited alternative strategies’ (Bearman et al., 2012). This work offers a Plan B for students with Fitness to Practise (FTP) issues, a potentially larger burden involving health, competency and professionalism concerns.

Summary of Work: An innovative FTP policy (Lo et al., 2014) was implemented utilising student self-declaration and support-strategy development, before entering the clinical environment. As FTP policies traditionally identify student support retrospectively, this proactive strategy reflects requirements of self-regulating professions. An anonymous survey of physiotherapy clinicians, conducted across eight health-services, gained perceptions of managing student FTP.

Summary of Results: Eighty surveys were completed. 60% clinicians supervised at least one student with FTP issues. Reported issues were clinical competence (76%), mental health (51%), professionalism (47%) and physical health (36%). Clinicians reported concerns managing mental health issues with 55% ‘extremely non-confident’ to ‘neutral’ on a visual analogue scale. Respondents (69%) were aware of the FTP self-declaration. Clinicians (61%) felt ‘supported’ or ‘very supported’ by the FTP policy.

Discussion and Conclusions: Student FTP issues impact the majority of clinicians. Consequently student support-strategies may positively impact clinical educators. Whilst clinicians are confident supporting commonplace clinical competence issues, mental health issues are a concern. The current strategy will be discussed across three themes: clear framework, awareness and policy implementation/uptake. Clinicians held positive perceptions of students proactively self-declaring FTP. Further dissemination is required.

Take-home messages: Engagement with clinical educators is essential in program evolution. Clinicians may benefit from FTP training including mental health first-aid.

#9EE04 (27423)
Early determinants of academic performance at the final MBBS examination among students in a South Asian university

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Background: 10-20% of students fail at the final MBBS first attempt. It is useful to identify determinants of poor academic performance early in the undergraduate period.

Summary of Work: A self-administered questionnaire was completed by one batch of students in the beginning of the second year, regarding A/L results, learning and studying approaches and self-perceived English proficiency. The associations between their final MBBS examination results and first year examination results, English proficiency and learning approaches were analysed using Spearman’s rank coefficient and chi square test.

Summary of Results: 150 students (males 54%) completed the questionnaire (response rate = 77.5%). Most were successful at the final MBBS examination in their first attempt with 1(0.6%) first class, 15(10%) second class upper division, 60(40%) second class lower division and 52(34.6%) simple passes. 22(14.6%) failed. Final MBBS results showed significant correlations (p<0.01) with end-of-first year examination total (r=0.608), physiology (r=0.664), anatomy (r=0.568) and biochemistry (r=0.609), and the average at 1st(r=0.632), 2nd(r=0.587) and 3rd (r=0.665) continuous assessments. Final MBBS results showed weak or no association with first year learning and studying approaches [no correlation with deep (r=0.073) and strategic (r=0.022) approaches, weak correlation with surface (r=0.261, p<0.05) approach] and A/L examination Z score (r=0.188, p<0.05). There was however a significant positive association with self perceived English proficiency (p<0.001).

Discussion and Conclusions: First year academic performance and English proficiency are strongly associated with final MBBS results. Early undergraduate learning and studying approaches and A/L performance have less influence on final MBBS results.

Take-home messages: Early support for poor academic achievers and enhancing English language proficiency may improve final MBBS performance.
A case study on the shortcomings of the students who failed clinical performance examination

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Background: Specific and actionable feedback has a positive impact on clinical performance. We explored the shortcomings in clinical performance of the students who failed national medical licensing examination.

Summary of Work: The subjects were 13 students in Chonnam National University Medical School who failed Clinical Performance Examination (CPX) in the Korean Medical Licensing Examination, 2012–2014. We analyzed the results of CPXs which were implemented in their final year of medical school and composed of 6 clinical cases. During a CPX, one standardized patient evaluated the students’ clinical skills such as history taking, physical examination, and counseling and the other evaluated the patient-physician interaction. Afterward, we reviewed the videotapes of their interaction with standardized patients and assessed their performance based on the SEGUE framework, a checklist of medical communication tasks.

Summary of Results: The CPX results of 9 (69.2%) students were in the bottom 15th percentile in their peer group. All nine students had insufficient clinical skills of history taking and physical examination. Four of them also showed lack of patient-physician interaction. These four students were less likely to make a personal connection during the encounter and express caring, concern, empathy.

Discussion and Conclusions: The students who failed the CPX had poor performance in eliciting patients’ information or interacting with patients.

Take-home messages: Students with poor performance should develop clinical skills in gathering relevant information and communication skills in building rapport. Specific feedback would be helpful to identify and remedy the shortcomings in clinical performance.

Guidance path for freshmen by The Study Guidance Center (SGC) at the VUB Life Science Campus

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Background: The main goal for the SGC is to guide students during their transition from secondary school towards higher education. To meet this objective, a new initiative was developed: the guidance path.

Summary of Work: The guidance path for freshmen is linked to a number of courses with lower study output. Elaboration of this path is possible by an extended cooperation between the SGC and lecturers and assistants. Counselling sessions can be related to the courses, but can also be cross-curricular. Different activities are organized throughout the year, such as pretests, Q&A sessions, study- and exam skills training, mid-term tests and feedback sessions. These activities can take place both in group or individually. Participation is not required, but is strongly recommended by both the SGC and lecturers.

Summary of Results: Through an analysis of the participation rate we can conclude that there are more personal contacts between student counsellors and students. This allows us to notice and solve student problems more efficiently. Yet it remains difficult to motivate those students that are most in need of study guidance.

Discussion and Conclusions: We have to continue these actions for several more years in order to get a clear view of how students deal with this follow-up project. A qualitative analysis will be necessary to improve our actions and to increase student participation. Starting next year, pretests with personal feedback will be mandatory for all first-time freshmen.

Take-home messages: Early detection of possible deficits and rapid remediation are nowadays part of the core business for guidance centers. This is beneficiary for both students as educational institutions.
#9EE07 (25476)  
The challenges for medical students with specific learning difficulties and the support needed for safe practice  

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**Background**: The prevalence of specific learning difficulties (SpLD) in medical students appears to be increasing, albeit there is variation in incidence of SpLD in the respective UK medical schools. Some students are diagnosed post-admission to their programme. Schools are required legally to provide ‘reasonable adjustments’ for students with a confirmed diagnosis. However, NHS partners also deliver medical programmes, where few clinical tutors are university employees, and the education responsibilities are not always well-defined or acknowledged. This study has sought to identify the challenges of medical students in workplace-based learning and the support that would further facilitate their education.  

**Summary of Work**: Medical students with a declared SpLD were invited for one-to-one interviews, where confidentiality was assured and written consent gained in advance. The question formats explored challenges for placement learning, current support available as well as the areas that might be augmented to enhance the student experience. The interviews were recorded, transcribed and data subjected to thematic analysis using NVivo.  

**Summary of Results**: The issues raised included the direct impact of SpLDs on perceived behaviours of clinical tutors and peers, the influence of negative role models on student education and the variation in educational support in the workplace. It was also discussed how minor changes in communication style would improve the placement experience.  

**Discussion and Conclusions**: The perceived challenges facing medical students with SpLDs influences the ability to perform the different competencies required of a clinician, including safe prescribing, as does the attitude of supervisors to individuals with SpLDs.  

**Take-home messages**: With the increased incidence of SpLD in medical students, faculty development is necessary on communication with students to support their learning.

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#9EE08 (25684)  
Home Room: a tool to identify medical students’ difficulties  

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**Background**: Aiming to improve identification of learners in difficulties, we established a one-on-one session called “Home Room” activity for undergraduate medical students at Faculty of Medicine, Ramathibodi Hospital, Bangkok, Thailand.  

**Summary of Work**: Since September 2014, we created “Home Room” activity, which every fifth year medical student was scheduled to meet a faculty staff in Family Medicine rotation. They had an approximate one hour one-on-one discussion about their life with their own family genogram, their motivation for studying in medical school, their future goals or career plan, their well-being and happiness, work-life balance, and any issues they concerned and wished to talk.  

**Summary of Results**: Three faculty staff participated in the activity. Half of the fifth year medical students were included (N=85). Two students had GPA < 2.5 and five students had delayed their studies since they failed many courses. None of the students had incident report of having behavioral problems. Forty-four students (51.76%) had at least one problem. The most prevalent problems were physical health problems, family problems and lack of motivation. Student home visits were done in 2 families. Students perceived that the activity encouraged self-assessment, helped setting goals and personal development plans, and was supportive. Sixty-three percent of the students were very satisfied (score 5/5) and 32% were satisfied (score 4/5) with the activity.  

**Discussion and Conclusions**: “Home Room” activity provided students an opportunity to talk openly with teachers and helped identifying difficulties which may not significantly impact their academic performance. Moreover, it encouraged students’ self-assessment and development plan. It gained great satisfaction from medical students.  

**Take-home messages**: Although one-on-one session requires a great deal of time, it’s worth to invest time and effort of staff to help students identify problems, set goals and plans for self-improvement.
#9EE09 (27097)
Factors affecting academic performance of foreign students in medical school

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**Background:** The number of foreign students in medical universities is increasing in recent years and they often face academic failure in the first year of medical school due, for instance, to different high school curriculum before university, and differences in native language. Studies investigating the causes of failure of foreign students studying in medical school are very few. A qualitative study is expected to contribute to further research in this area.

**Summary of Work:** A grounded theory study was conducted to explore the causes of academic failure of foreign medical students in the first year of medical school. We included foreign students who received their high school education abroad. Semi-structured face-to-face interviews were conducted with eight foreign students from Dicle University. Data were coded into categories in an iterative fashion until emerging theoretical constructs were saturated.

**Summary of Results:** Broad categories emerged on the causes of failure in foreign students. Ultimately, two major overarching categories underlying the failure of foreign students were identified: the first most likely cause was the language difference, which led to very serious psychological and emotional problems such as loss of self-confidence and extreme anxiety, and the second reason was the inadequacy of the pre-medical highschool curriculum that had not sufficed to acquire individual study habits and sufficient background for the medical faculty.

**Discussion and Conclusions:** Foreign students need more attention than local students in order to more successfully adapt to studying medicine abroad. Language inadequacy and curriculum background weakness could be considered as main problem areas.

**Take-home messages:** Rather than struggling with their failure after acceptance to medical school; the requirements to enter medical school should be evaluated with a more appropriately selective examination and/or provided a year of prep school in local language.

#9EE10 (26151)
The early bird catches the worm: Early identification of under-performing students. An observational study

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**Background:** The importance of early identification of under-performing students is well-recognized. Although insights on student-related factors in study success are increasing, less is known about the influence of course characteristics, acquired cognitive skills therein and student performance. This is the focus of the current study.

**Summary of Work:** Participants were first year Bachelor students entering a course on General Pathology (GPATH) (N=107). We systematically studied course-objectives and measured the predictive value of exam scores on future performance. We also analyzed the effect of (a) gender, (b) student attendance and (c) pre-university performance on the GPATH-exam score.

**Summary of Results:** We detected a significant correlation between all studied parameters (a,b,c) and GPATH-course outcomes (p<0.001). Of all first-year courses, GPATH-exam score was the strongest predictor of study progress in year 1 (β=0.747, p<0.001).

**Discussion and Conclusions:** This study reaffirms the influence of gender, student attendance and previous performance on academic achievement. Intriguingly, the current observations indicate that training in clinicopathologic reasoning predicts the outcome of academic performance in year 1. A possible explanation for this observation is the development of essential cognitive skills. Future research should focus on the exact nature of such intellectual capacities.

**Take-home messages:** Under-performing students can be identified early during their academic program. Acquired cognitive skills contribute to the prediction of academic performance. This emphasizes the importance of deliberate curriculum building and evaluation.
#9EE11 (26629)
An ‘early-intervention’ metacognitive skills workshop for academically ‘at-risk’ students

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Background: Students can be identified as ‘at-risk’ of failing before summative assessments but it is not clear how to support them effectively. Identifying students as ‘at-risk’ can be upsetting, so interventions must be sensitive and carefully evaluated.

Summary of Work: Sixty ‘at-risk’ students (twenty each from maths, medicine and veterinary sciences) were invited to a two-hour near-peer led workshop four to twelve weeks before exams, depending on the school. The content was informed by a systematic literature review and developed with near-peer tutors, focussing on developing metacognitive skills to improve learning. Following the workshop, participants and near-peer tutors were surveyed and the former were invited to a follow-up interview. Assessment results of all at-risk students and their peers were compared.

Summary of Results: Twenty-three students attended. Nineteen responded to the survey and seven agreed to interviews. All found the workshop enjoyable and changed study habits following it. Respondents felt the project was helpful and were not distressed by being identified as ‘at-risk’. However, no significant differences were observed in initial summative marks of attendees vs. non-attendees.

Discussion and Conclusions: Students identified as academically at-risk changed their study habits as a result of early intervention peer-led workshops. However performance in the first summative assessment was similar to non-attendees and significantly worse than non-invited peers. Possible reasons for this and methods for improving future workshops are discussed. Long-term effects are unknown; performance of these groups will be reviewed in future exams.

#9EE12 (26009)
A free, open-source early warning tool for students at risk of failing assessment

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Background: Previous research has identified early predictors of failing assessment. These include low formative assessment marks, attendance problems, non-completion of forms and poor engagement. If ‘at-risk’ students can be identified and supported, we may reduce the risk of failure.

Summary of Work: First year students from three schools (maths, medicine and veterinary sciences) of one university were scored for at-risk characteristics (n = 466). The characteristics included formative assessment marks, absences, VLE usage, completion of forms, in-course quizzes, welcome event attendance and hand-washing skills. We calculated a ‘risk score’ for students based on these. The tool is free-to-use by anyone and training materials are provided.

Summary of Results: The risk score predicted summative performance well (rs around .4). The tool effectively identified vulnerable students. Those least at-risk in medicine, for instance, scored 11 marks (on a 0-100 scale) better than students most at-risk. Three of the four failing students in medicine were identified as most at-risk and the fourth was just outside of that category. At-risk scores were available at least five weeks before summative assessment which allowed for early interventions.

Discussion and Conclusions: The tool effectively identifies at-risk candidates before they fail summative assessment. The tool is free-to-use and widely applicable. The fact that early activity predicts performance has implications for how we deliver teaching and pastoral support early on in a university course.

Take-home messages: This tool allows for early interventions and the evaluation of teaching and assessment processes. The results emphasise the need for continuous support of new students rather than acting only after they fail.
**The Academic Progress Portal: Catching Students Before They Fail**

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**Background:** We developed the Academic Progress Portal (APP) as a web and permissions-based, FERPA compliant software to automatically integrate dozens of data systems on and off campus. It provides a real time, holistic, and complete view of student progress through the curriculum, including pre-admissions, pre-clinical, clinical, national board testing, and residency selection data.

**Summary of Work:** The APP gives advisors easy, simplified, secure, and timely access to student scores, and other advisor notes, via a 24/7 web connection and login. Deans, advisors, and faculty may leave comments on a per student basis, not unlike a medical chart record, to facilitate communication, documentation, and appropriate action regarding student progress. Its core design provides the means for the appropriate student advisors, deans, and faculty to prevent students from failing a course, and by extension, failing the degree program.

**Summary of Results:** Students, advisors, deans, and student performance committees now use the APP as the primary data source for all demographic data, course scores, academic history, disciplinary actions, notes, etc. The application’s use has grown dramatically with the release to students, and seven professional colleges at the university, which include Osteopathic Medicine, Podiatry, Dentistry, Pharmacy, Graduate Biomedical Sciences, Optometry, and Veterinary Medicine.

**Discussion and Conclusions:** We will introduce, demo, and encourage interaction regarding Western University’s experience successfully developing a powerful, yet easy to use technology solution, now a mission critical system for seven of its professional colleges.

**Take-home messages:** The APP uniquely, successfully, and securely empowers advisors, deans, and faculty to prevent student course failures, and by extension, student degree program failure.

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**Persistence of risk factors for academic failure throughout medicine career**

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**Background:** Medicine career is known for its high academic burden. Several studies showed the association between a board of conditions and academic performance. Nevertheless, less assays have studied this association throughout the entire career. The aim of the present study was to explore which sociodemographic and academic precedents are predictors of academic failure in any course of medicine career in University of Chile.

**Summary of Work:** We used data provided by the Academic Direction of Medicine Faculty of Universidad de Chile, considering students admitted between 1998 and 2014 (n= 2428). We developed logistics models for explore the association between academic failure in any course and: sex, years since high-school graduation, admission pathway, geographic region and economic category of high-school of origin. Univariate and multivariate stratified analysis by level was made.

**Summary of Results:** In multivariate analysis we observed that years since high-school graduation was risk factor for failure the first 3 levels of the career (max. OR=1.36 [95%IC 1.24-1.50] at second level). Geographic region also showed a higher risk until the 3th level, while non regular admission pathway showed being a risk factor for failure only the first year of career. Other variables did not show association with academic failure.

**Discussion and Conclusions:** Conditions at admission are mainly relevant during the first years. Initial risk of academic failure could be level out at the beginning of clinical courses, around of half of career. Risk of failure associated to years since high-school graduation could reflect lose as well as basal low academic abilities. Geographic region and non regular admission pathway factors could orient higher need of support.

**Take-home message:** Factors related to academic failure at the admission could be limited to first years of career.
#9EE15 (27222)
Psychological status in first year medical student, Suranaree University of Technology

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Background: For first year medical students, they have to adapt to the changing learning style; from lecture based learning to problem based learning. The medical students have the high level of stress condition due to medical training, workload and fear of failing.

Summary of Work: This study aimed to determine the psychological state in first year medical students, Suranaree University of Technology. All participants were asked to complete the Depression, Anxiety and Stress Scores (DASS) questionnaire which consist of 7-item for each domain (depression, anxiety and stress) and then compared with normative data.

Summary of Results: A total of 53 medical students completed the DASS 21 questionnaire. Of these, 35.8%, 75.5% and 24.5% reported higher score than normal in depression, anxiety and stress respectively. There was no association between the DASS score and gender.

Discussion and Conclusions: The study demonstrated higher prevalence in anxiety domain. Previous study also reported the higher prevalence in anxiety than either depression or stress among Malaysian university student. The prevalence of anxiety in this study was slightly higher than previous study, that because of the difference in medical training program and other program. However, the appropriate strategy should be invented to decrease such psychological problem. The longitudinal study should be performed to find out whether their psychological state will change over time.

Conclusion: High level of anxiety was demonstrated among the first year medical student.

Take-home messages: A psychological well-being state in medical student should be explored and follow up in long term.

#9EE16 (27842)
The study skills guide for medical students

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Background: The study skills are the process of organizing, taking and retaining the new information which are one of the essential parts to boost the personal’s ability to study. However, the study skills are not included in the medical curriculum, and these skills are usually obtained from individual students’ experiences which spend a lot of time to discover. This study is to evaluate the students’ satisfaction after attend the study skills guide class.

Summary of Work: The attendance to the study skills guide class was an optional for second-year medical students. The class was arranged after their routine class. The main contents included interviewing the students’ learning problems, reading techniques, summarizing the information, visual imagery, creating the mnemonics, meditation, discussing the problems and solutions with their seniors, time management, and motivational techniques. The self-assessment questionnaires were used to evaluate the students’ satisfaction.

Summary of Results: Eighty four out of 173 medical students attended the class. The response rate of questionnaire was 82%. The top 3 students’ learning problems were unable to recall the information, unable to focus to the class, and feel too lazy. The self-assessment revealed 92.5% gained the encouragement in moderate to high level and 98.6% gained the beneficial information. The students’ satisfaction was high and moderate level for 74.1 and 25.9%, respectively.

Discussion and Conclusions: The study skills guide class was satisfying for the medical students and most of the attended students gained moderate to high level of encouragement and beneficial information.

Take-home messages: The study skills guide class was highly inspiring, informative, and satisfying for medical students.
Doctors with dyslexia: a systematic review of effective workarounds

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Background: An increasing number of medical students are declaring dyslexia as a specific learning difficulty on entry to medical school. The implication of an increasing number of doctors with dyslexia is that it may impact on their performance in the workplace, on patient safety and potentially their fitness to practice. For educators, an awareness of the impact of dyslexia on learners in the clinical workplace is vital to identify whether dyslexia may underlie certain traits and behaviours; and to provide appropriate advice and support when dyslexia is identified.

Summary of Work: A systematic search of the literature was undertaken, followed by a narrative review of studies meeting the inclusion criteria. The review used a priori research questions and focused on studies based on primary research evidence to identify the effects of dyslexia on doctors (in or post training) in the workplace, and adaptive strategies (‘workarounds’) in use.

Summary of Results: The review identified five studies on dyslexia and qualified clinicians. The impact of dyslexia can include: writing/calculating prescriptions, writing patient notes, prioritising and making referrals. Strategies to minimise the effects of dyslexia include: use of adaptive technologies, the need for more time for mentors and supervisors, and awareness of ‘enabling’ and ‘disabling’ environments.

Discussion and Conclusions: The difficulties associated with dyslexia are varied and may be unexpected. Medical educators may not be aware or knowledgeable about dyslexia and its impact, thus there is a need to promote greater awareness amongst them, as well as understanding of the implications for patient safety.

Take-home messages: Dyslexia is under-researched and lacks an evidence-base for support.
#9FF01 (28260)
Medical student narrative reflection project reveals different CanMEDS competencies important to the practice of various internal medicine subspecialties

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Background: The CanMEDS competencies are an internationally-recognized framework of essential roles needed for optimal health care outcomes. Regardless of specialty, physicians use each of the competencies at various times in their practice.

Summary of Work: An educational activity has been developed and implemented to expand fourth year medical students’ awareness of the CanMEDS roles as they approach the end of their undergraduate medical education and prepare to begin residency in a large medical school in Canada. Students undertaking a three-week clinical rotation in an internal medicine subspecialty are asked to reflect on it through the lens of one of the CanMEDS roles of their choice. They are then asked to recount a case-based experience in a two-page narrative reflection and to share the account orally with a group of their peers and an instructor.

Summary of Results: In some subspecialties, students consistently choose the same one or two CanMEDS roles to reflect upon for this project regardless of the preceptor and hospital to which they are assigned. For example, Advocate is frequently chosen by students doing Infectious Diseases, while Collaborator is frequently chosen by students doing Cardiology.

Discussion and Conclusions: The students’ choice of CanMEDS competency for their narrative reflection could be highlighting a competency which is particularly vital to the practice of a particular internal medicine subspecialty or may be influenced by the “hidden curriculum”.

Take-home messages: Educators should be aware of the CanMEDS competencies most frequently used in individual subspecialties to ensure that the curriculum is balanced to give students exposure to all CanMEDS competencies.

#9FF02 (26951)
Structuring teaching and learning by units of understanding in competency-based medical education

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Background: A number of traditional medical curricula have been successfully transformed into competency-based integrated, interdisciplinary teaching and learning programs. In contrast, most available learning materials are still traditionally organized by disciplines and systematic catalogues. There is a need for a concept that allows knowledge representation in a similarly integrated and modular manner.

Summary of Work: The Charité – Universitätsmedizin started to implement a six year, fully integrated undergraduate medical program in 2010. We developed the concept of “units of understanding” for the alignment of integrated learning objectives and outcomes with the learning contents. These units represent self-contained areas of knowledge that can be independently taught, described and discussed from other areas of knowledge.

Summary of Results: In the first semester typical units of understanding range from “structure and function of DNA” over “information transfer of nerve cells” to “simulation of basic life support”. The units are described by title, overarching learning outcome, a list of detailed learning objectives and an interdisciplinary elaboration of their learning content. For each unit, a level of competence and time for achievement are defined as well as the context for their application. Units of understanding can be nested from smaller into larger ones and aligned as learning paths over the curriculum.

Discussion and Conclusions: Units of understanding allow a holistic and meaningful representation of teaching and learning content and their modular organization in competency-based education.

Take-home messages: Units of understanding represent a novel concept to structure and align teaching and learning in competency-based, integrated medical education.
A competency-based continuous assessment programme as part of a revised curriculum for postgraduate radiology training at the University of the Free State, South Africa

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**Background**: Comparing the postgraduate radiology-training programme of the University of the Free State (UFS), Bloemfontein, South Africa, with recently revised international postgraduate radiology-training programmes revealed several important shortcomings. Consequently, the aim of the research was the development of a competency-based, continuous assessment programme that could be integrated into a revised curriculum for postgraduate radiology training at the UFS, South Africa.

**Summary of Work**: A literature review allowed conceptualisation and contextualisation of postgraduate radiology education. Semi-structured interviews informed decisions about the proposed continuous assessment programme for radiology training at the UFS. A Delphi questionnaire survey researched the content of the revised curriculum.

**Summary of Results**: The research culminated in the development of a performance-based continuous assessment programme – consisting of regular formative workplace-based assessments conducted both informally and formally – meant to not only assess, but also contribute, to student learning. The assessment programme is furthermore blueprinted on a revised postgraduate radiology curriculum, which identifies and describes radiology-appropriate learning outcomes and competencies according to different levels of training.

**Discussion and Conclusions**: Structured assessment (predominantly formative) according to the revised curriculum aims to guide trainees, document their progress and ensure the acquisition of essential competencies.

**Take-home messages**: The definition of learning outcomes and the use of formative workplace-based assessment methods are essential components of a modern day postgraduate radiology-training programme.

Perception differences between veterinary faculty and practitioners in the skills, knowledge and attributes required for success by veterinary graduates

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**Background**: The new School of Veterinary Medicine at Surrey uses a distributed model where the final year of clinical placements will take place within partner practices not within a teaching hospital. Our school thus needs significant collaboration with the veterinary profession as our training partners. We wished to see early on how closely aligned the perceptions of how best to achieve this aligned between partner practitioners and our faculty.

**Summary of Work**: We surveyed our partners and our faculty to assess their perceptions of what skills, knowledge and attributes (SKAs) a successful new veterinary graduate would have and how they would support the students to achieve these SKAs. Using "Poll everywhere" to develop word clouds and concept mapping, we compared the results between the two groups in their perceptions of the required SKAs for new graduate success.

**Summary of Results**: Both surveyed groups strongly agreed that the most important skill to success is “communication”. Differences in perceptions of the importance of “business / management skills training” appeared between groups with the staff failing to mention these skills despite both words appearing in the practitioner list. Health and wellness knowledge areas were missing from the practitioner group.

**Discussion and Conclusions**: Overall, the alignment between practitioners and academics perceptions was strong with some interesting gaps in knowledge domains but not so much in domains relating to skills or attributes.

**Take-home messages**: This study provides very useful information for us as we develop the new school to assure better alignment of expectations between us as veterinary academics and our practice partners in training our new graduates. We must as well acknowledge the limitations of any curriculum to deliver attribute training without support from both academic and clinical trainers role modelling these.
#9FF05 (27233)
The best way to assess students in a competency-based Imagenology Course

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**Background**: MCQ have been used for decades in our institution to assess students. Eight years ago we switched to a competency based curriculum. This change forced us to pinpoint the competencies in every course, among them the Imagenology Course. The competencies of the course focused on interpretation of images obtained by Rx, RMI, TAC, Ultrasound and other media used in medicine.

**Summary of Work**: Taking into account that the course competency focused on image interpretation, we concluded that the assessment could not remain with MCQ lacking images. We designed a completely new evaluation system, which consists in clinical cases with one or more images to be interpreted in a limited period of time. Each question, with their images, is projected to the entire group of examinees twice, in the first round they have 45 seconds to answer the question and in the second one they have 15 seconds.

**Summary of Results**: The new curriculum forced us to change not only the assessment method but also the teaching methodology, being both of them focused in image interpretation. This changes increased the interest of students in the course and with the new assessment we are really assessing the course competency.

**Discussion and Conclusions**: The success of a competency-based course depends in the congruence that exists between the competences raised in the program, the methodology used in class and the assessment tool.

**Take-home messages**: The course competency determines the assessment design.

#9FF06 (26291)
What competencies do medical specialists need and what can medical schools learn about it?

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**Background**: Graduate surveys provide valuable insights for curriculum planners, researchers and administrators. Information about discrepancies between occupational demands, and competencies acquired during medical training are relevant in order to improve curricula and prepare students for professional life.

**Summary of Work**: Graduates in different medical specialities were surveyed 1.5 years after graduation: general practice (n = 36), anaesthesiology (n = 100), surgery (n = 81), gynaecology (n = 55), internal medicine (n = 179), und pediatrics (n = 73). Data from the “Freiburg Questionnaire to Assess Competencies in Medicine” (FKM, Giesler et al., 2011), based on the CanMEDS Framework, were analyzed. T-test and ANOVAS were conducted and standardized response means (SRM) were calculated.

**Summary of Results**: 1.5 years after graduation required professional competencies seem to differ: e.g. pediatricians need a greater amount of communicative competencies than surgeons (SRM=-1.20 vs. SRM=-.55)and general practitioners need more competencies to promote health and prevention (SRM=-.36) than gynecologists (SRM=-.13). In almost all specialities there was a need for more team competencies (SRM=-.86 to SRM=-1.62).

**Discussion and Conclusions**: We found different professional needs in the various medical specialities. In almost all medical specialties team competencies are needed to a great extent. In order to prepare all students for professional life in a better way, medical schools must know whether their curriculum lives up to this goal.
#9FF07 (24859)  
**How do Recent Medical Graduates Evaluate the Achievement of Competences in the Medical Course?**  
A Pilot Tuning Project-Based National Survey  

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**Background**: Tuning Project is an initiative of the European Commission providing a set of competences for medical degrees in Europe. The aim of this study was to assess how do Portuguese medical graduates perceive their acquisition of competences according to this framework.  

**Summary of Work**: Translation of the Tuning’s competences (Clinical Practice - CP), plus Knowledge domains and Clinical Settings was performed. A questionnaire was created and items were scored in a 6 point Likert-scale. 429 medical graduates participated. Cronbach’s alpha (α) and exploratory factor analysis (EFA) were conducted. Multiple comparisons were analyzed (Kruskall Wallis and Dunn tests).  

**Summary of Results**: Significant differences among CP factors (α=0.971) were found: Ethical principles (4.0) obtained the highest CP score while Legal aspects (1.3) yielded the lowest. Consultation with a patient, Psychological and Social aspects of illness, Evidence-based Medicine/Information technologies/Scientific principles and Promotion of health were scored above the median CP score; Medical emergencies, Drug prescription, Practical procedures and Legal principles were below median score. Knowledge areas and Clinical Settings also showed significant differences among factors. Significant differences among schools were found (p<0.05).  

**Discussion and Conclusions**: Tuning generated a questionnaire for the self-assessment of Portuguese medical graduates. Self-perceived deficits were detected in some core competences. This may indicate lower self-confidence and/or lower effective competence in medical practice, knowledge areas and patient contact. Preparedness to practice might not be assured regarding those specific competences, which should encourage medical schools’ analysis of curricula.  

**Take-home messages**: Valid and reliable medical graduate’s self-assessment may assist quality assurance processes and prove valuable for medical schools to assess the effectiveness of their curricula delivering core competences.

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#9FF08 (27863)  
**Clinical reasoning and diagnostic skills in final year medical students (‘MOSLERS and on-call: the first five minutes’)**  

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**Background**: Work has highlighted the lack of clinical reasoning and diagnostic skills in new doctors and the harmful effects this could have on patients, particularly when working out of hours. Final year students on Newcastle University’s MBBS programme revealed low confidence in focussing their histories and examinations of patients under pressure, such as when ‘on-call’ and in ‘MOSLER’ (modified objective structured long examination review) assessments.  

**Summary of Work**: 27 students were approached to complete an anonymous online survey of their experience, concerns and self-reported level of confidence around MOSLER assessments and on-call. A 90 minute teaching session was designed around themes from responses, with the aim of building medical student confidence by encouraging plan formulation in the 5 minutes between getting information and interacting with a patient. Teaching was delivered to 19 students over two sessions. After the session a secondary survey rerecorded their confidence levels and evaluated the session.  

**Summary of Results**: Students reported an increase in confidence when approaching scenarios after the teaching session. 33% had a plan for before the MOSLER assessment prior to the teaching session and 89% afterwards. 90% of students enjoyed the teaching and would recommend it to other students (10% ambivalent) and 80% found the teaching helpful in preparing for assessments.  

**Discussion and Conclusions**: New doctors often feel unprepared, particularly making decisions when under pressure. This demonstrates this type of teaching to students could be a novel way to aid clinical reasoning skills in medical students.  

**Take-home messages**: Teaching sessions such as these may be helpful in preparing students for work as junior doctors.
Developing a Structured Oral Examination to assess clinical reasoning in pre-clinical medical students

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Background: We designed summative assessment to determine 2nd-grade students’ readiness for clinical practice. The key outcome of preclinical phase was clinical reasoning, that was competency to apply their organized knowledge based on pathophysiology to real case. To evaluate this outcome we have developed Structured Oral Examination (SOE).

Summary of Work: The exam consisted of 6 stations with cases containing history and physical findings. In each station, students read the case for 1 minute, and wrote organized knowledge as schema to solve the patient’s problem for 2 minutes, then they presented interpretation and application of the case to the schema for 8 minutes. Assessor interacted with students, asking two key question during students’ presentation. The areas of evaluation were clinical reasoning(case application), organized knowledge, and communication. Assessor trained before the exam.

Summary of Results: The reliability (cronbach α) across 6 cases was 0.708 in day 1, 0.696 in day 2. Case reliability (cronbach α across items with one case) was 0.796~0.892. The mean score was 53.4±1.8(36.6~66.6) in day 1, 53.0±1.8(43.5~63.8) in day 2. The correlation with GPA was moderate (R=0.583, p<0.001). Both assessors and students answered that the exam was adequate to assess preclinical students’ competency.

Discussion and Conclusions: The SOE was reliable and valid to assess clinical reasoning in pre-clinical medical students. SOE is potentially a valuable method to determine preclinical students’ readiness for clinical practice.

Take-home messages: The SOE is a new method to assess clinical reasoning.

A simple and integral pathway to teach medical students the basis of Clinical Reasoning

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Background: Clinical reasoning is complex and remains as one of our biggest challenges as medical educators. Most physicians have achieved good clinical-reasoning but they usually do not know how. Our students are not aware of how relevant it is to develop clinical-reasoning skills from the beginning of the career. Since there are no internationally established and accepted criteria, we as professors do our best to teach clinical-reasoning through different manners with unpredictable outcomes.

Summary of Work: Objective: To propose a simple but integral pathway for teaching medical students the general basis of clinical-reasoning. I settled a mentoring workshop with 25 medical students (2nd to 7th-year). We reviewed the general basis of health-illness process, natural history of disease and scientific approach applied to clinical method to develop basic mental abilities and automatic processes in clinical-reasoning, supported by constructivist tools.

Summary of Results: Some students’ absenteeism, rejection to think critically and do homework were the biggest challenges we faced. Students who attended responsibly with the workshop developed thinking and clinical skills to analyze information, diagnose illnesses and propose treatment strategies.

Discussion and Conclusions: Most of students improved their clinical performance, demonstrable when structuring good clinical notes. My proposal considers critical thinking and integral approach on the basis and pathophysiology as the bridge that connects basic to clinical sciences-therapeutics.

Take-home messages: Self-learning and autonomy in clinical reasoning can be learnable through a simple but integral pathway.
**#9FF11 (25970)**

"Seeing the forest for the trees" – examining the metaphors that physicians use when talking about clinical thinking

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**Background:** Physicians commonly use metaphor to translate their thinking processes for students and residents. From a constructivist perspective, metaphors both capture thinking processes and actively construct those processes.

**Summary of Work:** In this qualitative study, we completed two in-depth interviews each with four physician educators, inviting participants to describe critical thinking in clinical contexts. An interpretive approach was used to analyze transcripts. Coding identified the range of metaphors used as well as common themes.

**Summary of Results:** Clinical thinking metaphors were often constructed around dichotomies related to space and size (eg. "big picture" vs. little details, forest vs. trees) or speed (quick vs. slow). Metaphors were also used to describe the processes of thought themselves (eg. mind as machine). However, metaphors were also a site of struggle: as clinicians described how a metaphor related to practice, discrete dichotomies often disintegrated. Participants also expressed frustration with learners who are challenged by the complexities and ambiguities of practice.

**Discussion and Conclusions:** Metaphor can help learners develop clinical thinking, but can also be harmful as they fail to capture the complexity of practice. While the disintegration of dichotomies might be viewed as a failure of metaphor, it can also be viewed as a significant component of communication through metaphor. The unraveling of metaphor becomes an important part of communicating the ambiguity of clinical thinking.

**Take-home messages:** • Metaphor is an important component of communicating abstract and complex processes such as clinical thinking. • Educators should be aware that no single metaphor can capture the necessary complexity and ambiguity of clinical thought.

**#9FF12 (25703)**

Family Medicine: are senior residents different from junior residents in clinical reasoning assessed by the Script Concordance Test?

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**Background:** Research has shown that residents’ reasoning is different from experts’ and that this difference is due to the fact that experts usually use scripts in clinical reasoning. The Script Concordance Test (SCT) assesses this type of reasoning, and has been validated in various medical fields but not in Family Medicine (FM). The objective of this study was to evaluate differences in clinical reasoning in FM residents with SCT.

**Summary of Work:** A SCT was designed and included 23 clinical cases with 5 items each. Ten experts in FM validated the scoring table. The study compared SCT scores of senior residents (7 PGY-4) to those of junior residents (20 PGY-1, 17 PGY-2, 13 PGY-3). Eleven similar four-year residency programmes participated.

One factor ANOVA was used for comparisons between the four groups and T-test was used for comparisons between two groups. Alpha coefficient was calculated.

**Summary of Results:** Alpha coefficient was 0.614. A significant difference between junior residents (PGY 1, 2, 3) and senior residents (PGY 4) was found (p=0,03).

**Discussion and Conclusions:** In FM, clinical reasoning of senior residents shows a more prominent use of scripts than junior residents'.
**#9FF13 (25621)**
A competition-based method to quantify the efficiency of clinical reasoning in psychiatry

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**Background**: Diagnosis in psychiatry relies on descriptive classification of symptoms, laid down in the DSM-criteria. Their sheer number, and substantial overlap between disorders, easily overwhelms the novice in the field. Hardly anything is known about the relative importance of both pattern recognition and explicit clinical reasoning in the diagnostic process. It is therefore unclear to what extent training in clinical reasoning could benefit medical students.

**Summary of Work**: We developed a competition-based way to quantify clinical reasoning. Medical students, residents and staff members in psychiatry, working in small competitive groups, are presented with a clinical case containing little information. They can then “buy” additional information for virtual coins. Both relevant and irrelevant items from history, observation and additional investigations can be selected from a comprehensive set. The participants are instructed to find the most likely diagnosis while spending as few coins as possible. We then compare the number of diagnostic steps between groups, the presence of obligatory and excluding DSM-criteria, and the ratio between relevant and irrelevant questions.

**Summary of Results**: Paper-based pilots used with medical students, psychiatrists and residents received very positive evaluations. The need to prioritize history questions appears to trigger deep clinical reasoning in psychiatry. A new web-based instrument allows evaluating the efficiency of clinical reasoning and the effect of targeted training (in clinical reasoning) within groups.

**Discussion and Conclusions**: This approach and the web-based tool measuring diagnostic reasoning have great potential to provide insight into the process of clinical reasoning, and to better train diagnostic skills in psychiatry.

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**#9FF14 (26566)**
The best leads-in to assess clinical reasoning in an anatomy course

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**Background**: We have a curriculum which considers diagnosis as the cornerstone of Clinical Reasoning; to reach this, it is essential to identify the pathogeny and physiopathology in a clinical case. To clarify the processes that students should pay more attention in an Anatomy Course, we selected the best questions that must be considered when structuring a written test.

**Summary of Work**: Some of the leads-in we consider basic to assess Clinical Reasoning in an Anatomy Course are:
- The most likely is that this patient is unable to perform…
- The sign that confirms the diagnosis of this patient is…
- The maneuver which confirms the diagnosis of this patient is…
- The most likely is that this patient wound is at the level of…
- The nerve injury in this patient is at the level of…
- The muscle injured in this patient is…
- The organ injured in this patient is…
- The bone injured in this patient is…
- The altered joint in this patient is…

**Summary of Results**: By using these leads in in our tests it has been possible to evaluate the examinee’s ability to integrate information from the clinical history, lab exams, treatment, etc, and therefore their ability to solve an Anatomy clinical problem applying their knowledge. Its acceptance has been so much that it is used as a model for other courses.

**Discussion and Conclusions**: The use of specific leads-in for each Medical Course assures the assessment of Clinical Reasoning.

**Take-home messages**: Assessment must be always oriented to evaluate higher cognitive skills implied in Clinical Reasoning according to each course.
The use of standardised client simulation to improve clinical reasoning in veterinary undergraduates

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Background: Standardised patients are widely used in undergraduate medical education for a multitude of purposes, including clinical reasoning skill development. In veterinary education, standardised clients (SCs) are used extensively in communication skill training, but are not commonly used to achieve other learning outcomes.

Summary of Work: A simulated client program focussing on clinical reasoning skill development has been designed and implemented into The University of Nottingham School of Veterinary Medicine and Science (UNSVMS) curriculum. During a clinical placement in a first opinion small animal practice, all final year students undertake three consecutive consultations with an SC. They are required to diagnose and treat the accompanying canine patient, and are debriefed on their decision making strategies afterwards. Each consultation is filmed for later analysis. The session is designed to mirror typical consultations faced by new graduates in a fully immersive setting.

Summary of Results: The effect of SC simulation on clinical reasoning development is being evaluated in four ways:
1) Comparison of skill levels demonstrated in each consultation (using the Lasater Clinical Judgement Rubric (LCJR))
2) Student self-assessment of clinical reasoning (using the LCJR pre- and post-simulation)
3) Quantitative student survey feedback
4) Qualitative student focus group discussions

Discussion and Conclusions: The study is ongoing but preliminary self-assessment, survey and focus group data suggest students’ clinical reasoning skills improve as a result of the sessions. Skill level comparison has not begun at present.

Take-home messages: Standardised client simulation can be utilised to improve clinical reasoning skill level and confidence in veterinary undergraduates.

Veterinary student and faculty experiences in developing clinical reasoning through the virtual learning environment (VLE) of Second Life (SL)

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Background: Early teaching and learning curricula are needed to support students’ development in clinical reasoning. Observation supported through feedback in active learning environments can unveil its complexity. The virtual learning environment of Second Life (SL) enhances the reality of clinical cases and provides a platform for formal and informal instruction allowing flexibility for faculty and students. Pairing technology and teaching of clinical reasoning can further support and inform veterinary curricula.

Summary of Work: Thirty six first year veterinary students and twelve clinical faculty participated in a clinical reasoning exercise utilizing a veterinary platform in SL. Four groups of nine students and a facilitator experienced three SL meetings to process a clinical case guided by a six-item clinical reasoning rubric. Faculty attended one SL meeting. Likert scale questionnaires exploring users’ perceptions of SL and the development and evaluation of the clinical reasoning process were administered. Assessment of the clinical reasoning process was reflected in submitted student graded assignments following the rubric.

Summary of Results: Students indicated SL provided authentic and realistic learning experiences [m=3.8; SD=.69] with faculty responses suggesting content and process acceptability [m= 3.5; SD=.90]. Students positively reported the need for additional SL experiences within the curriculum [m=4.3; SD=.82] compared to moderate faculty responses [m= 3.2; SD= 1.60]. Assessment of clinical reasoning for student groups reflected novice learning stages.

Discussion and Conclusions: SL provided an acceptable platform for learning and developing clinical reasoning and was viewed positively for additional use.

Take-home messages: Study results merit comparing traditional teaching methods of clinical reasoning with SL to further acknowledge its educational value.
System 1 and System 2 clinical reasoning performance in a structured clinical oral Internal Medicine Clerkship examination

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Background: An Internal Medicine clerkship structured clinical oral examination (SCO) consisted of eight stations. In three stations, students interacted with examiners in structured case discussions which tested clinical reasoning (CR) skills in diagnosis/management. Several structured questions in each station could be categorized as System 1 (intuitive pattern recognition) or System 2 (analytical) tasks. One of 4 global assessments in each station assessed integration and problem solving.

Summary of Work: Student performance (n=85) in the CR components of the SCO and other assessment modalities during 2 separate 8-week Internal Medicine clerkship rotations were computed. Correlations (Spearman’s rho) between students’ performance in these CR components and traditional clerkship assessment domains were determined.

Summary of Results: The overall mean +/- standard deviation mark on the rotation was 78.9% +/- 4.0. Mean marks for the 4 measures of CR were: the three CR stations 78.6% +/- 5.7; for System 1 tasks 85.8% +/- 9.9; for System 2 tasks 84.5% +/- 10.2, and for the CR global 75.4% +/- 12.2. Overall CR station marks correlated best with the students’ final marks (r=.545) and written examination marks (r=.491). The CR global assessments had the strongest correlation of all CR measures with ward assessments (r=.263). System 1 performance paralleled overall CR station performance. System 2 performance correlated poorly with most other assessments.

Discussion and Conclusions: Clerkship ability in CR in Internal Medicine correlates best with written examination performance. Student marks between System 1 and System 2 CR tasks did not correlate significantly.

Take-home messages: Assessment of different types of CR skills may be important in clinical clerkships.
Relationship Between the Spiritual Intelligence, Academic Achievement, and Achievement Motivation among the Students of Fasa University of Medical Sciences

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Background: Spiritual intelligence (SI) by integration of internal values with external environment solves our problems of meaning and value; and may be associated with achievement motivation. This study was carried out to investigate relationship between SI with achievement motivation and academic success of students.

Summary of Work: 285 students of Fasa University of Medical Sciences were randomly selected for this cross-sectional study. They filled the demographic questionnaire of Badie spiritual intelligence and Herman's achievement motivation. Having an average grade mark of 15 out of 20 and not having failed in any subjects during their courses of study were the criteria for the educational achievement. Ranges of spiritual intelligence scores were 42-210 and for achievement motivation was 29-116 respectively. Chi-square, t-test, ANOVA and Pearson correlation were used for comparing the groups.

Summary of Results: 83% of the students were considered among the successful groups and in comparison to the unsuccessful students had higher spiritual intelligence scores but this difference was not statistically significant; 152.6±16.8 vs. 148.8±18.2. Grade point average and last semester's grade point average had a positive and significant relationship with self-awareness and overall self-belief (p<0.01).

Discussion and Conclusions: In this study achievement motivation was not correlated to SI. Other interventional factors like; Students anxiety, university environment, may cause this result. Academic achievement based on grade point was related to SI field. Although achievement motivation was not correlated to SI but more studies in this field is recommended.

Take-home messages: We recommend more studies with different methods in this field.
Training undergraduate and postgraduate medical students to be resilient. Why and how?

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Background: The word ‘resilience’ hardly appears in the medical literature until about 8 years ago and has shown an almost exponential increase since then. Its definition is not universally agreed and there is little discussion as to why resilience has entered the discourse of medicine. We examine why resilience and the need to develop it have emerged in modern medical education.

Summary of Work: We have carried out a critical review of the literature on resilience and resilience training in the English literature in medical, psychological and sociological databases. A variety of papers including qualitative and quantitative research were identified.

Summary of Results: Resilience is seen as a quality required in modern medicine and modern life. It is a quality that can be learned or enhanced, though there is no clarity as to how to do this. The need for resilience is different for undergraduate and postgraduate students. There are gender differences, which are important in an increasingly female medical profession. These differences affect career choices. There is an assumption, but not clear evidence, that increased resilience correlates with well being and preservation of empathy.

Discussion and Conclusions: Resilience is a word that needs defining. We need clarity in what we are trying to develop. Is there an ethical rationale for including resilience training as part of medical education? Should we not be changing the environment in which enhancing this quality is needed?

Take-home messages: We question the value of developing a thick skin as opposed to removing the rods and whips that make it necessary.
Use of psychological type indicators for composition of teams in medical school

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Background: Teamwork skills are critical among medical students. Classification of different psychological types in division of teams can be used as a tool to facilitate work together in medical course.

Summary of Work: In the first week of the course, a questionnaire with 94 questions is applied to all 50 new students to discover what are their psychological types indicators. There is a presentation of theoretical concepts of the criteria that differ these psychological types, including extraversion and introversion, sensation and intuition and preference of reason or emotion in decisions. In another time, eight teams are divided, trying to keep in each team representing one of the four temperaments, formed by four types each. Teams are maintained in all modules and all semesters, with a few changes.

Summary of Results: Already been prepared 32 teams, of which only 4 were identified in unstable situations in living and acting. The reaction of the students registered in peer review also shows great satisfaction on the part of students. The teams are improved in completing tasks with quality too.

Discussion and Conclusions: In real life, the division of teams occurs in random and heterogeneous way. But the presentation of the characteristics of different psychological types is important for self-knowledge and understanding of the limitations and potential of the colleagues.

Take-home messages: The use of psychological types indicators can improve the composition of teams of medical school, facilitating the performance and quality of activities.

A study of medical students’ expectations of how satisfying it will be to care for dying patients

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Background: Caring for the dying is a large part of junior doctors’ workload and negative attitudes may impact on such care. Attitudes may be shaped during undergraduate medical training. We examined undergraduate students who anticipated finding palliative care less satisfying than other forms of care.

Summary of Work: Analysis of results of an online questionnaire survey using validated items examining attitudes towards palliative care completed by 1123 first and 775 final year students from 15 UK medical schools. Students expecting palliative care to be “less satisfying” were compared with those expecting such care to be more or equally satisfying.

Summary of Results: “Less satisfying group”:
- Year 1: 217 (19.3%), Final Year: 124 (16.0%)
- More likely to be male: (Year 1: X^2 7.073 p= 0.008, Final Year: X^2 4.898 p=0.027)
- More likely to express negative attitudes towards personal impact of palliative care
  - Caring for dying patients depressing (Year 1: X^2 75.367 p<0.001, Final year 63.076 p<0.001)
  - Dread dealing with bereaved families (Year 1: X^2 32.130 p<0.001, Final year: 28.594 p<0.001)
  - Guilt after patient’s death (Year 1: X^2 13.498 p<0.001, Final year 4.712 p=0.030)
- Less likely to acknowledge responsibility of doctor towards bereaved: (Year 1: X^2 7.669 p=0.006, Final Year 6.893 p=0.009)

Discussion and Conclusions: Proportionately, slightly fewer final year students expected palliative care to be “less satisfying” than those starting their course. Negative expectation was associated with negative attitudes towards the personal impact of palliative care and responsibilities towards the bereaved.

Take-home messages: Education helping students deal with the personal impact of end of life care may foster lasting positive attitudes.
Factors affecting student’s motivation to pursue medicine at Alfaisal University

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Background: Motivation theory has been studied repeatedly, yet motivation in medical education remains an important, but poorly understood field. We aim to contribute towards the understanding of that field by identifying motivating factors for studying medicine.

Summary of Work: A cross-sectional survey was completed by 400 preclinical [years: 1-3] students at Alfaisal University, Riyadh, KSA where subjects autonomously rated different motivating factors using 5-point Likert scales. The Chi-squared tests, followed by post-hoc tests were utilized to detect any associations between the categorical variables. Moreover, the Spearman’s correlation test was used to assess significance, strength, and direction of correlation among ranked data.

Summary of Results: Overall, the most motivating factor for students was interesting topics. Students were encouraged by self-growth and learning new things. Younger students (years 1 and 2) were more intrinsically motivated, scoring high on categories like desire to help people (p=0.001;0.004) and interesting topics (p=0.007) compared to seniors. They also preferred autonomy (p=0.008) over tasks and working with peers. Being able to secure ideal jobs was a major influencing factor for many students (Mean=4.387, SD=1.023). 33.8% of students had been influenced by relatives in healthcare, and 64.3% of students felt pressure to meet family expectations.

Discussion and Conclusions: Understanding what drives a student could be instrumental in unlocking secrets that could potentially provide us with many opportunities for growth and improvement within medical education.

Take-home messages: Interest is an important factor that should be integrated into curriculum planning in order to capture and retain student interests throughout the different years.
Motivating graduate entry medical students in formative assessment through reward incentives

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**Background**: Reward incentives are commonly used through the behaviorist teaching approach to motivate early learners. Pedagogic learning theories are often applied to andragogy and therefore the purpose of this study was to assess whether offering a reward encouraged student engagement during formative assessment.

**Summary of Work**: A formative assessment was held for year 1 graduate entry medical students. The cohort (n=66) was divided into 12 groups. Within each group, the students were split into 2 teams and given a test to complete. Teams were made aware of a reward that would be given to the winning team. Data were collected through student evaluation forms.

**Summary of Results**: 66 data sets were collected and analysed (response rate 100%). Students felt that the reward was a good tool to motivate them, and that it encouraged their learning (91%). A small percentage of students did not find the reward motivating (<2%). There was a unanimous view that the session was enjoyable (100%) despite only 53% of the students getting a reward.

**Discussion and Conclusions**: Offering a reward did aid the student learning experience. Students found that the knowledge of the reward was an incentive to engage during the session and that it increased their motivation. This supports the idea that in certain andragogical situations, the behaviorist approach of offering a reward has a positive impact on learning.

**Take-home messages**: A reward incentive may have a role in improving student engagement during formative assessment.

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Intrinsic motivation in medical students from first year in Chilean Universities

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**Background**: Intrinsic motivation, is an essential variable of the learning process.

**Summary of Work**: A cross-sectional study was performed with 205 first year medical students from Universidad de Concepción 104, Universidad San Sebastián 64, Universidad Andrés Bello 37, during 2014. Objective was to measure intrinsic motivation and compare this degree with: age, gender, university, primary education, and selection enrollment scores. Informed consent was obtained. Intrinsic Motivation Test was applied, the results were categorized as excellent, good, insufficient and very deficient. Statistical analysis with Chi-Square and Anova.

**Summary of Results**: Results: 56.6% male and 43.4% female. Only 21 (10.2%) of the sample, came originally from public schools and 93 (45.4%) from private schools. Students usually resided in the same region were they attended University. Intrinsic motivation degree was: Excellent in 6 (2.9%), Good in 133 (64.9%), Insufficient in 51 (24.9%) and Very Deficient in 15 (7.3%). Only primary school of origin and place of residence had significant differences with respect to intrinsic motivation.

**Discussion and Conclusions**: Most students show good intrinsic motivational levels, however approximately one third shows insufficient or very deficient intrinsic motivation Significant differences were only found for primary education school and residence of origin. Gender, University and selection enrollment scores, did not show statistical significance.

**Take-home messages**: More analysis is required to determinate wich factors of primary school of origin and place of residence, are associated with intrinsic motivation. The group with low score (30%), needs special strategies.
Preclinical medical students' motivation in learning

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Background: Motivation is an important stimuli in learning including for medical study. There are few discussions about how to motivate the students in medical curricular developments. This study aimed to assess learning motivations, correlation of motivation with grade point average and reading times of students and to identify teaching methods which motivate them.

Summary of Work: A preclinical medical student completed a questionnaire on learning motivation, grade point average, reading time and teaching methods. Their motivation scores were evaluated by using ratio scale from 0 – 10. Data was analyzed by Pearson correlation test.

Summary of Results: There were 52 participants, 66% were female and 34% were male. The average motivation score was 6.23. Average internal motivation score was 6.05 and average external motivation score was 6.9. Both internal and external motivation had a significant positive correlation with reading times (p value = 0.000 & 0.041 respectively) but were not correlated with grade point average. Role model teachers, workplace teaching, clinical skills teaching and end-block examinations highly motivated students to learn.

Discussion and Conclusions: Motivation can stimulate to learn by increasing the reading time. Teaching in workplace and clinical skills teaching stimulate learning motivation more than problem based learning and teaching in classroom.

Take-home messages: Curricular developments should mention in learning motivation. Teaching in real situation and good role model teachers should be integrated in preclinical years.

Towards an understanding of gender differences in medical school

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Background: Women are the majority as medical students and physicians. However, they have greater difficulty to face the demands of this profession compared with their male colleagues.

Summary of Work: Our objective was to analyze gender differences in a large random sample of medical students, in a cross-sectional study, involving 22 Brazilian medical schools, using electronic data collection and the following validated questionnaires: WHOQOL-BREF, VERAS-Q (quality of life), Interpersonal Reactivity Index, Resilience Scale, Beck Depression Inventory, Epworth Sleepiness Scale, IDATE and DREEM.

Summary of Results: Response rate was 82%, 714 females and 636 males. We did not find gender difference in self-assessment quality of life and in the scores of resilience scale. Female students had lower scores in physical and psychological domains of WHOQOL-BREF (p<0.001) and higher daytime sleepiness scores (p<0.001). They showed more empathy (p<0.001), emotional exhaustion (p<0.001) and symptoms of depression and anxiety (p<0.001). The perception of educational environment was similar between males and female students in the DREEM questionnaire. At the same time it was different in VERAS-Q that showed women with lower scores in physical, psychological and time management domains and in total score.

Discussion and Conclusions: Female students had lower scores in the majority of items analyzed compared with their male colleagues. It is possible that women have, in general, more difficulties to face challenges during medical school. The physical and emotional impacts of medical school are greater in female than in male medical students.

Take-home messages: Gender differences should be considered in curriculum design.
Dissecting questions – gender differences in anatomy assessment performance

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Background: Gender difference in medical school exam performance is well documented. So when performance differences were identified on a small number of progress test (PT) items blueprinted as anatomy, further investigation was required to determine whether the differences extended to all anatomy questions and assessment.

Summary of Work: All PT questions requiring anatomy knowledge were identified and Differential Item Functioning (DIF) was employed to identify the items that performed differently across student subgroups. Further analysis was also carried out on a formative short-answer anatomy spot-test by way of comparison.

Summary of Results: Numerous items that resulted in gender bias were identified in both test modalities. However, items favouring male students typically counterbalanced those favouring female students and thus t-tests revealed no overall significant difference in mean scores by gender. There was also no evidence of gender difference in the likelihood of a ‘Do Not Know’ response. Further analysis of these items may shed light on areas of the curriculum that student subgroups find more challenging, and why. It also allows for interventions to be created that could mitigate these differences.

Discussion and Conclusions: Gender differences in performance across the two modalities of anatomy assessment were isolated to individual items and were not evident when all items were considered together. DIF analysis is well suited to identifying items which differed across groups, and enables further investigation of the content of those items. This can potentially inform learning-support interventions, and has facilitated further work investigating the commonalities in question architecture and/or content with the aim of adjusting future teaching/resources as appropriate.

Take-home messages: Gender differences were seen in some anatomy items. Identifying the reasons for these differences is key to informing learning-support interventions.

A survey of medical students’ bonding to institution at Saraburi Medical Education Centre

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Background: Saraburi Medical Education Center is responsible for providing clinical year medical education for CPIRD (The Collaborative Project to Increased production of Rural Doctors) students which is the collaborative project between Ministry of Public health of Thailand and Universities. As a teaching hospital, the educational environment is much different from university medical school. Apart from core curriculum, we have to provide the extracurricular support and activities to create the relationship among the students, hospital staffs and institution. We hope that what we provide will help them bond to the institute and become part of the future development.

Summary of Work: We conducted a descriptive study by surveying clinical year students’ opinion on institutional bonding and factors that affect the bonding. The students answered the self-administered questionnaires by rating on 5-level Likert’s scale. Data were collected; Statistic analysis included descriptive statistics and comparison by one-way ANOVA.

Summary of Results: Most students are female (54.5%). The bonding to the institute in areas related to educational environment, ethical activities and teamwork is highest (mean 4.19) while the area related to education is 3.94. There is no significant different between the degree of bonding between classes.

Discussion and Conclusions: The activities related to ethics and teamwork most enhanced their bonding to the institute while the activities related to education less helped the feeling of bonding.

Take-home messages: Bonding can be enhanced by group participation, social activities. The regularity of activities and communication between institution and students are crucial in maintaining the relationship.
Rovai’s Classroom Community Scale in Dutch as a reliable measure of sense of community in the Utrecht Bachelor of Pharmacy programme: validation and comparison between native and ethnic minority

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Background: Feelings of social cohesion facilitate collaborative learning, which has been associated with enhanced quality of learning, but ethnic minority students may be less socially integrated. This may negatively affect the quality of their learning. A previous study in the Bachelor of Pharmacy programme has suggested that students of non-Dutch origin (around 40%) are less successful in year-1 of their study. We hypothesise that this may be related to differences in social cohesion between students of different ethnic origin.

Summary of Work: This study aimed to validate a Dutch translation of Rovai’s Classroom Community Scale (CCS) and to assess sense of community in ethnic minority versus native students. Students in year-1 were asked to fill in the questionnaire twice (end of semesters 1 and 2). Ethnic background was determined on basis of the country where the student, or at least one parent, was born.

Summary of Results: Factor analysis (after elimination of 2 items) confirmed the 2-factor structure of the CCS with the dimensions ‘connectedness’ (α=0.843) and ‘interactive learning’ (α=0.809). Both connectedness and interactive learning were significantly lower in ethnic minority students compared to native students at the end of the first semester (scores 18.2±0.8 vs 20.8±0.4, p=0.003; and 23.7±0.9 vs 27.1±0.5, p<0.001, respectively). This difference was no longer detectable at the end of the second semester.

Discussion and Conclusions: The Dutch translation of the CCS is a reliable tool for assessing sense of community. The decreased sense of community among ethnic minority students suggests that the level of social integration may be a relevant factor for study success.

Survey of Relationship between the General Health and Motivation for Success with Educational Achievement among the Students of Fasa University of Medical Sciences in 2013

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Background: Health can affect the various aspects of life. The purpose of this study was to investigate the relationship between general health and student’s success motivation with educational achievement among the Fasa University of medical sciences students.

Summary of Work: 372 students of Fasa University of medical sciences were randomly selected for a cross-sectional study. They completed the demographic questionnaire of 28 items, Goldberg health and Herman’s achievement motivation. Having an average mark of 15 out of 20, not failed in any subjects at any time was the criteria for the educational achievement in this study. Paired T test, ANOVA test and Chi-square test were used for comparing the groups.

Summary of Results: Mean score for success motivation among the students who entered the university in 2013 was 83.5±7.7, in 2012: 71.9±7.7, in 2011: 72.6±6.9 and in 2010: 71.5±5.1 (p<0.001). Student’s field of study and their interest were related to the score of achievement motivation, so that the highest scores respectively belonged to the Hygiene students 78.1±5.9 (p<0.01), Medicine students 74.6±6.1 (p<0.01) and surgical technologist students 69.7±6.8 (p<0.05) was the lowest. 69.7% of students had mental health. In comparison of 4 parts of Goldberg questionnaire and the score anxiety, depression, health disorder and social withdrawal, there was a reverse meaningful correlation between the last semester average and depression score (r= -0.33, p<0.01) and social performance (r= -0.29, p<0.05).

Discussion and Conclusions: About 30% of students had a low health score. There was a negative relationship between educational achievement and depression. There is a demand for a precise planning regarding the medical students training program in order to improve the educational achievements and health.

Take-home messages: If the students will be healthier and happier, their educational achievements will be more too.
#9HH Posters: Faculty Development / The Patient as Teacher
Location: Hall 4, SECC

#9HH01 (25972)
EDP scholars Track: jump starting careers, scholarly work, and scholarship

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Background: The EDP Educator Scholars Track at Vanderbilt is a faculty development, career building program designed as an education-based, project-specific learning experience with intensive mentoring, career development, and a scholarship focus.

Summary of Work: The EDP Educator Scholars Track is a career development, outcomes-based program consisting of seven educational domains; each with 2-7 measurable outcomes. The program enrolled four scholars into a two-year, intensive mentoring program on curriculum design and evaluation with a focus on scholarship. Participants engaged in one-on-one and group mentoring sessions.

Summary of Results: After the first two years, all four participants rated program activities highly. All completed and implemented curriculum design projects. Participants have transferred learned skills into other teaching activities. Three of four scholars have accepted presentations (posters and oral abstracts) at regional/national education or specialty-based conferences; last one in preparation. Two are actively writing papers and enduring medical education materials for submission. The program mentor devoted 10% effort and participants received 10% FTE protected time. Funding sources included internal and external funds.

Discussion and Conclusions: Faculty development is currently an LCME and ACGME requirement in the United States. Building future faculty developers meets an institutional need and supports the educational mission. An intensive mentoring program can jump start educational careers and promotes a scholarly approach to teaching and educational scholarship. Implementing a career development, outcomes-based program for medical educators supports career development, scholarly work and scholarship.

Take-home messages: Scholarship can be increased through a faculty development program and there are benefits to the institution, mentor, participants and learners from implementing a faculty development program.

#9HH02 (25637)
A Survey of the Knowledge, Skills & Attitudes of the Clinical Teachers in KTPH Singapore

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Background: This study aims to provide a snapshot of our current clinical faculty’s knowledge, skills & attitudes towards formal medical education training, which would facilitate the planning & development of our faculty by the Education Office.

Summary of Work: This is a self evaluation study of faculty’s own perception about their knowledge of educational jargon and teaching and assessment methods. It is hoped that with the understanding of how our local faculty feel about formal training in medical education & what they perceive are possible gaps in their knowledge or skills, we will be able to formulate a faculty development road map that will be relevant and readily received by all.

Summary of Results: This is a mixed methods study of quantitative part first followed by qualitative component of focus groups. An Online survey questionnaire is sent to all the faculty member including a question about the participant’s willingness to take part in focus group discussions. Survey is underway and from samples received it is not enough to deduce any conclusion to start a formal faculty programme.

Discussion and Conclusions: The faculty development is becoming far more important than curriculum development. Hence it is imperative to evaluate and assess current status of teaching and training abilities and qualities of the whole faculty. Authors feel that self assessment on a questionnaire will capture reality to allow introducing formal faculty development programme. However, it is expected that complete results will be significant.

Take-home messages: Faculty training in medical education methods is important and must be assessed by a valid tool like self assessment.
#9HH03 (24284)
Learning in distance education through digital forums

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Background: The Department of Education in Health Sciences (DECSA), University of Chile, has spent many years training clinical teachers in teaching. Three years ago a Diploma program was initiated, remotely supported on digital platform. One of the tools used are digital forums. It is seek to achieve evidence regarding the generation of learning by participating in online forums, found through the change in the content of the discourse on given topics in the development of the forum.

Summary of Work: The content of the speech is analysed through qualitative, descriptive, non-experimental methodology of discursive interactions in the process of participants on a digital forum, within the unit of "Curriculum".

Summary of Results: The digital forums show interactions between subjects; interactions that take place in a collaborative environment: exchanging, converging, opposing, arguing, and referencing the experience and history. There are changes in terms of vocabulary, reasoning, complexity and linkage to practice. This shows that there is a change, which might be called learning.

Discussion and Conclusions: Interestingly, in a topic so far from Health professions such as “Curriculum”, participants in the digital forum, through the foundation and analysis of selected topics in the content of his speech, gave evidence of learning by appropriating topics that were not previously handled.

Take-home messages: It is necessary more research, but the digital forum looks like a good tool for learning in distance education.

#9HH04 (24098)
Assessment of a physiotherapist teachers training process under a curriculum redesign

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Background: In the context of a new competence based curriculum model, teachers need to develop teaching training moments to improve educative practice in the classroom and in the clinic through training sessions and continuous support. Regarding this point, it becomes essential to develop a new training model named educational capsules and to assess the impact that this training sessions have in the educational context.

Summary of Work: Qualitative research based on a research-action approach. The teachers were personally contacted and, after a informed consent process, three instruments to collect data were used: semi-structured interviews, classroom and clinic observation, and field notes. Twenty physiotherapy teachers participated in the study. The results were analyzed by content analysis using Atlas-ti 7.5.2 software.

Summary of Results: After the first training, 187 conceptual codes defined two categories related to the class planning and the verbal exchange between teachers and students. For the first category, 33 codes referred to the structure, educational management and the teacher's didactic and personal resources. For the second category, 59 codes were referred to the type of verbal exchange (simple, complex or unfinished) and to the type of activating questions asked during classes.

Discussion and Conclusions: Educational capsules as a way of teaching support could facilitate the transference of teaching competences in educational contexts both in classroom and clinical spaces. However, to ensure the teacher's effective performance it is important to generate moments of support.

Take-home messages: The assessment of the physiotherapist teachers training process is the key to ensure a appropriate and continuous transference of the teaching competences to the classroom and clinical spaces which could benefit the student's learning process.
#9HH05 (24971)  
A new system for GP Trainer re-approval in Dorset: a pilot  

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**Background:** Trainers and training practices are the cornerstones of GP training. Managers of GP postgraduate education are responsible for ensuring the quality of the training environment. This involves a system of training practice visits (educational team members visit the practice and interview the trainer, trainee and others involved in training) and individual trainer accreditation. Large trainer numbers and geographical area pose challenges to Dorset with the current system.  

**Summary of Work:** The poster reports a pilot for a revised format of trainer re-approval. Instead of team members visiting training practices, trainers and other key people involved travelled to the GP education office for re-approval, educational reflection and development.  

**Summary of Results:** Three iterations of the pilot format were evaluated using pre and post feedback surveys. Attendees were questioned about their views on the existing process, the new pilot format and what they valued about re-approval. Seeing the GP practice and learning environment was identified as a key value of the current system. Sharing reflection on practice with other trainers and meeting more educational team members were highlighted as positive aspects of the new format, along with time efficiency. More negative aspects for attendees were travel to the educational office and the absence of several staff members, particularly GPs, from the practice at one time.  

**Discussion and Conclusions:** The pilot proved to be a successful model for trainer re-approval. Following modification (based on feedback) the new format will be used on an alternate basis with the existing system in Dorset.  

**Take-home messages:** Alternating the visit approach to trainer re-approval between BU and the practice has benefits for all.

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#9HH06 (25977)  
Building capacity through a Teaching and Education Scholarship Community of Practice (TESCoP)  

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Denyse Richardson, University of Toronto, Department of Medicine, Toronto, Canada  
Mandy Lowe, University Health Network, Department of Medicine, Toronto, Canada  
Jerry Maniate, University of Toronto, Centre for Faculty Development at St. Michael’s Hospital, Toronto, Canada  
Latika Nirula, Centre for Addiction and Mental Health, Centre for Faculty Development at St. Michael’s Hospital, Toronto, Canada  
Stella Ng, University of Toronto, Toronto, Canada  

**Background:** Faculty development (FD) programs for health professions teachers is typically offered in a central location. Yet after engagement with centralized FD programs, participants often struggle with how to integrate and translate their learning meaningfully into their workplace. Communities of practice (CoPs) can be used to support education efforts within local practice contexts.  

**Summary of Work:** We initiated a novel approach to FD by situating it in individual healthcare organizations. A CoP foundation workshop was held where sites developed action plans to cultivate TESCoP in their organizations. TESCoP provides support for teachers to mobilize education knowledge into practice, engage in education scholarship within their practice, and facilitate knowledge exchange in their organization. Our research examines processes involved in fostering TESCoP for FD in three different sites using multiple case study methodology informed by a developmental evaluation lens. Data collection explores barriers and enablers related to engagement and sustainability of TESCoP.  

**Summary of Results:** A similarity observed across sites is the enthusiasm in engaging with colleagues interested in education, but whose roles may not formally encompass education scholarship. A key difference between sites is the pace at which consensus building occurs regarding how to engage in education scholarship. Contextual explanations for these observations relate to organizational infrastructure and advocacy for education initiatives.  

**Discussion and Conclusions:** Explication of nuanced differences, and similarities, across three diverse healthcare organizations offers rich understanding of how local CoPs are influenced by contextual factors. TESCoP illustrates an approach to supporting scholarly education efforts within local practice contexts.  

**Take-home messages:** Fostering workplace-based FD via CoPs requires critical elements and processes.
"Let's talk about it!": The role of peer dialoguing in faculty development

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Background: Peer review is a powerful resource for faculty development. Traditionally, however, peer review is often implemented in a superficial and mechanistic manner through the use of a checklist of behaviours. This predominant use of the checklist may be perceived as punitive, ritualistic and unsupportive. We have introduced Peer Dialoguing into our medical school to implement a process which promotes open discussion and exchange of ideas; this type of dialogue has led to a culture of faculty development and support which fosters a culture of personal questioning, reflection and improvement.

Summary of Work: As we introduced peer dialoguing amongst our faculty, we have had the opportunity to engage a small group of faculty who have self-selected. We are now in the process of focusing on engaging Pathology & Laboratory Medicine faculty and residents teaching in undergraduate and postgraduate medical education to participate in this process.

Summary of Results: By implementing peer dialoguing rather than a checklist, we have observed so far: active participation in the process, collaborative inquiry, and empowered participants who are engaged and keenly interested in taking on the role of a peer dialoguer with their own colleagues.

Discussion and Conclusions: So far, this model of peer dialoguing has created a climate of respect, an opportunity to build upon experiences, and a chance to empower faculty in a mutually respective and supportive way.

Take-home messages: Robust and continuous faculty development is vital to providing high-quality medical education. The participatory conversations inherent in peer dialoguing advance clinical teaching excellence.

An evaluation of the RCR mentoring scheme pilot for newly-appointed consultants

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Background: A Royal College of Radiologist's (RCR) survey suggested that newly-appointed consultants felt unprepared for their new role and would value a mentor. Therefore the College set up a pilot mentoring scheme. The aims were: To develop a set of people with mentoring skills; To support a set of new consultants; To evaluate whether it would be worth rolling out a similar scheme to all new consultants.

Summary of Work: We had 36 applications from experienced consultant to be mentors and 46 from new consultants. Due to geographical restrictions, we were able to match 18 pairs. We launched the pilot with a training day in May 2014. All mentees were sent an e-mail link to an anonymous survey, repeated at baseline, six and 12 months, including validated scales of: job satisfaction; work engagement; burnout; organisational commitment; work-life balance; self-esteem and self-efficacy.

Summary of Results: We are awaiting final results. After May 2015, we will compare the results from our small set of new consultants who had a mentor against the scores that we might expect of new consultants from the published literature.

Discussion and Conclusions: Providing a mentoring scheme has proved costly, and this rigorous evaluation will help inform the decision as to whether the College will continue with this or a similar scheme.

Take-home messages: There is scant research evidence that mentorship helps newly-appointed consultants to adjust to their new role. More extensive controlled trials on the efficacy of mentoring are needed.
#9HH09 (25759)
A faculty development programme on Clinical Communication: impact on teaching and clinical practice

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Background: Clinical communication skills (CCS) are among the core competencies in Medical Education, and essential for providing quality health care. To integrate CCS in the curriculum; it is important that faculty have efficient and effective CCS and be able to teach, observe, evaluate and provide feedback to learners. Therefore, a greater emphasis on faculty development in the domain of teaching and assessing CCS is required.

Summary of Work: A Faculty Development programme on CCS was implemented at the University of Porto School of Medicine. The programme included 6 different 2-days modules, facilitated by 9 internationally recognized faculty experts. The aim of this programme was to promote and improve integrated teaching skills of CCS in clinical practice. A pre and post course assessment was administered to 13 participants and to 15 control group members.

Summary of Results: After the programme, we observed: (i) significant differences between participants and controls in their ability to identify CCS principles (P = <0.001) and CCS teaching principles (P = 0.004); (ii) significant differences of participants with regards to definition of CCS (P = 0.003), skills spotting (P = <0.014) and feedback (P = <0.016). Importance of teaching CCC and participants’ confidence levels were also significantly different after the intervention (P = 0.001).

Discussion and Conclusions: Results suggest the programme has a very positive impact on faculty’s recognition of the importance of CCS and its integration in their teaching and clinical practice.

Take-home messages: Faculty development programmes can be valuable and effective tools for promoting better integration of CCS in health professional training.


#9HH10 (25334)
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 5-phase SDM consultation model: 1. Start (goal, equipoise). 2. Informing (treatment options, pros/cons). 3. Deliberation (weighing considerations, concerns). 4. Preference. 5. 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: SDM skills are essential for effective communication with patients. Our 5-phase consultation model can be used to both teach these skills and assess them using a rating list.

Take-home messages: SDM skills can be taught and assessed.
Patients’ experiences with the recognition of residents and trust in the quality of their care

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Background: The Dutch Consumer Quality Index (CQI) survey is validated for measuring patient experiences, monitoring quality of care and to improve care. Regarding care delivered under residency training programs, there may be tension between the interest of individual patients and the importance for the population as a whole to train young doctors.

Summary of Work: We have extended the regular yearly CQI survey to investigate the perceived quality of care delivered in the context of our (sub-)specialty residency training programs (n=33), with a total of 488 residents. Questions were added related to patients recognizing care being delivered by a resident or intern, and their trust in the quality of this care.

Summary of Results: Overall results show that for out-patients (n=1405) 18% mostly and 68% entirely (86% in total) knew whether care was provided by a medical specialist, resident or medical student. For hospitalized patients (n=1009) this was 38% mostly and 45% always. When delivered by residents, many patients (91% and 88% resp.) mostly or entirely trusted the quality thereof.

Discussion and Conclusions: Both hospitalized and out-patients treated in our large University Hospital (1042 beds) generally seem to be appropriately informed about the grade of their care giver. A reassuring majority entrust the quality of care delivered by residents.

Take-home messages: When entrusting professional activities to residents, the trust of patients really matters too. Obtaining valid information about patients’ experiences with care delivered under residency programs is highly recommended.

Patient perceptions of medical students in primary care: welcome or not?

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Joseph Larvin, University of Oxford, Medical School, Oxford, UK

Background: Little research has investigated patients’ perceptions of medical students in primary care. We explored this area using a patient questionnaire.

Summary of Work: 145 patients (50 male, 90 female) from 3 primary care centres completed a 6-point questionnaire. Non-identifiable patient information was recorded to perform subgroup analyses using z tests of proportionality.

Summary of Results: 86% of males versus 67.8% of females (p=0.02) were happy to have a male student present in their consultation. More females were happy to have a female student present (81.1%) more than were happy to have a male student present (67.8%) (p=0.0004). 19.9% of respondents would refuse a consultation led by a student. 16.6% of total respondents felt having a student present affected how they acted with the doctor. 36% of patients felt they would rather have a quick appointment than see a student first. 27% of patients would not allow a student to perform a necessary intimate examination (32.2% female vs. 18% male p=0.14).

Discussion and Conclusions: Our results suggest female patients prefer female to male students and that a medical students’ presence may alter the doctor-patient relationship. A significant proportion of patients prioritise speed of appointment over medical education.

Take-home messages: Concerns for patients regarding a medical students presence include: time, gender and their doctor-patient relationship. GPs and students need to elicit and act on a patient’s preference.
Humaments: a creative approach to illuminating the experience of patients involved in a hospital based undergraduate teaching skills course

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Background: We have designed a near-peer bedside teaching session involving patients in a hospital-based teaching skills course for undergraduate medical students. Patients have the session described in advance and are invited to participate by a facilitator not directly involved in the teaching who also explores concerns of patients in advance of the session and seeks their feedback afterwards. These patient-centred steps are considered an essential step for students to develop professional values but are frequently omitted.

Summary of Work: Qualitative data based on patient responses were analysed thematically. Key themes in a representative section of textual responses were then illuminated by course organisers and students using a creative tool called a Humument (1): a ‘human document’ in which text is treated in a literary and visual way to highlight meaning.

Summary of Results: Factors of greatest concern to the patients prior to the teaching (n=159) were to avoid physical discomfort/harm, n=63, and to understand what the session would involve, n=57. Humuments were created reflecting the emotional narratives of patients and used as a prompt for reflection by display in classroom and course book.

Discussion and Conclusions: We are aiming for patients to have a positive experience by involving them in the education process (2), and for this aim to be of central importance to the students. This requires students to recognise patients as human beings and not merely ‘useful cases’.

Take-home messages: This study illustrates the potential value of collaboration with the humanities to highlight the ethos of the patient experience and promote humanity towards hospitalised patients involved in undergraduate teaching.


Assessment of long case examination of the final-year medical students by patients’ parents compared with medical teachers in pediatric rotation

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Background: Competency-based medical education (CBME) emphasizes on the outcomes based on social and parental needs. Patient experience surveys can be useful for the assessment of the medical curriculum. Validation of the evaluation form for patients to assess students is therefore important before implementation.

Summary of Work: During the long case examination, parents were asked to evaluate the students who examined their children, in parallel with the evaluation from medical staffs. The checklists were 3-graded score in history interview, physical examination, patient communication, and professionalism assessment. The wordings in each item in the checklists designed for parents and staffs were different but fit into each aforementioned items. Association between the scores from both sides were performed using marginal homogeneity test.

Summary of Results: In the year 2013, 155 final-year medical students participated in the examination. There were 122 students who were evaluated by both faculty staffs and parents. Of the 4 items examined, the scores in history taking and professionalism did not differ between staffs and parents, while they were higher from parent side in physical examination and communication items.

Discussion and Conclusions: Our preliminary results suggested that the evaluation from medical staffs and parents were quite agreeable in the history taking and professionalism aspects. Parents tended to give higher scores in physical examination and communication skill parts.

Take-home messages: Evaluation of the medical students in pediatric long case examination by parents as a part in CBME is promising. More understandable checklists for both parents and staffs may facilitate better assessment from both sides.
#9HH15 (25959)
Patients’ Attitude toward Involving Medical Students in Clinical Examination and Care in Western Saudi Arabia

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Background: Patients’ attitude and willingness regarding the involvement of medical students in clinical examination and care is a challenging issue that might interfere with the medical education process. The objectives of the study were to assess patients’ attitude and comfort level toward involving medical students in clinical examination and care in western Saudi Arabia, and to identify factors that could influence patients’ preferences.

Summary of Work: A cross-sectional study using self-administered questionnaire was conducted. Participants included patients who attended the outpatient clinics or were admitted in medical, surgical, obstetrics and gynecology departments in King Khalid National Guard Hospital and King Abdul-Aziz University Hospital.

Summary of Results: Four hundred and seventeen adult patients were included. Fifty one percent of patients reported positive attitude toward involving medical students in clinical examination and care. Positive attitude has been reported among 61.7% and 59.7% of male and older age patients (> 45 years old), respectively. Patients who had negative attitude preferred to be examined by medical students of the same sex, and preferred less number of students to exist during clinical consultation or perform examination. Students’ clinical and communication skills were the most influential factors that affect patients’ willingness. Patients were less confident in female and male students wearing casual attire.

Discussion and Conclusions: The acquisition of communication and clinical skills is essential to enhance patients’ cooperation and willingness to accept medical students’ involvement in clinical examination and care.

Take-home messages: This study strongly supports the notion that wearing casual attire could negatively influence patients’ confidence. Culturally-based awareness intervention activities could improve patients’ attitudes.
As never seen before: A communication specialist may change the way we teach

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Marcelo Schweller, University of Campinas, School of Medical Sciences, Campinas, Brazil
Tiago de Araujo Guerra Grangeia, University of Campinas, School of Medical Sciences, Campinas, Brazil
Marco Antonio Carvalho-Filho, University of Campinas, School of Medical Sciences, Campinas, Brazil

Background: Medical teachers often lack specific training to develop their communication skills. In this context, they feel “helpless” for not being able to keep up with the ever-changing ways students use to communicate nowadays.

Summary of Work: Aiming to reduce the gap between the content of the emergency medicine curricular rotation and students’ language, a communication specialist was included in the teaching team since April 2013. All traditional classes and e-learning interventions underwent a huge technical improvement in their visual and written aspects. Some advertising techniques, such as proper use of colors, text, images and graphics, were taken to attract students’ attention and optimize learning retention.

Summary of Results: Supported by a communication specialist, all lessons and a Moodle-based course were renewed with teachers’ approval. There was an increase in students’ participation during the classes and at the virtual environment. Moreover, teachers themselves shared their perception of a higher sense of satisfaction with this new approach.

Discussion and Conclusions: Medical education may benefit from professionals to assist professors and educators to talk to their audience. The communication professional may be the agent that will facilitate and improve the information delivery to the students, modernizing traditional classes and adapting them to the new formats and languages that the students are familiar.

Take-home messages: A communication specialist may improve the way medicine teachers deliver information to their students.
Historically, students have been considered by educators as consumers of education. Today, however, it is strongly advocated that health professional students should be actively engaged in the teaching-learning process in order to optimise transformative learning for the acquisition of core professional competencies for their future practice. Thus, it is timely to re-visit this issue through an in-depth review of the student-teacher relationship, since it is critical for health professional teachers to have a clear understanding of the topic in order to be able to implement any intended reforms in health professional education. Moreover, the Symposium will provide an excellent forum to publicise the role and activities of the Student Engagement Panel within the AMEE ASPIRE initiative. Attendance at this Symposium will enable participants to update their knowledge on the topic and, consequently, obtain guidance for educational decision-making for intended reforms in health professional education. Participants will also be invited to contribute to discussions and to raise questions.

Focused feedback in the clinical workplace, provided in a valid and timely manner, is a widely recognized condition for efficient development of competence. Current and emerging technologies may enhance this, serving validity and timeliness. Learning analytics is a domain in education research that has recently drawn attention as an approach to utilize increasing amounts of data of administrations, social media, e-learning and e-assessment for the benefit of monitoring and supporting students, and potentially, clinical performance. In healthcare education, learning analytics is in its infancy. This symposium focuses on the potential use of this technology to support the quality of feedback to learners, the quality of assessment and the quality of entrustment decision-making when granting healthcare responsibilities to learners, such as for entrustable professional activities. Finally the potential of connecting learner data to program quality and patient outcome data is discussed. Examples from several institutions are presented.
#10C XIII Iberoamerican Session: Medical Education Systems and Health Care Systems, can they work together? What is needed? A Leadership Discussion
Location: Lomond Auditorium

Pablo Pulido*, PAFAMS
Emmanuel Cassimatis*, ECFMG – FAIMER
Maryellen E. Gusic*, AAMC, USA
Arcadi Gual i Sala*, Spain
Ricardo León*, Mexico
John Norcini*, FAIMER, Brazil
Trudie Roberts, AMEE, UK

This session, with input from academic leaders from diverse national and international experiences will focus into the challenges confronting both emerging and established health and medical education systems. Attention is given to 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 to align with and facilitate health system delivery changes and promote concrete outcomes for the improvement of the health of the served populations. It is clear that academic leaders must rely on critical thinking and decisive decision making to create needed solutions. 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 and the panelists, the critical issues facing each country or area, having the input of the knowledgeable audience addressing the discussion towards the realities and needed ongoing solutions, with illustrative crucial examples from Colombia, Argentina, Canada, and other hemispheric countries including past failures and successful actions that highlight the key role of insightful leadership.

Ideally a walk away lesson from the discussion will indicate a way forward to make significant changes to improve the quality of Medical Education and the health of the population on a national, regional and global level.
Postgraduate qualifications in medical education – Is the Juice worth the Squeeze?

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Sean McAleer, University of Dundee, Centre for Medical Education, Dundee, UK
Rola Ajawi, University of Dundee, Centre for Medical Education, Dundee, UK
Susie Schofield, University of Dundee, Centre for Medical Education, Dundee, UK

Introduction: Due to increasing societal demands, accountability and economic constraints, there has been a paradigm shift in the healthcare culture with a move to train medical educators. This has resulted in the professionalisation of medical education, with various development initiatives including postgraduate qualifications. The demand for these qualifications in medical education can be judged by the increase in providers, from 2 to 31 in the UK and from 6 to 121 worldwide over the last two decades (1). However, detailed information about the influence and effectiveness of such courses remains sparse. This study investigated the impact of postgraduate qualifications in medical education on graduates’ educational identities, practices and career progression.

Methods: The study design is mixed methods using the explanatory model (2). The first stage comprised of an online survey of graduates (approximately 1000) from the Centre for Medical Education, Dundee between 2008 and 2012. The data collected were sequentially explored in more depth through semi-structured interviews in the second stage. To increase the range and scope of inquiry a third stage was carried out, which involved a 10 month follow up of eight face to face students (2013/14) through the course to the workplace. The qualitative data were analysed using non-parametric statistics on SPSS 21, and grounded theory analysis (constructivist) was used to analyse qualitative data in Atlas ti 7.

Results: Two hundred and twenty four questionnaires were returned out of 504 graduates who received and opened the email invitation (44.4%). The graduates reported a highly significant (p<0.001) improvement in educational competencies and involvement in scholarly activities after graduation. There were significant differences between graduates from the Certificate compared with the Masters on several items. Twenty seven of the 224 respondents were interviewed in-depth. These graduates reported development as a teacher, researcher, leader and learner with increased confidence in educational abilities. The graduates also reported various challenges and enablers towards implementing evidence based educational changes in the workplace.

Discussion and Conclusions: We found that a qualification in medical education enhances theoretical foundations in educational practices with increased self-efficacy and engagement in scholarly activities. These qualifications impact the graduates irrespective of age, even older graduates with long-term experience in education showed significant improvement. The qualification helps develop an educational identity with an increased sense of belonging to the educational community. Many attributed their career progression to the qualification, with greater educational responsibilities. The graduates were able to lead various educational changes in the workplace and they described substantial performance attainments. We also found an influence of work environment and personal factors on the impact of these qualifications. This is the first study on the long-term effects of an award bearing course in medical education on healthcare professionals worldwide. A qualification in medical education increases self-efficacy and engagement in educational activities. It encourages transformational changes and epistemological development of graduates. A conceptual framework based on an increased understanding of the identity development of healthcare educators was also developed. We recommend maintaining the Certificate as a minimum exit point for clinical teachers. However, continuing to Masters will result in further gains particularly related to research.


Adaptation to new professional roles: identity formation and boundary crossing in clinical health sciences

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Introduction: Educational programmes in clinical health sciences (CHS) aim to educate health care professionals in health science research, in order to bridge the ‘research-practice gap’. Identity formation is thought to be crucial for successful adaptation to new professional roles, however little is known about identity formation in health science education. In this study we investigated professional identity development of (non-physician) clinical health scientists, from the theoretical perspectives of dialogical self theory (Hermans and Gieser, 2012) and boundary crossing (Akkerman and Bakker, 2011). These
Theories are helpful in explaining identity formation in multiple roles and learning at intersections of professional fields.

Methods: We conducted a qualitative study among alumni of a master of science programme in CHS, aimed at nurses, physiotherapists, and other non-physician health care professionals. Structured interviews were held one year after graduation (May-November 2014), and included a storyline technique in which subjects draw a timeline to reflect on changes in their professional identity. Participants (n=14) were 10 nursing-scientists (1 male, 9 female) and 4 physiotherapy-scientists (1 male, 3 female), average age 34 years (range 25-51). Participants were employed in different work environments (patient care, research, teaching, and health policy). Interviews were transcribed and analysed using the software programme NVIVO. Coding was done by two researchers (MK,EH) in an iterative process using identity formation and boundary crossing as sensitizing concepts.

Results: Analysis of the data indicates that personal development and a wish to improve quality of care are the main drivers for health professionals to enter the health sciences programme. For all subjects the programme led to major changes in professional identity. Their primary identity as care provider remains very important, even when no longer working as such. The health scientist identity is experienced as an additional professional identity. How strongly each facet of this multiple professional identity is experienced seems strongly influenced by work experience and current (paid) position. After the programme, alumni are highly motivated to take on new roles particularly in research, teaching or health policy. Interviews were transcribed and analysed using the software programme NVIVO. Coding was done by two researchers (MK,EH) in an iterative process using identity formation and boundary crossing as sensitizing concepts.

Discussion and Conclusions: Educating health professionals in health sciences can support the formation of a multi-facetted professional identity in which positive mutual influences are seen among the fields of health care and science. Boundary crossing competencies and pro-active job crafting appear to be prerequisites to take up, and often shape, new professional roles which bridge the field of health care and science. It is recommended that clinical health science programmes address these themes and actively support identity formation in their students.

(2) Akkerman SF and Bakker, A. Boundary crossing and boundary objects. Review of educational research 2011:81(2)132-169.

#10D3 (23708)
How supervisors define CanMEDS roles in their feedback to residents: A Critical Discourse Analysis

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Introduction: Many training programs have adopted the CanMEDS framework aiming to better prepare physicians and therewith improve patient care. The framework describes the profile of a competent physician based on a set of roles: a central Medical Expert role and six peripheral intrinsic roles. Based on a critical discourse analysis on the historical development of the CanMEDS framework, Whitehead et al. (2011) propose to treat the roles as socially negotiated outcomes, rather than objective ideals: the roles fit the needs of the profession and society in a certain time and context (1). What supervisors say about the roles in their feedback to residents is also socially negotiated: not only based on the official documents, but also on their experience and cultural context. The curriculum-on-paper might therefore differ from the curriculum-in-action. We investigated how the CanMEDS roles are defined in a curriculum-in-action in a clinical setting, by analyzing supervisors’ feedback to residents.

Methods: Our dataset consisted of 591 feedback forms of 120 residents and 126 supervisors from internal medicine departments in 7 Dutch hospitals. Feedback on CanMEDS roles was given during a conversation after direct observation of performance in an authentic situation, the main points were written down on the forms. In order to perform a detailed textual analysis, 100 forms were purposefully selected in based on being extensive and as varied as possible. Critical discourse analysis provided a qualitative tool for detailed analysis on how language –feedback- builds meaning, relationships and power. Special attention was paid to key words, statements and metaphors; in this way we analyzed what was considered ‘natural’. The data was analyzed using Gee’s tools (2).

Results: For Communicator there was a strong focus on being fast and to-the-point, for communicating with staff but also with patients. Aspects of patient communication, such as showing empathy and asking

(2) Akkerman SF and Bakker, A. Boundary crossing and boundary objects. Review of educational research 2011:81(2)132-169.
questions, were generally combined with comments on speed. For Collaborator we found two discourses, a cooperative, equal, discourse and another one in which the resident was placed in a position of power. In this second discourse, collaboration was constructed as delegating tasks, asserting and taking a ‘firm stance’. Manager was constructed in the data as ‘managing self’, ‘managing others’ and ‘managing means’. Being fast, goal directed and taking initiative in policy and treatment plans were regularly mentioned in all discourses of Manager. Feedback on Professional focused on the resident as a trainee – open and learnable, the resident as a member of the healthcare team – approachable, decisive and standing up for oneself- and included general traits of a professional: critical attitude, managing time and having oversight.

Discussion and Conclusions: For all roles, a dominant discourse on efficiency emerged from the data. Considering the original goal of implementing CanMEDS to improve patient care, it is remarkable that patients were seldom mentioned in the feedback, and when they were mentioned, they were placed as objects of communication and collaboration instead of as members. It therefore seems that, in feedback comments, patients are placed in a peripheral position in the healthcare process rather than at the center.


Delineating the non-bioscientific knowledge needed within medical curricula to support current definitions of the competent physician

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Introduction: Competency frameworks such as CanMEDS and others make clear that as well as biomedical knowledge and technical skills, physicians must be taught to be scholarly, compassionate professionals who collaborate, communicate and advocate effectively. While medical school and residency curricula have traditionally been almost entirely comprised of bioscientific knowledge, the 6 non-Medical Expert (nME) CanMEDS Roles are conceptually based in the social sciences & humanities (SSH). Educators frequently express uncertainty about what to teach to underpin the nME Roles. At AMEE 2010 in Glasgow one of us presented a “thought experiment” about how one might define the knowledge (facts, theories, epistemologies) required to provide an academic foundation for the nME Roles (1). We have since transformed that conceptual work into a qualitative study to concretely identify this knowledge beyond bioscience needed to best support training competent physicians.

Methods: We interviewed 58 non-clinician University faculty with doctorates in >20 SSH disciplines (choosing non-clinicians to avoid clinician preconceptions about the medical curriculum and medical knowledge). We abstracted our transcripts using meaning condensation and direct quotations resulting in ~300 pages of relevant data which was coded both top-down (by nME Role) and bottom-up (thematical) and analysed within a critical constructivist framework. Interview participants and clinicians with SSH PhDs then member-checked our results and refined them for implementation.

Results: Twelve interrelated cross-cutting themes were evident in the data. Of these themes, an understanding of epistemology, including the constructed nature of social knowledge and how knowledge is produced in various paradigms, was seen as the foundational theme without which the other 11 themes could not be appropriately taught or understood. Among those 11 themes, our findings highlighted 3 interrelated anchoring themes, Justice, Power and Culture, which all link to a series of 8 rich themes about the future physician’s relationships to the World and to the Self. Each of these 12 themes was found to relate to all 6 of the nME Roles, making them all truly cross-cutting. The data also provided a rich trove of potential curricular content linked to each specific nME Role.

Discussion and Conclusions: The knowledge from a broad range of SSH disciplines that forms the academic underpinning for the nME Roles is essential for training physicians within our current competency frameworks but is outside the experience of many medical educators. Theoretically, this will require an epistemic shift in the kind of knowledge considered “legitimate” and necessary within medicine and may have implications for the kinds of faculty members needed in medical schools. Our data also offers practical solutions for those having trouble teaching the nME Roles, as the resulting teaching materials we have developed (modules, reading lists, etc) provides many options for adaptation into local curricula.

Conclusion: Training physicians to meet current definitions of competency requires knowledge from SSH that we have delineated and turned into accessible curricular materials. These materials are now being implemented into three Canadian medical programs (with plans for further expansion) and we are conducting an ongoing evaluation of this
implementation process as a complex social intervention.

#10E  Short Communications:
Evaluation of the Teacher
Location: Forth, Clyde Auditorium

#10E1 (26239)
Faculty assessment during a continuing professional development educational event for spinal surgeons

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Michael Cunningham, AO Foundation, AO Education Institute, Switzerland

Background: In December 2014 AOSpine ran an educational event for 263 spinal surgeons. Each participant was able to choose 4 out of a possible 5 modules to enroll in over 4 days. Each module had a Chairperson, Educational Advisor and faculty team allocated to it, and each module was repeated once during the event with a different audience.

Summary of Work: During the event participants rated content and faculty using paper evaluation forms and staff reviewed the papers each day, providing feedback to the Chairperson or Educational Advisor of each specific module. Chairpersons and Educational Advisors completed an electronic form to assess the event including faculty performance. A de-brief session took place at the end of the 4 days with all Chairpersons, Educational Advisors and staff, and the participants received an online survey to complete within two weeks of the event.

Summary of Results: Each Chairperson made changes to their module following the feedback received from the paper based evaluation from participants. 63% of the faculty received better scores when repeating the module the second time around.

Discussion and Conclusions: The summative evaluation information gained from the de-brief session is being used to plan this year’s events faculty teams. Suggestions have been made for further faculty development opportunities for a few surgeons to further improve their teaching skills.

Take-home messages: Receiving feedback from multiple sources provides the education team with a more balanced view of the event itself and can ensure decisions are made using majority opinions from the learners as well as the teacher’s peers.

#10E2 (25991)
Perceptions of Peer-Review of Teaching in Medical Education

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Don Bradley, University of Manchester, Manchester Medical School, Manchester, UK
Iain McIntyre, University of Manchester, Manchester Medical School, Manchester, UK
Julian Wright, University of Melbourne, Rural Clinical School, Shepparton, VIC, Australia

Background: Peer-Review of Teaching (PRT) is less common in Australian tertiary institutions than in the US and UK. PRT has been shown to validate current teaching strategies, allow self-reflection, and promote collegiality.

Summary of Work: Using a sample of medical educators in Manchester (UK), Melbourne (Australia), and Rural Victoria (Australia), we sought opinions about PRT, its value as a professional development tool, and individuals’ interest in participation. Participants completed the Perceptions of PRT for Professional Development in Medical Contexts questionnaire. Responses were analysed using SPSS.

Summary of Results: PRT was seen as a positive initiative, though uncommon: 87.7% would take part; 90.6% agreed it improves teaching practice; 26.1% reported previous participation. Opinions corresponded across the three locations. Educators who taught more hours per week were early- to mid-career, and had more time participate.

Discussion and Conclusions: Findings support previous research: While positive attitudes towards PRT exist, formal implementation is lacking within medical education. The benefits of PRT appear to be better appreciated by younger, early- to mid-career medical educators; older medical educators felt they would not benefit from PRT, and were disinterested in taking part. PRT is a valuable tool for the professional development of educators. There is a common willingness to participate, but an apparent lack of opportunity.

Take-home messages: Improved availability of targeted PRT programs is needed for both metropolitan and rural medical educators, to fulfil the professional development needs and wants of interested faculty.
Supporting Physicians' Self-directed Reflection and Performance Improvement: Developing and Implementing the Physician Performance Assessment Program

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Maas Jan Heineman, Academic Medical Center/University of Amsterdam, Board of Directors, Amsterdam, Netherlands
Olivier Busch, Academic Medical Center/University of Amsterdam, Surgery, Amsterdam, Netherlands
Presenter: Kiki Lombarts*, Academic Medical Center/University of Amsterdam, Professional Performance Research Group, Center for Evidence-Based Education, Amsterdam, Netherlands

Background: High performers are known to be reflective and improvement driven. To facilitate physicians in their striving for high performance in clinical and teaching performance we developed a comprehensive Professional Performance Assessment (PPA) program aimed at assessing, feeding back and potentially enhancing clinical and teaching performance of physicians. We aim to give a state-of-the-art report of the PPA program as developed in The Netherlands.

Summary of Work: To facilitate reflection and performance improvement 7 systems were being developed for the (self-)assessment of physicians' individual teaching and clinical performance (3 systems), physicians' team performance (3 systems), and the learning climate. Systems' elements included questionnaires for (self-)assessment or assessment by others (residents, peers, patients and others), tailor-made feedback reports and various follow-up strategies. Systems were developed in collaboration with physicians. Assessment tools were all web-based. Implementation was supported by local experts, Institutional Teaching Committees and PPA researchers.

Summary of Results: Starting in 2008, the PPA program has rapidly spread now counting approximately 10,000 (resident) physicians as unique users of one or more of the PPA systems, representing 300 residency training programs/clinical departments in over 60 hospitals. Most participants use more than one PPA system and most use them repeatedly. The various PPA systems are all result of and/or subject to research.

Discussion and Conclusions: A formative PPA-program comprising 7 PPA-systems is now available and widely-used by physicians. Providing physicians with a comprehensive, evidence-based PPA toolbox allows them to design their own performance improvement plan. Feedback resulting from the various systems is a starting point for performance improvement.

Take-home messages: A comprehensive PPA program facilitates physicians' self-directed improvement efforts.
The Fundamental Teaching Activities (FTAs)
Framework: EPAs for teachers

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The Working Group on Faculty Development of the Section of Teachers, College of Family Physicians of Canada

Background: The College of Family Physicians of Canada recognized the importance of supporting teachers as new competency-based curricula were adopted nationally. Teachers need both a clear understanding of the expectations and opportunities within their roles and faculty development to guide their professional growth. Educational institutions need direction in developing and organizing curricula and resources to support this professional development.

Summary of Work: A fundamental teaching activity is defined as a holistic description of what a teacher actually does, and includes a number of different competencies. A framework articulating the fundamental teaching activities of teachers in family medicine settings was developed based on the concept of Entrustable Professional Activities (EPAs). Beginning with a literature review, and moving through an iterative process including teachers, faculty developers, program leads, residents, and medical students, three domains were described: Clinical Preceptor; Teacher Outside the Clinical Setting; and Educational Leader. Within each domain, several tasks were identified, each broken down into several fundamental activities. A developmental trajectory was described for each activity, permitting teachers to identify next steps in their professional development.

Summary of Results: The Framework was well received by the reviewing groups of teachers, program leaders and faculty developers. Teachers were able to quickly identify with the Fundamental Teaching Activities. Departments/Programs in Canada have begun to use the Framework in faculty development.

Discussion and Conclusions: A national framework of teaching activities, labelled as FTAs, based on the concept of EPAs for learners, is being launched by the College of Family Physicians of Canada.

Take-home messages: The concept of Fundamental Teaching Activities (FTAs) is intuitive for teachers and useful in understanding teacher development and in planning faculty development activities.
Short Communications: Clinical – Postgraduate Assessment

**#10F (27974)**

Urology Trainee perception of current Work-Based Assessments (WBAs) in the UK (UK)

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**I Pearce**, Manchester Royal Infirmary, Urology, Manchester, UK

**Background**: Trainee competency and progression is assessed using online WBAs. We asked Urology trainees their perception of current WBAs.

**Summary of Work**: An online survey was conducted (Survey Monkey®). It was sent to UK-based Urology trainees (via Specialist Urological Registrars Group).

**Summary of Results**: There were 102 respondents from all training grades and UK regions (estimated response rate 20%). 53% thought WBA numbers required annually is fair, 34.4% felt it’s too many. 60.1% have discussions for WBAs by the session end; further 26.1% have them within the week. 22.1% completed them online by session end; further 37.7% completed within 72hrs. Commonest reasons for delay: too busy, unwilling supervisors and no internet. Trainees reported trainers mostly found WBAs useful and were taken seriously, however 24.7-28.2% respondents disagreed. 39.4% felt trainers completed the WBAs appropriately (always/ >70% of the time).

**Discussion and Conclusions**: Trainees are discontented with current WBAs. Feedback about individual WBAs showed: DOPS are easily completed but less valuable for training. PBAs are useful and document trainee ability but need appropriate breakdowns. UCEX were difficult to complete due to lack of observed supervision. CBAs were useful but require more form space for scenario description. Suggestions for other ways to document progress include reflections, peer and video assessments, and greater focus on consultant and colleague feedback.

**Take-home messages**: There are changes required to WBAs for Urology trainees. These can be simple, changing existing forms, and more complex, exploring using other supporting assessments and increasing trainer engagement.

**#10F2 (24673)**

Comparing the performance and utility of the Cohen and Angoff standard setting methods in high-stakes postgraduate assessment

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**Background**: The Colleges of Medicine of South Africa (CMSA), the national specialist licensing examination body in South Africa, uses a fixed pass mark of 50%. In 2011, the College of Physicians (CoP), a large CMSA member College, implemented a standard setting process for the written components of their certification examinations, to improve the defensibility and fairness of its assessments.

**Summary of Work**: A comparative study evaluated the performance (pass marks and failure rates) and utility (framework derived from the literature review) of the Cohen and Angoff methods using five cycles of examination data, including multiple-choice questions, short-answer questions and short-essay questions.

**Summary of Results**: The Cohen method performed well when used for test data with a reasonable number of test items (30+) in homogeneous exit-level cohorts of more than 50 candidates, however its performance was variable for smaller cohorts (< 100) of candidates drawn from heterogeneous populations, such as entry-level Part I MCQ examinees. The Angoff method yielded unacceptable outcomes regardless of test format. The utility comparison identified the Cohen method as the preferred standard setting method for the CoP.

**Discussion and Conclusions**: The findings of this study support the introduction and ongoing use of the Cohen method as a feasible and sustainable method of setting pass marks for the written components of the CoP certification examinations. More data are needed to evaluate the true impact of cohort size on the stability of the Cohen method for entry-level, heterogeneous cohorts of examinees. The purist Angoff strategy, used in this study due to resource limitations, performed poorly and was deemed ‘not fit for purpose’ by the CoP examiners.

**Take-home messages**: see Discussion.
CESMA Accreditation Pathway – New Pan-European Paediatric / Neonatal Intensive Care Diploma

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Background: The aim of the Council of European Specialists Medical Assessment (CESMA), an advisory body of the European Union of Medical Specialists (UEMS), is to harmonise best practice and quality standards. Pan-European accreditation for specialist medical assessments is a mark of quality. We describe the process of developing a new Paediatric/Neonatal Intensive Care (PNIC) Diploma within the framework of CESMA and other accreditation standards, providing a roadmap for others.

Summary of Work: The European Society of Paediatric and Neonatal Intensive Care (ESPNIC) devised the following stages: Exploration and Planning: Scope & Vision: Diploma recognised as standard of care in Europe; Job Analysis Study: identify and validate knowledge and skills required; Standards & Assessment Development; Operational Management.

Essential tasks: Determine governance structure; Define Diploma programme purpose and align policy decisions; Stakeholder engagement e.g. Regulators, National training organisations; Modification of statutes.

CESMA meetings gave insight into best practice from existing accredited diploma programmes.

Summary of Results: A diploma advisory board and working subgroups were recruited. Job Analysis provided rational evidence for diploma standards and assessment content. Significant variation in specialist training across Europe required: Two-part Diploma; “Minimum competencies”, rather than “end-of-training”, assessment

Discussion and Conclusions: Following best-practice and taking advice from groups who have already gained accreditation is crucial for validity of new diploma programmes. Early engagement with stakeholders and collaborative working is essential in the development process. Next steps for ESPNIC include operational launch and local-language material.

Take-home messages: CESMA accreditation is complex but achievable with proper guidance and drives standardisation and quality improvement. Other groups may replicate the process outlined here.

Factors associated with rating results of multi-source feedback for post-graduate year 1 medical trainees

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Background: Multi-Source Feedback (MSF), also known as 360-degree assessment, has become a mandatory assessment for the first year post-graduate (PGY1) medical trainees in Taiwan. Evidence on performance for PGY 1 is collected from clinical supervisor, peer, nurse and/or patient.

Summary of Work: The rating results of MSF, using mini-PAT as the rating tool, for 137 PGY1s in the 2013-2014 academic year were reviewed. Variables such as rater’s age and gender, PGY1’s age and gender, and the department where the MSF was conducted, were collected. We used multivariate linear regression analysis to examine the statistical associations.

Summary of Results: We found that: (1) older raters tended to give lower ratings; (2) male raters tended to give lower ratings; (3) raters in Surgery and OB/GYN gave higher ratings than those in Internal Medicine; (4) nurses were more likely to give lower rating than peers; (5) the rating results of male raters/male medical trainees were significantly lower than those of female raters/female medical trainees.

Discussion and Conclusions: Although MSF has been recognized as an effective assessment for health care workers in workplace, some studies expressed concerns about rating accuracy, either over-estimating or under-estimating the performance of trainees being rated. Our study reported that rater groups, rater characteristics, medical trainee’s characteristics, and the department where the assessment was conducted were significantly associated with rating results of MSF. The results were expected to provide more convincing evidence for interpreting the rating results of MSF for medical trainees.

Take-home messages: (1) Ratings vary by rater groups (2) Ratings vary by rater characteristics (3) Ratings vary by medical trainees’ characteristics
**#10F5 (27910)**

Automatic and unbiased assessment of competence in colonoscopy - exploring validity of the Colonoscopy Progression Score (CoPS)

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**Background:** Colonoscopy is a difficult procedure to master. Valid methods for assessing technical skills are essential for efficient training and certification in competency based training programs.

**Summary of Work:** A prospective study. Our aim was to establish validity evidence for the “Colonoscopy Progression Score” (CoPS) an unbiased tool for assessing competence in colonoscopy based on magnetic endoscopic imaging (MEI). Four sources of validity were explored: response process, internal structure, relationship to other variables and consequences of testing.

**Summary of Results:** We recorded 137 colonoscopy procedures performed by 31 endoscopists. The generalizability coefficient (G-coefficient) was 0.55 and a Decision-study (D-study) revealed that four recordings were sufficient to ensure a G-coefficient above 0.80. We showed a positive correlation between CoPS-score and experience with Pearson’s r 0.61 (p< 0.001). A pass/fail standard was established using the contrasting group method and there were no false positives (no novices passed the test).

**Discussion and Conclusions:** A structured study of validity was performed based on a widely accepted contemporary framework described by Messic and Kane. The CoPS tool provided a valid assessment of the technical skills of colonoscopy with four repeated measurements. The tool could be used to make credible pass/fail decisions.

**Take-home messages:** Validity was established for the CoPS tool - an automatic unbiased tool for colonoscopy assessment.

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**#10F6 (28006)**

Using narrative for decisions about competence and progress in medical education

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**Background:** Using narrative about clinical work instead of numbers may improve quality of assessment data. Practical processes for organizing narrative data are needed.

**Summary of Work:** We developed a Descriptive Comments (DC) form with the RIME framework and Pediatric Milestones. Four coders mapped 6 months of narrative data for 83 residents to Pediatric Milestones using qualitative research software. Coding process and faculty discussions about residents’ clinical competence were then modified. Eight coders mapped another 6 months of narrative data, wrote summaries of residents’ progress and applied results to competency reviews.

**Summary of Results:** Faculty wrote comments for all milestones, although frequency among milestones varied widely. Faculty frequently wrote mini-judgments that did not provide enough information for placement on a milestone. Significance of mini-judgments varied with clinical context. Detailed descriptions of work did provide enough information for milestone placement, although descriptions lost meaning when coded in short phrases. Faculty frequently described work using clusters of milestones. After modifications, coders categorized longer descriptions, coding 6 months of data for one resident in 10-15 minutes. Coded data and written summaries informed decisions about competence and progress.

**Discussion and Conclusions:** Context of work is needed to assess competence and progress. Detailed descriptions (not mini judgments) provide evidence for milestone placement. Synthetic frameworks (EPAs, RIME) help structure assessment systems and document progress. Milestones may inform advising and remediation. Feasible processes for using narrative data are possible and lead to evidence-based decisions about competence and progress.

**Take-home messages:** Narrative data about clinical performance can be coded with qualitative analysis software to support decisions about competence and progress.
#10F7 (28165)

Investigating Ethnic Bias in the MRCPsych Clinical Assessment of Skills and Competencies

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Background: The MRCPsych Clinical Assessment of Skills and Competencies (CASC) is an OSCE-style assessment where candidates rotate around 16 stations each with a role-player and trained examiner. There has been some concern regarding whether similar postgraduate assessments in the United Kingdom may be biased against non-white groups. Demonstrating the absence of statistical bias among CASC stations would add to its validity evidence (Downing, 2003).

Summary of Work: A total of 519 candidates attempted the September 2014 Diet of the MRCPsych CASC. Multifaceted Rasch Modeling (MFRM) was used to adjust CASC scores for candidate ability, examiner stringency or leniency and station difficulty. Differential Item Functioning (DIF) analysis determined whether white or non-white candidates at the same level of ability were more likely to achieve higher station scores. Twelve stations were identified with sample sizes which allowed DIF analysis to be undertaken.

Summary of Results: Separation-index reliability for the CASC was acceptable (0.92) and separated candidates into 5 distinct ability groups. All stations showed a good fit to the Rasch model. DIF parameter magnitudes ranged from 0 to 0.31 logits, with measurement errors of between 0.09 and 0.11 logits. All DIF parameter values were lower than the accepted 0.5 logit criterion for detecting DIF (Bond & Fox, 2012).

Discussion and Conclusions: There was no evidence to suggest the stations considered were unfairly biased according to candidate ethnicity. Future research should investigate bias according to other characteristics such as gender, age and primary medical qualification.

Take-home messages: Bias should be routinely investigated in OSCEs to ensure fairness.
Preparedness to practice. A national survey of foundation doctors and their supervisors

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Background: Mandatory induction for foundation year 1 trainees (F1s) was introduced in 2012 to ease the transition from student to doctor. The aims of this national study were to assess anxiety levels and preparedness in the 2012 F1 cohort.

Summary of Work: Online surveys were completed anonymously and voluntarily by F1s and F1 supervisors from participating foundation schools. Questions assessed how prepared F1s were for practice and how well they coped with the transition from medical school. A validated screening tool was used to assess anxiety levels.

Summary of Results: 1829 F1s and 1145 supervisors participated. 27.8% of F1s screened positive for pathological anxiety. How prepared F1s were for different aspects of their jobs varied according to medical and foundation school, from both the F1 and supervisor perspective.

Discussion and Conclusions: F1 anxiety may be reduced with an extended shadowing period during the final year of medical school.

Take-home messages: Medical and foundation schools vary in how prepared their F1s are for practice.

Preparing medical students for the clinical and administrative aspects of a foundation year 1 (FY1) job

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Background: A recent review highlighted that skills including prescribing, decision making, treatment planning and prioritisation were lacking in newly qualified doctors. Although workplace shadowing attachments enhanced preparedness, 37% of FY1 doctors surveyed did not feel sufficiently prepared for clinical practice.

Summary of Work: 22 final year students acting as assistant house officers (AHOs) were asked to perform a 1 hour simulation exercise consisting of common FY1 tasks including prioritising a jobs list, prescribing common drugs, writing a discharge summary, summarising important points required to refer a patient to another team and review of an abnormal blood result. 18 of the AHOs had already undergone at least 5 weeks of shadowing.

Summary of Results: All AHOs were aware that the tasks were common FY1 ward jobs. 8/22 (36%) had never prioritised a jobs list before, 9/22 (41%) prioritised the tasks correctly. Only 4/22 (18%) were able to complete the tasks in an hour. AHO's found prescribing warfarin, insulin and fluids most challenging. Although all AHO's attempted the patient referral task, only 2/22 (9%) used the recommended SBAR acronym (situation, background, assessment, recommendation). 21/22 (95%) stated they would practice these tasks in future shadow placements.

Discussion and Conclusions: Medical training teaches students how to diagnose and make management plans. However it does not ensure medical students practise the full range of practical skills required of an FY1 doctor.

Take-home messages: The practical aspects of medical work should be taught as an integral part of medical student training to ensure FY1 doctors are ready for purpose.
#10G3 (24273)
Practical clinical handover teaching - the Dundee experience

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Background: Medical handover has been identified as 'one of the most perilous procedures in medicine' by the National Patient Safety Agency. Task prioritisation has traditionally been learned 'on the job', which can make junior doctors feel unprepared, and poses potential risks to patient safety.

Summary of Work: A handover workshop was designed and delivered to 4th year students (prior to clinical attachments) at the University of Dundee Medical School, then evaluated. Students attended a 90-minute workshop that involved receiving handover, carrying out practical tasks using fictional notes, and 'handing back' patients to the next shift. Students had to prioritise cases and justify their decision-making.

Summary of Results: Feedback showed most participants (n=151) agreed or strongly agreed that they felt more prepared to deliver (96%) and accept (97%) a handover of care. 91% agreed or strongly agreed that the session 'increased their understanding of the risks to patient safety associated with a poor handover'; and 89% felt more prepared for this aspect of their role as a junior doctor. Thematic analysis demonstrated increased recognition of the importance of handover, and students appreciated the practical nature of the session.

Discussion and Conclusions: Students can be prepared with these sessions for delivering and accepting handover of care and prioritising clinical activities, equipping them with skills which are then developed further in their various clinical attachments. This was achieved with low input from faculty (1-2 members of staff per session).

Take-home messages: Our work demonstrates that students can be prepared for participation in handover and develop a systematic approach to task prioritisation in a simulated setting.

#10G4 (25752)
The relationship between satisfaction with the study course, achievement and overall preparedness among graduates

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Background: Previous work at the RWTH Aachen University (Germany) showed that medical students achieved grades above average in the national final exams and were highly satisfied with the reformed curriculum. For that reason we were interested in investigating the relationship between objective performance data as well as perceived preparedness and satisfaction.

Summary of Work: This study investigated possible origins of student satisfaction. A new survey based on a theoretical model was implemented. At the end of their studies, 124 young doctors completed a questionnaire containing questions about their satisfaction as well as subjective overall preparedness and identification with the study course. This data was related to students’ final exam grade.

Summary of Results: Medium sized correlations were found between satisfaction and subjective preparedness (r=.43, p<.001) as well as social integration (r=.46, p<.001). The highest correlation was found between identification and satisfaction (r=.69, p<.001). Identification was found to be a mediator between preparedness and satisfaction. Interestingly, final grades were neither related to identification nor preparedness nor satisfaction.

Discussion and Conclusions: The more students felt prepared to work as doctors, the more did they identify with their study course. The more they identified with the study course, the more were they satisfied with the reformed curriculum. Identification plays an important role in students’ satisfaction, so it is important to investigate to what extent specific elements of the curriculum and/or educational objectives promote identification.

Take-home messages: Satisfaction at the end of studies and subjective overall preparedness are not related to grades, but depends on identification with the study course itself.
#10G5 (25563) Pre-internship: An enhanced preparedness for internship?

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Background: Pre-internship (PrInt) is the final four week medical student rotation before internship. It includes “shadowing”, the medical team and performing procedural skills under supervision. The overall aim is to increase preparedness in order to allow the PrInt student to have a smooth transition into internship.

Summary of Work: We distributed a quantitative questionnaire to all available PrInt students at the Central Clinical School Sydney in 2014 prior to and following PrInt. Aim: was to evaluate PrInt student's experience with: Procedural Skills, Trouble Shooting Procedural Skills, Medications skills, Clinical skills, Organisational preparedness, and Communication Skills. Multiple regression analysis was performed with the percentage of yeses (as the score) for each domain as the dependent variable and period (post vs pre) as the primary independent variables; other independent variables were age-group and gender. Analysis was performed by SAS 9.3.

Summary of Results: The questionnaire response rate prior to PrInt was 69% (41/59) and post PrInt, 63% (37/59). There was a significant increase (at the 5% level of significance) in the post PrInt score in all the domains except Experience with Procedural skills (p = .098); after controlling for age and gender.

Discussion and Conclusions: This study found that Pre-internship to be important in preparing Pre-intern students in practical, organisational and communication skills, ready for intern placement.

Take-home messages: The four-week PrInt attachment was important in the preparation for internship, particularly in the area of trouble shooting procedural skills, medications, clinical skills, organisational preparedness, and communication.

#10G6 (27836) Students' perceived impact of simulated emergency department "Doctor on Duty" course for final year preclinical medical students

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Reza Pandu Aji, Faculty of Medicine, Universitas Gadjah Mada, Medical Education, Yogyakarta, Indonesia

Background: To address issues of transition of preclinical medical students’ to clerkship, we developed a simulation-based 3 weeks elective course to introduce "on duty shift" in emergency department. We integrated clinical cases with non-technical skills needed in ED, such as: teamwork; phone consults; difficult patients/family management; and case presentation. We aimed to evaluate students' perceived impact of the course after 1 year of clinical clerkship.

Summary of Work: Twenty-five medical students enrolled in “Being a Doctor on Duty” course in December 2013 of final preclinical block at Faculty of Medicine, Universitas Gadjah Mada, Indonesia. During first week, students were trained in essential procedures, SBAR consultation, admission/discharge, and ED orientation. Everyday on second week, a team of five students was immersed in full two-hours simulation with seven incoming patients, followed by debriefing. We evaluated their perceived impact of the course for their future rotation in ED using Likert-scale surveys in the end of the course and after one year of clerkship.

Summary of Results: End of course survey showed students perceived the course as highly motivating for them to further improve their clinical and non-technical skills. Students who applied for this course as priority or non-priority choice rated similarly in course evaluation. Ninety-six percent students considered this program would prepare them for future emergency rotation.

Discussion and Conclusions: This course was a labor and time-intensive. However, the course may serve as introductory experience for students to increase confidence and learning motivation.

Take-home messages: Simulated ED training has strong potential in increasing student awareness of real clinical situation.
Symposiums for medical students: a novel way to implement interactive education within the curriculum

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Background: VUmc medical master's programme is competency based. To teach students competencies in context and correlation with each other, symposiums were implemented in the curriculum. Since the final master's year aims to facilitate the transition from undergraduate to graduate students, a symposium perfectly fits the moment. Symposiums bring the possibility to attract professional, inspiring speakers offering various appealing topics.

Summary of Work: Each symposium is structured around medical and societal themes addressing different competencies. Four symposiums are organized each year and students need to attend two. Special emphasis is on integration of competencies and the effects of changing healthcare. During the symposiums interactive teaching methods are used, such as workshops, games and improvisational theatre. Yearly recurring topics are 'Team Resource Management', 'job-interview training', 'eHealth' and 'Ethics'. The other subjects vary. If possible the subjects are linked to current global or Dutch events, like a measles outbreak in September 2014, leading to the topic 'ethics about vaccination'. Each symposium is evaluated afterwards by the students.

Summary of Results: On average, 150 students attend the symposium. Symposia are well evaluated and rated as "interesting", with an average of 3.83, and "useful for training competencies", with an average of 3.70 on a 5-point Likert-scale out of 2594 responses. In addition, we receive extremely positive reactions from our lecturers.

Discussion and Conclusions: Symposiums for interactive education of competencies, offer a novel possibility for training students, thus achieving our predefined aims. These symposiums have a valuable addition to our curriculum.

Take-home messages: Symposiums complement conventional education and are well appreciated by medical students.
#10H Short Communications: Professionalism 2

Location: Argyll III, Crowne Plaza

#10H1 (27868)
Can the understanding of medical students' constructions of professionalism inform the teaching of professionalism?

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Background: Medical professionalism is complex and dynamic. Yet supporting students to understand its meaning, and develop professional attitudes and behaviours, is essential in order for society to maintain trust in doctors.

A critical incident regarding attendance highlighted an apparent loss of professional values amongst students and led to this study. Aims: To explore students' understanding of the constructions of medical professionalism at different years of training. To see what influences that understanding. To draw some tentative implications for the impact on teaching.

Summary of Results: 21 students participated and 8 interviews conducted, 7 group (Years 1-5, mixed year, intercalating) and one individual. Definitions, expectations, development and influences emerged as themes. Relationships with patients and colleagues dominated students’ definitions of professionalism. Role modelling, a supportive learning environment and organisational culture were highlighted in developing professionalism. Small group teaching and on-line fora were suggested for teaching professionalism.

Discussion and Conclusions: Students had nuanced understandings of professionalism. Role modelling and formal curriculum are insufficient in developing professionalism. Small group teaching and discussion fora, student-led but supported by faculty, allow critical reflection on professionalism.

Take-home messages: Teaching on reporting unprofessional behaviours needs to be developed. Deeper understanding of professionalism by students and faculty is possible in a supportive, responsive organisational culture.

#10H2 (27866)
A content analysis of literature describing unprofessional behaviours of medical students

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Background: Despite the availability of several policy documents describing desired professional behaviours, it remains difficult for educators to identify medical students’ unprofessional behaviours. This is, among other reasons, due to the lack of descriptors for unprofessional behaviours. The aim was to generate a list of descriptors by synthesizing data from studies reporting unprofessional behaviours of medical students.

Summary of Work: Search terms for MEDLINE were: medical student/clerk, professionalism and behaviour/conduct. Manual searching of reference lists of articles found and expert consultation yielded additional articles. Included were empirical articles reporting observed unprofessional behaviours of medical students, excluded were articles reporting desired professional behaviours. Three researchers independently screened the articles using content analysis. Emerging themes were discussed in the research team until consensus was reached.

Summary of Results: Of 481 articles found, 23 were included. These reported 76 different unprofessional behaviours, that were classified into the following themes: lack of engagement, poor organisation of work, fraud, inadequate communication, self-absorbed behaviour and inadequately reacting to feedback. Students either display these behaviours themselves, endorse unprofessional behaviours of others, or witness unprofessional behaviours and not report them.

Discussion and Conclusions: Early detection and description of unprofessional behaviour enables educators to discuss it and to offer individual guidance. The generated overview of unprofessional behaviours can assist educators in teaching and assessing professionalism, by providing criterion referenced guidance based on the currently available literature.

Take-home messages: This overview of findings from research in medical schools can be used by faculty as a guide to identify red flags: examples of identified unprofessional behaviours of students that require corrective intervention.
Take-home messages:

Curriculum. Underreported but present as part of the hidden more frequently in the clinical area, and is formally present in most of the courses and programs, disciplines with this goal in mind.

Award Grant. Part of this work was done under the NBME Centennial Award Grant.

Background: Teaching professionalism faces many identified barriers. The most important are the lack of a common understanding or definition of the term, the insufficient role modelling of faculty members and the lack of valid and reliable assessment methods. Besides, its introduction in different curricular models and contents is usually ancillary but not central.

Summary of Work: This work tries to identify the presence of professionalism components at two medical schools in South America by analysing the formal contents of their disciplines and categorized them into common groups.

Both schools were selected because they have a strong explicit commitment to teaching professionalism, and it is included as part of their claimed exit competences.

Summary of Results: After analysing 49 courses there was no mention of professionalism in 17 of them (50 per cent in the basic and 75 per cent in the clinical sciences). There was one specific course on professionalism, and many in communication skills, and bioethics throughout the 6 years of the career. In those courses not specifically oriented to professionalism the most frequent categories identified were bioethics, humanism, effective communication, patient autonomy and patient rights. However, after identifying these categories, we interviewed faculty members of those courses that did not include professionalism in their program and all of them considered that they actually taught their disciplines with this goal in mind.

Discussion and Conclusions: Professionalism is formally present in most of the courses and programs, more frequently in the clinical area, and is underreported but present as part of the hidden curriculum.

Take-home messages: Professionalism is taught both explicitly and implicitly in medical school in this region. Efforts must be made to include it formally in the curriculum to guarantee that the graduates acquire this competence.

Part of this work was done under the NBME Centennial Award Grant.

### #10H3 (27544)
Explicit and implicit teaching of professionalism in South America

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### #10H4 (27971)
A hybrid approach to create a school culture of online professionalism

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Background: At our school we have identified and addressed issues regarding unprofessional behavior posts in social media (SM).

**Summary of Work:** During the 2013-2014 Bioethics courses, 176 students in their Clinical Clerkships had two sessions to address the challenges for medical professionalism in the digital age. They were invited to participate in an electronic survey to provide their feedback about the use of SM regarding clinical clerkships experiences.

**Summary of Results:** Students were able to define the principles of confidentiality and privacy of the patient information, however 20.5% (n=36) answered that it was permitted to post in SM patient information and/or photographs if the specific patients’ data was not revealed, and 9.1% (n=16) thought it was allowed to post patient photographs if the face of the patient was not showed.

**Discussion and Conclusions:** In order to create a School Culture of Online Professionalism, the most important consequence of this approach was the formulation and declaration of the School’s “Social Media Policy” (SMP). The SMP was published at the school’s website along with a short video explaining its context and justification. Students were invited to review the policy and to provide their feedback.

**Take-home messages:** The use of social media (SM) for medical and patient education has been of great benefit, however challenges have emerged related to the use of SM on clinical experiences and patient information. Students identified the use of social SM as challenging during their clinical clerkships. The School’s “Social Media Policy” was formulated in order to contribute to create a School Culture of Online Professionalism.
#10H5 (26161)
Maintaining professional behaviour in the social media environment: a challenge for the veterinary profession too!

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Background: The wide distribution and longevity of social media adds a new dimension to the meaning of “professional behaviour”. A recent paper by Ross et al (1) highlighted the issues surrounding professionalism in relation to social media use in Human Medicine. This study investigated whether similar concerns apply to Veterinary Medicine.

Summary of Work: With permission, the questionnaire used by Ross et al (with minor modifications to account for the nature of the Veterinary Profession) was sent out to staff and students at the R(D)SVS in September 2014.

Summary of Results: 211 responses (approx. 20% of the combined cohort) were collected. Analysis indicated similar trends to those found by Ross et al in that some students fail to carry over the ethos of professionalism to their social media behaviour. 99% of the combined staff and student cohort felt that they understood what professionalism meant in the Veterinary Profession and 90% agreed that this was also important in their social media use. However, 30% of the students had posted something online that they felt they shouldn’t have. A typical free-text comment was “If not doing something veterinary related I think it is okay to relax a little and not be considering if you are behaving professionally”.

Discussion and Conclusions: While most participants recognise the importance of behaving professionally, this does not always appear to transfer to their social media behaviour.

Take-home messages: Guidance and support are required to help students understand and appreciate professionalism in the context of social media. (1) “I have the right to a private life”: medical students’ views about professionalism in a digital world - Ross S, Lai K, Walton JM, Kirwan P, White JS. Med Teach. 2013 Oct 35(10):826-31

#10H6 (26228)
Pilot results from a new Assessment of Professionalism

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Background: In 2014, King’s College London (KCL) Dental School required a new assessment of professionalism (AoP) to assess professional attributes relevant to clinical practice. This piece of work also investigated whether performance on an AoP increased between first and fifth years of dental school. Established SJT-type methodology was used to develop and pilot an AoP.

Summary of Work: The AoP targeted four key domains of professionalism: Team Involvement, Integrity, Leadership, and Empathy. Test development was conducted in collaboration with subject matter experts at key stages to ensure that the AoP was relevant to the target role. A pilot test was constructed and completed by dental students at KCL (N=25).

Summary of Results: Pilot results showed strong psychometric properties and indicated that the AoP effectively distinguished between students. Fifth year students scored significantly higher on the AoP than first years, indicating that professionalism is influenced over the course of students’ degree, rather than being embedded upon entry.

Discussion and Conclusions: This pilot suggests that introducing an AoP during healthcare education or training courses to monitor the progression of professionalism may be beneficial. Such assessments have the potential to be used for diagnostic purposes, and complimented by high-fidelity interventions. Interventions could provide training in the professionalism skills necessary to work in multi-disciplinary healthcare teams.

Take-home messages: Initial findings suggest that the AoP may provide an appropriate measure of progression, and be used as a diagnostic tool to identify individuals scoring low on the professional skills required to work in healthcare. The AoP has the potential to be supplemented by a high-fidelity training intervention.
Validation of an assessment system for professionalism amongst dental students

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Background: Professionalism is an essential competence for dentists, there is therefore a need to assess it within dental education. This study aimed to develop and validate a system to assess dental students’ professionalism based on a previously developed conceptual model.

Summary of Work: An assessment system was designed and administered to a cohort of senior dental students on completion of 6 week placements in primary care. Students and staff individually rated the students’ professionalism using 8 items and then met to discuss assessment grades using 16 items and a global rating. Inter-rater and internal reliability and validity were evaluated. The utility of the system was evaluated in qualitative focus groups.

Summary of Results: Student and staff gradings were highly correlated (rs=x). All item-total correlations were > 0.6 and Cronbach’s alpha = 0.95. All items correlated significantly with the global ratings (range rs= 0.32 -0.59, p 0.05). All hypothesized relationships between domains of the conceptual model were significant (all but one being rs >0.5, p 0.05). Content analysis of qualitative data produced 3 themes; the assessment process, educational value, suggestions for improvement.

Discussion and Conclusions: Students gained educational value from staff feedback whilst the quantitative data demonstrate good psychometric properties of inter-rater and internal reliability and construct and content validity, supporting both the assessment system and the model upon which it was developed. The assessment system was reliable and valid and has been revised in the light of the suggested improvements and will be implemented as part of the undergraduate programme.

Take-home messages: Basing an assessment system around a framework improves feedback.
#10I  Short Communications: Problems and the Postgraduate Trainee

Location: Alsh 1, SECC

#10I1 (24549)

Making sense of fatigue: Implications of social constructs of fatigue in clinical training and practice

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Background: Even within the context of resident duty hour restrictions, fatigue management is a predominant discourse. In Canada, where resident duty hours are not nationally legislated, fatigue risk management strategies (FRMS) have been proposed as an alternative to reduced hours. Prior to implementing FRMS, we require a better understanding of how residents make sense of fatigue within their clinical training environment.

Summary of Work: Using constructivist grounded theory, we interviewed 21 residents from 7 surgical and non-surgical disciplines at one Canadian institution in 2014. Iterative data collection and analysis informed theoretical sampling to sufficiency.

Summary of Results: Residents described shared understandings about the nature, meaning and implications of fatigue in their clinical training environments. Five fatigue narratives were identified: fatigue is (1) inescapable and therefore acceptable; (2) surmountable when required; (3) manageable through experience; (4) a temporary training phenomenon; and (5) necessary for competence.

Discussion and Conclusions: These five narratives highlight fatigue as a socially constructed phenomenon. Residents' social constructions are in tension with existing physiological and cognitive discourses that inform fatigue management discussions. Discussions about duty hours and fatigue need to attend to its social aspects, not only to individual decision-making.

Take-home messages: Fatigue is not only a physiological and cognitive construct, but also a social construct. Attention to the social aspects of fatigue is necessary, particularly as they may be in tension with assumptions based on physiological and cognitive premises.

#10I2 (28252)

Resident recognition of fatigue and their fatigue risk management strategies: A qualitative study

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Background: Information on how residents recognize and manage fatigue is needed to determine what can be done to mitigate fatigue-related risk (other than duty hour restrictions) as well as to develop fatigue risk management plans. The primary objective of this study was to explore resident's experiences and recognition of fatigue and their fatigue risk management strategies.

Summary of Work: Semi-structured interviews and focus groups were conducted with residents who were purposively sampled until saturation was achieved. A phenomenological study design and data analysis approach was used. Interviews/focus groups were audio recorded, transcribed and coded. Two independent coders coded and analyzed the data using NVivo.

Summary of Results: Fifty residents were recruited from over half of the 52 residency training programs at the University of Calgary including high-risk programs. The major themes from the focus group data included unnecessary administrative workload, the need for personal time, patient safety issues, quality of care, program directors as resident advocates and managing fatigue when on-call/post-call.

Discussion and Conclusions: Duty hour restrictions are not the only solution to fatigue risk management. Improvements can be made in residency education with respect to personal health days, lessening the administrative workload and ensuring residents have adequate support. Resident fatigue and fatigue risk management are important aspects of patient safety, resident wellness and education. Future research should look at implementing and evaluating fatigue risk management plans in residents.

Take-home messages: The exploration of resident recognition of fatigue and their fatigue risk management strategies provide valuable information in developing resident fatigue risk management plans.
Feedback in Medical Education - Assessment of graduate performance

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Background: Research has been published on methods of assessment in postgraduate medical education in many disciplines. Few have however actually incorporated subjective and objective feedback of performance of graduates of various programmes in the same clinical environment.

Summary of Work: For the past 26 years, graduates of all established and new medical programmes in Australia and New Zealand were assessed in the clinical environment based on 4 major criteria - Ability, Professionalism, Reliability and Affability.

Summary of Results: A pilot study was conducted when graduates of 13 established medical schools were appointed at the same institution. Formal assessment of applied knowledge was conducted at the start of the intern year followed by feedback of performance during the year based on the 4 criteria above.

Discussion and Conclusions: There were clear differences among the graduates at the start of the year which narrowed as the year progressed. Focus groups of all the interns helped to identify themes as to why the readiness for practice were different among the graduates of different schools.

Take-home messages: Assessment of differences in graduates of medical schools could help provide useful feedback that can enhance strengths and reduce deficiencies in training programmes.

“I felt apprehensive, I felt a bit anxious”. How do junior doctors regulate their emotions?

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Background: In medical practice, unregulated emotions impact on doctor and patient well-being. The first two years of medical practice are emotionally demanding for trainees, with little known about how they manage their emotions. A recent study into UK graduates' preparedness-for-practice highlighted considerable emotional talk in their narratives. We report our in-depth follow-on study with these 26 participants (now in their second year of practice) looking explicitly at the emotion regulation strategies they employ.

Summary of Work: Sixteen Year-2 trainee doctors (F2s) from the original study agreed to participate. Our qualitative study used narrative interviewing (one-to-one and groups) and a solicited longitudinal audio-diary method to explore their emotion regulation strategies over 4-months of practice. Data are being coded deductively (using Gross' (2005) emotion regulation theory) and inductively to develop this theoretical model.

Summary of Results: Data collection is on-going. We have conducted 10 interviews and received 70 audio-diaries from 16 doctors, totalling over 8 hours of data to date. We will report emotion regulation strategies and highlight those most commonly used by the F2 doctors in our study to regulate their emotions.

Discussion and Conclusions: The emotion regulation strategies used have implications for doctors’ mental wellbeing and patient care. Implications for medical education will be discussed including the place of training in emotion regulation skills at medical school.

Take-home messages: With the significant implications of unregulated emotions on medical practice, it is important to prepare junior doctors emotionally for current and future practice.
Poor performance among trainees in a Dutch postgraduate GP training program; frequency, nature and risk factors

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Background: To explore the frequency of poor performance among Dutch postgraduate GP-trainees and to search for risk factors, as early identification could enhance remediation.

Summary of Work: All trainees who started the program between 2005 and 2007 were included. Associations between individual characteristics, early assessment scores, training process characteristics and the outcome poor performance were studied using multivariate logistic regression analysis.

Summary of Results: Forty-nine (23%) of the 215 trainees exhibited poor performance mostly during one year. Main problem areas included the roles of ‘medical expert’, ‘communicator’ and ‘professional’. Trainees with sufficient assessment scores in communication and knowledge were at lower risk of poor performance; OR 0.50 (CI 0.33–0.77) and OR 0.16 (0.07–0.40). Increasing age was a risk factor for poor performance; OR 1.16 (CI 1.06–1.27). Poor performance in the previous year was a risk factor for poor performance in the 2nd and 3rd years; OR 4.20 (CI 1.31–13.47) and OR 5.40 (CI 1.58–18.47).

Discussion and Conclusions: Poor performance is prevalent, primarily occurring within a single training year. This finding suggests that trainees are capable of solving trainee problems. Increasing age, insufficient assessment scores early in the training and poor performance in a previous year constitute risk factors for poor performance.

Take-home messages: Almost one fourth of GP-trainees exhibited poor performance during a three year training program, primarily in one year. Increasing age, insufficient scores in communication and knowledge and poor performance in the previous year were risk factors. Early identification of risk factors, and remediation, is important to prevent persistent poor performance.

Using observation to understand the prescribing practice of junior doctors

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Background: Rates of prescribing error among junior doctors are high, but analysis has shown that lack of knowledge is rarely the sole cause. Interest has grown in the role that non-technical skills (NTS), ‘the cognitive, social and personal resource skills that complement technical skills, and contribute to safe and efficient task performance’, may play in junior doctors’ prescribing. NTS include cognitive skills such as situational awareness and decision making, and social skills such as team working and leadership. The skill set required for a specific task needs to be described in detail before NTS can be taught. Direct observation will be used to overcome the challenge that many errors are unremarkable when they occur, for example writing on the wrong patient’s chart, making recollection difficult, particularly for junior doctors who write many prescriptions each day.

Summary of Work: Observation of FY1 doctors prescribing in a clinical setting will be undertaken to identify NTS used when prescribing safely. Observations will be clarified and contextualised with semi-structured interviews with the FY1 doctors. Interview transcripts, field notes and notes of informal discussions with FY1 doctors will be analysed by framework analysis. A reflexive log will be maintained.

Summary of Results: Early results from observation and interviews alongside the reflexive log will be discussed, with a particular focus on the challenges and advantages of the methodological approach.

Discussion and Conclusions: Observations and semi-structured interviews are powerful tools to obtain a rich understanding of the participants’ experience of prescribing for hospital inpatients.

Take-home messages: An understanding of the relevance of NTS to prescribing practice will be obtained.
#107 (27628)

Progressing into Practice: A study of Foundation Year 1 doctor narratives about their early experiences

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**Background**: Little is known about the experiences of medical graduates as they enter the workplace. This study aimed to gain an understanding of the individual, situated experiences of Foundation Year 1 (F1) doctors in their first placement.

**Summary of Work**: A random sample of 10 F1s who had completed an earlier questionnaire was invited to take part in the study. An initial narrative interview asked them to describe their first day and early placement experiences, while serial narratives (verbal or written) (n=28) were gathered throughout the first placement.

**Summary of Results**: Thematic analysis is ongoing. However, preliminary findings suggest some common experiences. Common challenges include pressure of workload, relationships with other professions, and physical stressors such as long hours and lack of sleep. Other significant events were those involving responsibility for decision making and patient care, which are integral to the role of a qualified doctor. There is variability in the affective consequences of early experiences. Some identify learning opportunities in these experiences, some feel ‘useless and incompetent’, and others identify a ‘battle’ or ‘rite of passage’. While shadowing was valuable in preparing F1s for the transition, interestingly, some participants did not ‘feel like a doctor’ until some time into their first job.

**Discussion and Conclusions**: Although the stressful experiences associated with becoming a doctor are shared, individuals vary in their emotional response to these events.

**Take-home messages**: Interventions to moderate the expectations of graduating doctors and actively incorporate use of coping strategies may ease their progression into practice.
#10J Short Communications: 
International Dimensions 2 
Location: Alsh 2, SECC 

#10J1 (25821) 
Effects of an international student exchange program on knowledge of international health care systems based on a real patient’s case 

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Background: Despite the fact that international health experiences are popular among medical students, little data exist on the impact of international exchange programs on student awareness of other cultures and attitudes to their profession (1). To foster the knowledge of different health care systems a medical student exchange program focusing on health care delivery systems of the USA, Denmark, Sweden and Germany was initiated in 1997 by Harvard and Munich medical schools (2). 

Summary of Work: Research question: How does a one-month exchange program affect the self-reported a) critical view towards health care systems; b) intercultural attitudes; c) n attitude towards the occupational profile and how are these affected by the student’s/ host’s nationalities? We collected post-exchange-questionnaire data (12 items, Likert-scales (range 1-7); 4 open-ended-questions) from 2000 until 2012 (n=60). Quantitative and qualitative tests were conducted. 

Summary of Results: Overall the mean scores ranged from 3.57 to 6.67. The highest impact (M=6.67) was found in the understanding how different health care systems work from different perspectives. Few participants considered a chance in career paths (3.57). Differences between students have been observed towards attitude and behaviour change from students from the Scandinavian countries in comparison to students from the USA and Germany. Scandinavian students showed a more sceptical analysis of the host health care systems. Qualitative analysis emphasized the importance of Universal Health Care. 

Discussion and Conclusions: The main finding of this study is that this international exchange program enables students to improve awareness and knowledge of a health care system different than their own. They acquired knowledge and insight about health care systems in the form of an in-depth write-up based on treating a patient. 

Take-home messages: This special international exchange program enables students to improve awareness and knowledge of a health care system.

#10J2 (27500) 
Preparing Japanese medical students for international clinical clerkships: A simulation-based approach 

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Background: In recent years there has been an increasing trend among Japanese medical students to seek clinical clerkship opportunities in other countries, yet due to language barriers and cultural differences, many of them are unprepared to perform well in non-Japanese clinical learning environments, limiting the educational potential of these experiences. 

Summary of Work: A 60-hour simulation-based course was developed to improve 4th and 5th year medical students’ clinical skills and multicultural competence. The sessions included an interactive lecture followed by clinical encounters with simulated patients (SP) from various nationalities and ethnic backgrounds. Encounters were evaluated by the SPs and video recorded for later evaluation by instructors. Students received feedback from the SPs after each encounter and periodical feedback from instructors. 

Summary of Results: During the course students demonstrated significant improvement in their multicultural clinical communication, history taking, physical examination, clinical reasoning, oral case presentation skills. Certain communication tasks such as delivering bad news, managing challenging situations and addressing hidden concerns also improved but to a lesser extent. 

Discussion and Conclusions: Preparation courses for students planning to undertake international electives improve their ability to adapt to different clinical environments, decreasing anxiety and increasing self-confidence, which has a positive influence on the overall educational outcome. Simulation-based training is an efficacious tool to develop practical clinical skills and multicultural competency in a safe and controlled environment. 

Take-home messages: Simulation-based training is an effective method for preparing medical students for international clerkships.
#10J3 (27289)
How can we prepare non-native English-speaking students for international clinical elective placements? Developing competence through a 20-hour preparation course in Japan

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**Background:** Increasing numbers of medical students from non-English-speaking countries, including Japan, choose to travel internationally for clinical elective placements. Many students are required to participate during these placements entirely in English. Currently, there is no standardised programme in Japanese medical institutions to prepare such students.

**Summary of Work:** We designed a 20-hour training programme to teach basic medical history taking, physical examination, case presentations and diagnostic discussion in English. The course utilised native English-speaking simulated patients, online video demonstrations, interactive small-group practice sessions and OSCE-style patient encounters. Pre- and post-course OSCEs were conducted to allow detailed individual student feedback to be given and to measure development in students' history taking skills.

**Summary of Results:** Comparisons of performance in the pre- and post-course OSCEs showed significant improvements in the students' medical history taking skills. In addition, student satisfaction, enjoyment and self-evaluated improvement were also highly ranked.

**Discussion and Conclusions:** International clinical electives are increasingly seen as important in developing students' medical knowledge, clinical skills and cultural awareness. Adequate preparation is essential to ensure students take full advantage of such opportunities. Our course was developed and adapted to provide students with training in the core skills required in their placements.

**Take-home messages:** Preparing non-native English-speaking students for international clinical placements is becoming increasingly important in Japan and in other countries around the world. Our course offers an interactive and engaging programme of small-group teaching, online video demonstrations, English-speaking simulated patient interactions and OSCE-style encounters to improve students' skills across a range of key clinical competencies.

#10J4 (28198)
"Framework of Unified Learning Outcomes" (FULO) and "The International Progress Test"

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**Background:** Medical colleges around the world follow different medical curricula. Theoretically speaking, all the systems should share similar learning outcomes intended to be acquired by their graduates; however, practically speaking, each medical school has its own learning outcomes despite the simple fact that all graduates must ideally be equipped with more or less the same core knowledge and basic skills. Hence, there is a need for a unified collaboration between the medical curricula in regards to curriculum development and progress follow up. In an attempt to deal with this issue, we propose the following: a) The establishment of a "Framework of Unified Learning Outcomes - (FULO)" that serves as a common ground for all medical curricula globally. This could be achieved by evaluating the currently available outcome frameworks and forming an international liaison to assimilate them together in a single framework. b) Progress test (PT), a longitudinal assessment tool implemented over three decades ago, reflects the growth of students' functional medical knowledge and retention over a prolonged period of time. The establishment of an International Progress Test - (IPT) that serves as a standardized tool for tracking FULO's application and progression, in addition to benchmarked comparison and development of curricula. We believe that an IPT would allow for greater educational efficiency in curriculum development and progression assessment. Hence, a reduced overall cost burden on medical education especially that the production and administration of the test is a collaborative process.
The Study of Cross-cultural Dimension between Thai and Japanese Students in Medical Education

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Background: The world’s increasing globalization requires more interactions among people from diverse cultures, beliefs, and backgrounds. International Medical Student Union of Chiang Mai University is the association which takes action on responding to the necessity of cross cultural training by allowing Thai-Japanese medical students to join various exchange programs between their universities. Even so, there has been limited evaluation on the impact of cross-cultural program.

Summary of Work: Using an online questionnaire (comprised of 3 parts; Educational data, cross cultural experiences data and opinion on cross cultural competency) collecting data from Thai (n=67) and Japanese (n=33) medical students during January 2015.

Summary of Results: The study showed that Thai students were engaged in passive learning styles (lecture and report writing) more than Japanese did (55.2%, 30.3%, respectively). However, there were no significant differences in hours spent attending classes and reviewing class materials among them. None of teaching module in cross-cultural skills was reported in medical schools yet (96%) even though the majority of participants thought it would benefit their future career (89.7%). Thai responded having more difficulties in adapting to different cultures regarding verbal and language barrier while Japanese showed more expectations toward any future’s cross-cultural training than Thai (97.0%, 85.6%, respectively).

Discussion and Conclusions: Although medical student need to learn more about cross-cultural approach, there are a few cultural courses throughout undergraduate program. Cross-cultural knowledge and skill should be provided and adjusted to students along their centered interesting.

Take-home messages: Cross-cultural medicine is essential competency to medical professionalism thus should be incorporate to medical student via either curricular or extracurricular activity.
Interprofessional Collaboration in Medical Education - What European students want

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Background: Interprofessional learning is today a highly-debated topic in medical education. When incorporated in the undergraduate education of academic training, it allows students to acquire knowledge, skills and attitudes that will enable them to work as part of a multidisciplinary team.

Summary of Work: In Europe, collaboration at pre-graduate level happens as joint events, students’ exchanges and soft skills trainings through the students associations of dentistry, medicine, nursing, pharmacy and physiotherapy (EDSA, EMSA, ENSA, EPSA, ECPTS). To develop a strategy regarding interprofessional collaboration policies an online survey targeting pre-graduate students was performed in November-December 2014. The survey featured 10 questions on the current situation in undergraduate education.

Summary of Results: A total of 1550 students from 38 countries answered the survey. Of them of 93.3% (1400) considered that contact with other healthcare students should be a part of their curriculum and 77.4% would like to see internships including an interprofessional component. Currently 78.2% of the students are not satisfied with today’s implementation of interprofessional collaboration and only 42.5% of them state that extracurricular interprofessional activities are organised by their students’ associations.

Discussion and Conclusions: Nowadays, medical students envision themselves as part of a future interprofessional healthcare team. Extensive and specific research is needed to examine how a more multidisciplinary approach to patients can be made real in both medical curricular and extracurricular activities, not only through students associations.

Take-home messages: It is necessary to collect innovative ideas on how to increase the team based approach in the undergraduate setting.

Shared leadership in an inter-institutional interprofessional education program

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Background: In 2009 Western University of Health Sciences (WesternU) launched a comprehensive interprofessional education (IPE) program including nine health professions. In 2011 WesternU opened a distance campus in Oregon for one program (medicine.) To replicate the IPE curriculum an inter-institutional IPE program was designed to include two additional institutions near the new campus in Oregon.

Summary of Work: Initially the curriculum being used at the main campus in California was instituted at the Oregon locations. However, there were vast differences in the institutional cultures across partner institutions in addition to significant differences in student demographics and health professions participating. To address these differences a systematic shared leadership process was instituted.

Summary of Results: A series of meetings to establish shared leadership was instituted. There were significant challenges in establishing a culture of trust and collegiality among the faculty who already were feeling overwhelmed with the new workload that this collaborative curriculum raised. After three years of working closely this collaboration has overcome institutional and cultural barriers and created mutually collaborative and collegial relationships.

Discussion and Conclusions: It is ironic that in the process of creating and instituting an IPE curriculum professional and institutional silos and barriers were met and overcome. The process used to create inter-institutional collaboration will be discussed in detail along with pitfalls and lessons learned.

Take-home messages: Creating an inter-institutional educational program successfully can be a wonderful model for overcoming professional silos and institutional culture bias. Lessons learned are applicable to overcoming similar barriers in interprofessional clinical practice.
#10K3 (27990)
Interprofessional education: the contribution of the Interdisciplinary community program

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Background: Modern patient care requires the collaboration of different health professional working as a team in collaborative practice. Interprofessional education (IPE) has been emphasized in postgraduate programs, but less in undergraduate programs.

Summary of Work: We describe the experience of a health sciences school with 16 different careers that, since 2008, reorganized all undergraduate curricula using the same educational approach, which IPE as one of its pillars. IPE takes place in various steps of each curriculum: interprofessional classes; Interdisciplinary Community Program (ICP); joined clinical experience and Interprofessional conferences. The ICP is a mandatory discipline for all health careers, were mixed groups of students from all programs go to a local community, where they are supposed to identify health issues and propose interventions to solve them, using problematization methodology.

Summary of Results: Since 2008, more than 7500 students attended the program in local communities, schools, rest homes, neighborhood associations and primary care clinics. Local health issues were identified and several health interventions were proposed and executed. The program is well evaluated by students and teachers. Difficulties reported by students about the program resemble the same difficulties reported by health professionals when working in teams.

Discussion and Conclusions: ICP created a space of interaction between different health professionals during their formation, allowing students them to see how each profession can contribute with their different skills and knowledge to improve the health care of the population.

Take-home messages: Interprofessional education can successfully be started at the beginning of the formation of health professionals, improving students’ abilities to work as an effective health care team.

#10K4 (27822)
Key Aspects for Creating a Successful IPE Program

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Background: Many institutions all over the world are starting Interprofessional Education (IPE) programs. Uncertainty and fear is often present when facing the change in culture and structure it requires, compared to traditional teaching methods.

Summary of Work: Since we do not have a single globally accepted model, learning from others’ successes and failures is very relevant. In this presentation, we will share the experiences, good and bad, of the Directors of the IPE programs from the Universidad Europea de Madrid (Spain) and the University of Minnesota (USA), mainly with undergraduate students.

Summary of Results: The key elements we have selected for successful IPE programs are: 1. Passionate champions. 2. Engagement and integration into curriculum. 3. Meaningfulness and drive (motivation). 4. Outcomes-focused. 5. Spread. We will also analyze our programs under the light of the 8-step process for leading change (Kotter 1995).

Discussion and Conclusions: Planning correctly before starting an IPE program is necessary. Learning from others successes and failures is relevant to the success of an IPE program.

Take-home messages: Before starting your IPE program, learn what others are doing or have done, and let them criticize each one of your planned activities before moving forward.
#10K6 (26150)
How can they work together if they don’t learn together?

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Background: To improve interprofessional collaboration in clinical settings, we developed an education model for trainee nurses, Medical Students and Psychology Students in cooperation with the student-based "Anamnesis-Group" (AG). In 2014 trainee nurses were first integrated in the AG-Program: Students and trainees met weekly over the course of one semester in different departments of the University Medical Center Freiburg, where they held patient interviews and discussed them in a tri-professional peer assisted learning (PAL) environment.

Summary of Work: In 2014 we initiated the nationwide first and only tri-professional AGs by encouraging trainee nurses to participate. We assessed the participants’ individual needs in regard to interprofessionality with a self-developed questionnaire. Based on that, we offered them a needs-orientated workshop to train interprofessional skills and focus on their Professional Identity which was held once during the semester in addition to the weekly AG-meetings.

Summary of Results: Six tri-professional AGs with N = 53 participants were held weekly. Out of these, N = 21 participants from all three professions attended the workshop, which was rated “very good” on average. The great majority (95%) stated to have gained more confidence in interprofessional interaction through the workshop.

Discussion and Conclusions: The model of a) tri-professional AGs meeting on a weekly basis in a PAL-environment and b) an additional workshop seems to meet the participants’ needs. In the successive semester the program was successfully continued (eight tri-professional AGs met weekly, N = 31 attended the workshop).

Take-home messages: Our educational model meets the high demand for interprofessional training and exchange as shown by participants’ feedback and evaluations.

#10K6 (25068)
What did first-year students actually experience in interdisciplinary education? A qualitative analysis of learning portfolio

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Hiroshi Ogura, Showa University, Faculty of Arts, Fujyoshida, Japan
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Megumi Enokida, Showa University, Department of Nursing, Yokohama, Japan
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Background: Interprofessional collaboration is considered essential to providing comprehensive patient care. Showa University has incorporated interdisciplinary education into the first-year curriculum to cultivate students’ basic and key skills for interprofessional practice. This yearlong educational programme encompasses different pedagogical methods, including Interdisciplinary Problem-based Learning (PBL) and Early Exposure where multidisciplinary student groups visit healthcare sites and observe health professionals’ collaborative practice.

Summary of Work: This study aims to better understand students’ on-going experiences and specify “actual” learning outcomes in this interdisciplinary educational course. Qualitative analysis of 45 students’ reflection in a series of e-portfolios was carried out by following an inductive approach to thematic analysis.

Summary of Results: Four core categories regarding students’ learning experiences were identified: communication (e.g., active listening and comprehensible explanation), teams and teamwork (e.g., mutual engagement and leadership), roles/responsibilities as a health professional (e.g., understanding of their own professional), and roles/responsibilities as a group member (e.g., self-directed learning and information literacy). Furthermore, these qualitative analyses demonstrate the socialisation of first-year students to student-centred learning context, changes in their epistemological beliefs about interprofessional collaboration and identity formation as a health professional.

Discussion and Conclusions: This qualitative study shows that students have noticed the importance of interpersonal communication and teamwork in practice and developed professional identity through on-going participation in the interdisciplinary education. A better understanding of their learning processes is pivotal to tutors who facilitate the student learning and develop interprofessional education in undergraduate curriculum.

Take-home messages: Interdisciplinary education in the first-year curriculum has functioned as a springboard for becoming a health professional who realizes the importance of interprofessional collaboration for patient care.
An Introductory IPE Course for Entering Medical Students: What Makes Collaborative Learning Happen?

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Background: Entering medical students are familiar with individual learning but have insufficient experiences in collaborative learning which is essential in interprofessional education (IPE). Since the needs and interests in IPE have been increasing, we implemented an introductory IPE course for our medical students and explored their development of collaborative learning competency.

Summary of Work: In each session of the course, an expert of eight clinical disciplines firstly introduced his role in the complex medical care system. Subsequently, a co-teaching time with course director offered an interactive discussion, and finally tasks were given to the randomly-grouped students for practicing teamwork in the classroom. The results of teamwork should be timely uploaded to Moodle for feedback. At the end of the semester, 73 of 77 second-year medical students submitted reflective writings to describe their changes in the learning journey. We adopted an “immersion/crystallization” approach to analyze these writings.

Summary of Results: Our students perceived conceptual changes from personal beliefs to team beliefs. They constructed collaborative pattern through shared communication, work division, and coherence. They also mentioned that the mechanisms of their changes were resulted from peer observation, reflection, self-awareness, and self-regulation.

Discussion and Conclusions: Bandura’s reciprocal determinism (1977) proposed the interactive relationship among environment, person, and learning behavior. These factors were interactively operated during the teamwork process. Moreover, our students experienced the different construction elements during communication process (Van den Bossche et al, 2006). These findings explained how entering medical students transformed their individual learning habit to collaborative learning throughout the course.

Take-home messages: A situated introductory course of IPE with co-teaching strategy can positively nurture students’ attitude, beliefs and skills of collaboration.
**#10L**  
**Short Communications:**  
**Motivation**  
Location: Boisdale 2, SECC  
**#10L1 (28156)**  
Motivation Among Alfaisal University Medical Students: A Stepping Stone to Individualized Medical Curriculum  

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Presenter: Yousuf Kharal*, Alfaisal University, College of Medicine, Riyadh, Saudi Arabia  

**Background:** Medical education is a field of continuous evolution. A recently proposed method to enhance undergraduate medical education is the Individualized Medical Curriculum (IMC). Motivation is a key to the IMC. However, research on motivation in medical studies is scarce - especially in relation to academic motivation. This study identifies motivating, and demotivating, factors for undergraduate medical students in their pre-clinical years (Years: 1-3) at Alfaisal University, College of Medicine.  

**Summary of Work:** A questionnaire-based cross-sectional survey was given to 400 medical students (Years: 1-3) at Alfaisal. Frequency distribution of demographics correlating with core questionnaire items was performed. Chi-square test and post-hoc correction for categorical variable association were also done. One-way ANOVA, LSD Fisher’s, and Mann-Whitney’s test to differentiate students’ rankings between two or more groups were conducted. Spearman’s correlation was used to correlate ranked items.  

**Summary of Results:**  
- “Fear of exam failure” motivated 36.1%; younger students more so than their seniors (p=0.02). Students without any of 4 defined learning approaches (e.g. problem-solving, memorization, organizing concepts and applying concepts) were not aware of their motivations (p=0.012).  
- “Challenging research projects” encouraged 38.3% to continue their studies (p=0.004). 36.1% obtained motivation from being given “full control over tasks”; second-years more so than third-year students (p=0.008).  

**Discussion and Conclusions:** The IMC can revolutionize contemporary medical education. Motivation throughout medical school, however, must first be properly understood. We have identified factors that illuminate on this area in the hopes of effectively developing a successful IMC model.  

**Take-home messages:** Understanding motivation in medical school is a key to a successful IMC model.

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**#10L2 (27840)**  
Factors influencing the academic motivation of ethnic minority students: A systematic review  

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**Background:** Globally, ethnic minority students exhibit lower academic performance and higher failure rates than ethnic majority students. Factors related to ethnicity like stereotype threat and factors not related to ethnicity like socioeconomic status only partly explain this underperformance. Motivation, an important factor in learning and academic performance, could be the key factor in explaining this underperformance, but is still relatively uninvestigated. The aim of this review is to investigate the factors influencing the academic motivation of ethnic minority students.  

**Summary of Work:** PubMed, ERIC and PsycINFO were searched using the words “students” AND “ethnic background” AND “motivation”. The included papers were qualitatively synthesized by two independent researchers. Some inclusion criteria were: ethnic minority, academic motivation and empirical papers. Specific motivation, like reading motivation, was one of the exclusion criteria.  

**Summary of Results:** Forty-eight papers were included. Factors which positively or negatively influenced the academic motivation of ethnic minority students were classified as: individual, family-related, sociocultural, socioeconomic, school-related, future-related and social factors/relationships and generation of immigration. An example of a positive factor was parental support and a negative factor was stigma awareness.  

**Discussion and Conclusions:** In this review we identified the factors influencing motivation of ethnic minority students. It is remarkable that we did not find any paper in medical education investigating this. Some identified factors, like generation of immigration, can’t be influenced. Most other factors like school-related and sociocultural factors can be influenced through interventions.  

**Take-home messages:** With the help of the identified factors, interventions can be developed for ethnic minority students which can help them deliver good academic performance.
Combining quality and quantity of motivation in understanding the academic performance of medical students

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Background: Motivation theories are based on either quality (type) of motivation, e.g. Self-determination Theory (SDT) or quantity (how much) of motivation, e.g. Atkinson’s theory. This study was conducted to explore the effects of combining quality and quantity of motivation for better understanding the academic performance of medical students.

Summary of Work: We reviewed SDT’s concept of motivation, research papers investigating motivation, learning and performance in medical students (n=17) and research papers using a combined approach for investigating motivation for medical education (n=1) and sports (n=9).

Summary of Results: 1) SDT describes two types of motivation: autonomous (perceived as own or of personal importance) and controlled (perceived as internal or external pressure). SDT advocates that the combination of autonomous and controlled motivation in an individual is important for her learning outcomes. 2) Medical education research papers have found contradictory effects on academic performance, i.e. positive or negative associations, probably because they have considered either the quantity of motivation or the quality in isolation from each other. 3) The combined approach used in motivation for physical activity education reported that a profile of high autonomous and low controlled motivation is associated with higher frequency, effort and better performance in physical activity, higher perceived competence and task orientation, higher intention and satisfaction for sports.

Discussion and Conclusions: The differences between individual students may be overlooked if either quality or quantity of motivation is considered on its own, reducing opportunities to support students’ motivation.

Take-home messages: An approach combining the quality and quantity of motivation is of value in understanding motivational processes in individual students.

The rat race mentality: The influence of social comparisons in medical trainees learning procedural skills

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Background: A learner’s thoughts and behaviours are affected by social comparisons. Our previous research provides evidence that social comparisons influence medical trainees differently compared to other types of learners. For instance, medical trainees believing that they are performing worse than their peers, regardless of how they are actually performing, experience negative impacts to their confidence and to their actual skill performance and learning. Our objective was to further examine the factors associated with this psychological and motor behaviour degradation to determine whether it was due to task or learner motivation.

Summary of Work: Prior to group randomization, all 30 novice trainees performed a typical motor-learning (key-pressing) task and a fundamental suturing skill. Regardless of their actual performance on either experimental task, trainees were assigned to one of three groups. They were provided with manipulated information to make them believe that they were performing better or worse than their peers, or nothing (control group).

Summary of Results: Our results suggest that there are different motivational factors to consider when teaching basic procedural skills to novice medical trainees. The complexity of these factors will be discussed in terms of the psychological and behavioural outcomes. These results will also be discussed in terms of the expert assessment of the video data (GRS and checklist).

Discussion and Conclusions: The results demonstrate how different types of motivation can influence self-efficacy, skill performance and learning particularly for those highly motivated to learn.

Take-home messages: Understanding when social comparisons become detrimental to skill learning is critical to how we educate and provide feedback to medical trainees learning procedural skills.
#10L5 (24723)
‘Old habits die hard’: A qualitative study on habitual constraints and possibilities in the training of experienced colonoscopists

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Background: An important task of trainers is to facilitate a ‘fit’ between the learner and the learning situation. From a sociological point of view, this ‘fit’ may be an emerging experience of illusio developing between the habitus of the learner and the underlying logic behind the desirable knowledge and skills that the trainer aims to develop among the learners. However, habitus and illusio are rare concepts in the medical education literature. The purpose of this study was to test these concepts in a medical education context and explore 1) the habitus of experienced consultants in an advanced faculty development program in colonoscopy and 2) the ways in which the trainers in the program succeeded in facilitating illusio, i.e. making the experienced consultants invest themselves in the process of changing their ‘old’ colonoscopy habits and becoming more conscious about their former and indeed future practice.

Summary of Work: We conducted a short-term ethnographic field work (ten days of observation and ten in-depth interviews) during an advanced faculty development course for colonoscopists. Participants were 12 Danish experienced colonoscopists and 2-3 British trainers.

Summary of Results: The habitus of the consultants encompassed a heavy reliance on tacit skills, a perception of colonoscopy as a less prestigious routine, and a strong professional (surgical) pride. The trainers succeeded in facilitating illusio by ways of arguing on the basis of shared underlying logics, standing out as academic role-models, and appearing as practical experts.

Discussion and Conclusions: The sociological concepts habitus and illusio seemed appropriate to describe educational challenges in training experienced consultants with deep-rooted ‘old’ habits.
#10M Short Communications: Integration and the Curriculum
Location: Carron 1, SECC

#10M1 (24979)
A disease-based approach to the vertical and horizontal integration of our medical curriculum

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Background: As medical disciplines have become increasingly interdisciplinary and evidenced-based medicine is now fully embraced and practiced, the need for curricula that reflect these changes are important. The newly revised LCME standards 1.1 Strategic Planning and Continuous Quality Improvement and 8.3 Curricular Design, Review, Revision/Content Monitoring require ongoing curricular review and revision to assure accreditation compliancy.

Summary of Work:
We have recently completed a comprehensive review of our curriculum and have moved from a department/subject-based curriculum structure to that of one that focuses on a systems and disease-based model. The systems-based approach allows for a more horizontally integrated curriculum in the preclinical years while the use of 115 distinct disease and eight themes, creates a mechanism that allows for tracking of vertical integration across all four years of the curriculum.

Summary of Results:
The first step in the development of a quality assurance model for vertical and horizontal integration of the curriculum was to establish and empower a newly formed integration subcommittee. This subcommittee was tasked with developing a model to review, track and improve the horizontal and vertical integration of the curriculum. Our integrated curriculum is now in its second year having completed the initial identification of gaps and redundancies through a process that relies on the mapping of diseases and themes throughout the courses.

Discussion and Conclusions:
This ongoing review and evaluation process has created a dynamic and active quality assurance process that allows our faculty to address issues of both horizontal and vertical integration of our curriculum at the course level.

Take-home messages: Disease states assist in integrating medical curriculum.

#10M2 (24616)
Extending the theoretical framework for curriculum integration in medical education from a contextual perspective

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Background: Although curriculum integration (CI) is considered a priority in reforming medical programs around the world, many medical schools struggle integrating their curricula (Brauer & Ferguson, 2014). This is possibly a consequence of the confusion derived from diverse definitions of CI anchored in multiple learning theories. Additionally, the existing definitions pay little attention to contextual issues of the medical schools. (Hopkins et al., 2014).

Summary of Work:
The study aimed to develop a theoretical framework of CI through building abstract constructs up based on in-depth studies of conditions and premises constituting the context of CI in medical schools. From a grounded theory perspective, we collected the official curriculum, interviewed curriculum designers, teachers and students, and observed learning activities in a particular medical school in Denmark. We analyzed and triangulated the qualitative data using an interpretive approach to identify and deduce key themes in CI (Auerbach & Silverstein, 2003).

Summary of Results:
Four theoretical constructs emerged from the analysis: (1) multiple dimensions of CI embedded in the official institutional perspectives of learning. (2) CI as a tool to harmonize conflicting perspectives of learning in the practice of the curriculum. (3) CI also creates tensions. (4) CI is visible in students’ collaborative learning spaces.

Discussion and Conclusions:
Our theoretical constructs provide an extended framework to understand CI in the specific context of a medical school. In this framework, we broaden the notion of CI from static theoretical to include dynamic and contextual.

Take-home messages: Approaching CI through the four constructs may provide medical educators insights into contextually determined conflicts, tensions and learning perspectives influencing the practice of CI.
Evidence of ‘diseases of the curriculum’: recommendations for application of Harden’s integration ladder to promote integrative learning

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Background: Almost 40 years ago, Abrahamson (1978) identified medical education problems that were due to what he coined ‘diseases of the curriculum’. From the early 20th Century, there have been calls for curriculum reform to improve medical education. In response, some undergraduate medical programmes contain a rich variety of features designed to advance integrative learning but there is little evidence of the effectiveness of these efforts. The aim of this study was to contribute to the improvement of integrative learning in medical education.

Summary of Work: Using phenomenography, I conducted 16 in-depth interviews on 25 undergraduate medical students and 10 academics. I used MAXQDA11 for data analysis: re-reading, de-contextualising and comparing transcripts until outcome space was formulated. The anatomy of awareness framework was used for structuring students’ experiences.

Summary of Results: Three categories of description made up the outcome space. The conceptions which are inextricably linked, logically related and hierarchical in degree of complexity revealed ‘diseases of the curriculum’ that prolong the development of students’ ability to integrate learning.

Discussion and Conclusions: Students embark on a long journey of integration of learning through taking steps that increase in complexity and hierarchical inclusivity. Students’ and teachers’ responses bear evidence of ‘diseases of the curriculum’. There are conceptions of content overload and demanding assessments that students consider as ‘do or die’, teachers operating in silos, and subjects that are not related.

Take-home messages: Application of Harden’s integration ladder can cure ‘diseases’ of curricula which prevent integrative learning.

The feasibility of an integrated anesthesia-surgery clerkship rotation as a learning experience for perioperative care

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Background: The current literature on medical education suggests that integrated curricula can improve the learning outcomes of medical students. This research project involves the horizontal integration of anesthesia within the surgery clerkship rotation (3rd year) at Memorial University and tests the feasibility of an integrated rotation as a learning experience for perioperative care.

Summary of Work: Twenty-six students participated in this project and were randomized into integrated (9) and non-integrated (17) groups. Student participation in the integrated group involved: 1) shadowing an anesthetist during a preoperative assessment; 2) attending the surgery; 3) assisting with delivery of the anesthetic; 4) accompanying the patient to the Recovery Room and learning about postoperative care; and, 5) following the patient’s recovery on the floor. All students completed pre- and post-rotation surveys to assess their views on anesthesia, its role in the surgical process, and the integrated experience in general. The anesthetists and surgeons involved with the integrated rotation also completed post-rotation surveys to provide feedback on the feasibility of the rotation.

Summary of Results: Of those students who participated in the integrated group, 89% felt they had a better understanding of the work of an anesthetist after the rotation. Students appreciated the hands-on experience involved in the rotation and the opportunity to learn intubation, IV-placement, arterial line insertions, and ventilating the patient. Students gained a better understanding of the surgical patient and perioperative care through the integrated rotation. However, they also reported that the integrated experience was not long enough and they wanted more clinical anesthesia experience and structure.

Discussion and Conclusions: The integrated anesthesia-surgery clerkship rotation provided students with an introduction to anesthesia which they would not have received unless they did the separate anesthesia selective in their final year of study. Further research is planned to determine the best structure of an integrated anesthesia-surgery rotation at Memorial University.
Experiences and lessons learnt from the implementation of clinically integrated teaching and learning of evidence-based health care

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Background: Clinically integrated teaching and learning are regarded as the best options for improving evidence-based healthcare (EBHC) knowledge, skills and attitudes.

Summary of Work: We assessed experiences and opinions on lessons learnt of those involved in such programmes by conducting semi-structured interviews with 24 EBHC programme coordinators from around the world, selected through purposive sampling. Following data transcription, a multidisciplinary group of investigators carried out analysis and data interpretation, using thematic content analysis.

Summary of Results: Successful implementation takes much time. Student learning needs to start in pre-clinical years with consolidation, application and assessment following in clinical years. Learning is supported through partnerships between various types of staff. While full integration of EBHC learning into all clinical rotations is considered necessary, this was not always achieved. Critical success factors were pragmatism and readiness to use opportunities for engagement and including EBHC learning in the curriculum; patience; and a critical mass of the right teachers who have EBHC knowledge and skills and are confident in facilitating learning. Role modelling of EBHC within the clinical setting emerged as an important facilitator. The institutional context exerts an important influence. The most common challenges identified were lack of teaching time, misconceptions about EBHC, resistance of staff, lack of confidence of tutors, lack of time, and negative role modelling.

Discussion and Conclusions: Implementing clinically integrated EBHC curricula requires institutional support, a critical mass of the right teachers and role models in the clinical setting combined with patience, persistence and pragmatism on the part of teachers.

Take-home messages: Implementing clinically integrated EBHC curricula requires institutional support, a critical mass of the right teachers and role models in the clinical setting combined with patience, persistence and pragmatism on the part of teachers.

Creating a medical student driven four year curricular track in innovation, quality and leadership

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Background: A small group of medical students brought forth a request to include a new track in the medical school curriculum. With the guidance of a Dean Educator and mentor, the medical students designed an innovative, 4 year track in Innovation, Healthcare Quality, and Leadership (IQL).

Summary of Work: The longitudinal track provides a blended approach to learning consisting of small group discussion, online cohort-based modules in years 1 and 2, web-based self-directed learning in year 3, guest lectures, and a capstone research project or internship. Curricular requirements and learning modalities were designed to carefully align with the demands of the traditional curriculum across the four years.

Summary of Results: The optional IQL track is designed to facilitate the student’s mastery of five School of Medicine defined competencies. Secondary to the interest of other disciplines the track will be available to interprofessional students in the future.

Discussion and Conclusions: The purpose of the IQL track is to provide additional avenues for students to learn about healthcare quality improvement and innovation; the impact of advances in the life sciences industries; and the need for effective physician-leaders to implement change in the healthcare system.

Take-home messages: Due to increasing financial pressures and legislative changes, the healthcare system requires physician-leaders with clinical expertise as well as skills in improving delivery systems and processes. As providers of care, student physicians enrolled in the track are uniquely positioned to impact and improve the healthcare landscape.
#10N  Short Communications: The Education Environment
Location: Carron 2, SECC

#10N1 (24476)
The student perspective: a learning environment assessment of clinical students in a medical school in Taiwan

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Background: The medical school learning environment (LE) encompasses the formal, informal, hidden curriculum, and the social context. However, medical schools in Taiwan lack a widely-recognized tool to evaluate the quality of LE.

Summary of Work: This paper presents an LE assessment study of students at the end of their pre-service training in National Taiwan University School of Medicine (NTUSOM) using two tools: the Dundee Ready Education Environment Measure (DREEM), the most widely-used tool, and the Johns Hopkins Learning Environment Scale (JHLES), a newly developed tool.

Summary of Results: Completed surveys were collected from 99/151 (65.6%) medical students. Our study highlighted the strength of the faculty, whereas teaching methods, mentorship, and student support were identified as areas in need of improvement. DREEM and JHLES totals were strongly correlated with one other (r=0.74) and with the overall perception of LE (r=0.59 for both).

Discussion and Conclusions: To the best of our knowledge, this study conducted in NTUSOM in Taiwan is the first in East Asia to administer DREEM and JHLES to assess the LE of medical school. This study offered insight into the reasons behind the problems facing the institution and presented possible solutions in hopes of encouraging active intervention. DREEM and JHLES were highly correlated with one another, indicating that both two are good for assessing the LE of medical schools.

Take-home messages: By presenting the current situation at NTUSOM, we expect to spark discussion and exchange of ideas/success stories among institutions.

#10N2 (25332)
Scan of Postgraduate Educational Environment Domains (SPEED): A brief instrument to assess the learning environment in postgraduate medical education

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Maartje Visscher, Isala Hospital, Princess Amalia Children's Centre, Zwolle, Netherlands  
Janet A N Raat, University Medical Centre, Centre for Medical Education Research and Innovation, Groningen, Netherlands  
Paul L P Brand*, Isala klinieken, Princess Amalia Children's Centre, Zwolle, Netherlands  

Background: Current instruments to evaluate the postgraduate medical education environment lack a theoretical framework and are relatively long (up to 50 items).

Summary of Work: Using a solid theoretical framework and existing instruments, we developed – in a Delphi procedure – a screening instrument comprehensively covering all three domains of the postgraduate medical education environment (content, atmosphere and organization). Item reduction and validation of this Scan of Postgraduate Medical Education Environment Domains (SPEED) was performed using responses by residents in a general and university hospital.

Summary of Results: The 43-item draft SPEED was completed by 223 residents. The brief (15 items, 5 per domain) SPEED, developed through item reduction in half of the dataset, was validated in the other half. Internal consistencies were high (α>>0.80). Correlations between domain scores in the draft and brief versions of SPEED were high (r>0.85) and highly significant (p<0.001). Domain score variance of the draft instrument was explained for >80% by the items representing the domains in the brief instrument.

Discussion and Conclusions: The SPEED is a brief (15-item), valid instrument comprehensively covering the three domains of the learning environment, with a sound theoretical foundation.

Take-home messages: The SPEED is a new, concise, valid instrument suitable to screen the postgraduate medical education learning environment quality on a regular basis.
#10N3 (25322)
Medical Students Perceptions of the Learning Environment in an Academic Medical Centre

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Haikel Lim, National University of Singapore, Psychological Medicine, Singapore
Ee Heok Kua, National University Health System, Psychological Medicine, Singapore

**Background**: The learning environment (LE) is an important part of the medical students’ experience and vital for quality education and professional and clinical development. This study determined students’ perceptions of the LE at an Academic Medical Centre in Singapore.

**Summary of Work**: Medical Students in clinical Phases III to V (N 402) who rotated through various clinical postings at the AMC in AY 2013/2014 completed the DREEM at the end of each clinical posting. The study had approval from the NUS Institutional Review Board.

**Summary of Results**: Gender distribution was (202 males vs 200 female), with 144 in Phase III, 108 in Phase IV and 150 in Phase V. The overall DREEM score was 142.44, with 75.6% rating the environment as ‘More positive than negative’ and 23.1% as ‘Excellent’. Students rated the LE in the top half of the quartiles in all the 4 DREEM Subscales. However significant differences were found between Phase III (145.9 ± 15.9) and Phase V (138.4 ± 15.9) (t[292]=4.23, P<0.001) and the DREEM Subscales scores (Ps<0.001). Phase V (final year) students scored the lowest amongst the 3 clinical phases. In addition, scores at the end of clinical postings in each of the 3 phases were reviewed to identify gaps in student experiences.

**Discussion and Conclusions**: Medical students face changes as they progress through the clinical years. Challenges were in the final year (Phase V) where they were in Student Internship Programs (SIP) in preparation for clinical work upon graduation. Attention is required for the SIP where there is much focus on skills acquisition and competencies and provides an opportunity to review and address students’ learning needs.

**Take-home messages**: Attention to the LE provides recognition of areas of student dissatisfaction and the opportunity to address these compromise the learning experience.

#10N4 (25788)
Space – the final frontier! An ethnography of medical student learning in a physic garden and an art gallery

Theresa Compton*, Plymouth University Peninsula School of Medicine and Dentistry, Plymouth Growing Futures, Plymouth, UK
Jennie Winter, Plymouth University, Plymouth, UK
Karen Treasure, Plymouth University, UK
Caroline Mikhail, Plymouth University, UK

**Background**: At AMEE 2013, Jonas Nordqvist and Andrew Laing spoke about the design of spaces for learning in medical education. It inspired me to consider our hospitals and educational spaces in a new light. Our year 1 and 2 students are mostly taught in purpose built small group rooms, which can be dark, stuffy, hot, with few windows and little natural light. I wanted to find out what happened to the student learning experience when we changed the environment.

**Summary of Work**: In collaboration with staff from Educational Development, Arts, Medical Humanities and Plymouth Growing Futures, I designed an experiment to explore what would happen if I took a group of medical students to an art gallery and to a physic garden. Both spaces were on campus, but certainly not used overtly as teaching spaces outside of specific subject disciplines.

**Summary of Results**: Videoethnography was used to capture these learning experiences for analysis.

**Discussion and Conclusions**: This experiment was designed to investigate what happened to learning in these spaces, and what the students learned in context of professional, life skills and medical science content learning.

**Take-home messages**: In considering this experiment, I hope to answer the question ‘How does change of space impact on medical student learning?’
#10NS (27558)
A psychogeographic approach to the educational experiences of medical students undertaking clinical placements in a Glasgow teaching hospital

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J Goldie, University of Glasgow, School of Medicine, Glasgow, UK
J Morrison, University of Glasgow, School of Medicine, Glasgow, UK
P Cotton, University of Glasgow, School of Medicine, Glasgow, UK
JB Neilly, University of Glasgow, School of Medicine, Glasgow, UK

Background: How do medical students navigate the complex and potentially bewildering environment of a university teaching hospital? For the overwhelming majority of people inside, it is primarily a place of service use, service delivery, and of the ancillary functions supporting these. For undergraduate medical students it is primarily a place of learning, and this distinctively orients their interaction with its spaces.

Summary of Work: Ambulatory ‘go-along’ interviews with individual medical students from different year groups and different academic sessions were conducted in a university teaching hospital, where the students acted as a tour guide on a walk with the interviewer.

Summary of Results: At the beginning of their placements, the landscape that the hospital presents to students is not a featureless one as they have already formed ideas about the setting based on the experiences of others. In addition to its internal topography, students placed significance on the external location of the hospital in relation to travel implications and time pressure. Inside, labyrinthine routes were traced along the mazes of corridors linking different sites, and students identified territory of importance to them as well as areas that remained unknown. Wards or clinics particularly associated with excellent teaching were highlighted.

Discussion and Conclusions: Rather than acting purely as a ground plan, the mental map that students construct of the hospital corridors, wards, and teaching spaces they encounter is coloured in terms of their educational agenda, and informs choice in relation to their learning needs.

Take-home messages: Students map hospital zones according to the educational utility they perceive in these.
**#10O Short Communications: Career Choice**

**Location:** Dochart 1, SECC

### #10O1 (26177)

**Association between personality traits and future choice of specialization among Swedish doctors - A cross-sectional study**

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Sari Ponzer, Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset, Stockholm, Sweden
Hans Jarnbert Pettersson, Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset, Stockholm, Sweden
Marie Dählin, Karolinska Institutet, Department of Clinical Neuroscience, Stockholm, Sweden

**Presenter:** Caroline Olsson*, Karolinska Institutet, Stockholm, Sweden

**Background:** Medical students’ choice of future specialty is influenced by several factors including working conditions and type of patient relations. This study aimed to investigate the association between the choice of specialty and personality traits.

**Summary of Work:** This is a cross-sectional questionnaire-based study of 399 alumni from Karolinska Institutet medical school, who were assumed to undergo specialty training at the time of the survey in 2013. The Big Five Inventory (BFI) was used to assess the personality traits Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Medical specialties were categorized as primary care, psychiatry, internal medicine, surgical and hospital service specialties. Adjustment was made for demographic factors and selection method for medical school admission.

**Summary of Results:** The response rate was 72% (n=286), of which 262 were in training to become specialists. Among these, surgeons scored lower in Agreeableness than physicians in primary care, internal medicine and hospital services. Psychiatrists and hospital service physicians showed lower Conscientiousness compared to surgeons. We found distinctive differences in personality traits between medical specialties even after adjusting for other potential explanatory variables. Since there are differences in between specialties e.g. surgeons and psychiatrists, this supports previous findings that personality may affect medical students’ specialty choice, at least in a Swedish setting.

**Discussion and Conclusions:** This study revealed that there were substantial personality trait differences between medical specialty groups, including differences in Conscientiousness and Agreeableness among surgeons, when taking into account other relevant explanatory variables. This could be implemented into improved admission to medical school procedures to potentially affect the composition of future specialists or as career advice to medical students in the process of selecting specialty.

**Take-home messages:** More knowledge about students’ choices of specialty can help government, universities and hospitals when planning future post graduate medical education.

### #10O2 (26112)

**Providing work experience in a simulated environment, an introduction to medicine for 6th form students**

James Farrant*, Cardiff University, Anaesthetics Intensive Care & Pain Medicine, Cardiff, UK
Judith Hall, Cardiff University, Anaesthetics Intensive Care & Pain Medicine, Cardiff, UK
Cristina Diaz-Navarro, University Hospital of Wales, Anaesthesia, Cardiff, UK

**Background:** A secondary school approached the Bill Mapleson Centre simulation team, to develop a tailor-made work experience day for their international students considering a career in medicine.

**Summary of Work:** We identified learning objectives in collaboration with the school. These aimed to provide an insight into studying medicine and life as a doctor. We decided to use medical skills and simulation workshops of progressive complexity to provide a worthwhile alternative to traditional clinical based work experience. Interactive discussions were supported by the use of purpose made videos of consultants reflecting on their motivations and experiences and actor based consultation videos.

**Summary of Results:** This pilot course was extremely well received and provided a beneficial experience for the 6th form students. Feedback was excellent for all components. Comments included: “I got deeper insight into medicine as my life choice and not a career choice.” “The clinical hands-on experience was definitely a golden opportunity.” “The hands-on activity was very useful, giving a deeper and broader insight into what a doctor really does in work.”

**Discussion and Conclusions:** Designing this course forced us to change our perspective when identifying learning objectives. Experiential components were successfully adapted allowing full participation without prior medical knowledge. Developing this course has also allowed us to explore our original motivation and drive in choosing medicine as a rewarding profession.

**Take-home messages:** Medical work experience can be successfully provided in simulated environments.
Workshop on the Access to Medical Training in Europe

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Stijntje Dijk, International Federation of Medical Students’ Associations, Rotterdam, Netherlands

Background: With globalization problems and opportunities arise. One of them is mobility of doctors. Mobility stimulates knowledge transfer, but also causes the burden of having too many or too few doctors in countries. Within the European Union there is a specific Directive on mobility of doctors (2013/55/EU) that makes it possible for EU-doctors to work in other EU-countries. This creates an opportunity for students that want to specialise in another country, though it is difficult to find the specifics on speciality systems in the EU-countries and the requirements for foreign students. This is why the International Federation of Medical Students’ Associations (IFMSA) organized the Workshop on the Access to Medical Training in Europe (WAMTE) in 2012 and 2013. This workshop aims to create accessible information on residency in Europe for students.

Summary of Work: During the two workshops students from different countries in Europe created a guide with information about residency in their countries and talked about the advantages and disadvantages of doctor and student mobility.

Summary of Results: The guide that was created provides information on how to apply for residency in around ten different European countries.

Discussion and Conclusions: These workshops made the first step in enhancing the possibility to specialise in another country, but there is no solution on sustainable mobility of doctors yet. This is something that needs to be further addressed.

Take-home messages: Mobilisation of doctors has two sides.

The potential impact of higher course fees on career choice

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Kathryn Lockhart, Bond University, Faculty of Health, Gold Coast, Australia
Edward Teo, Bond University, Faculty of Health, Gold Coast, Australia
Janie Smith, Bond University, Faculty of Health, Gold Coast, Australia
David Waynforth, Bond University, Faculty of Health, Gold Coast, Australia

Background: Most Australian medical student places are government-supported, reducing the cost of tuition to about $10,000 each year, but some private places with fees cost up to $60,000 per year. In North America, debt at graduation is associated with different career choices. We explored the relationship between potential debt at graduation and future career preference.

Summary of Work: Data were accessed from the Medical Schools Outcomes database Exit Questionnaire for both government-supported and full fee paying (FFP) students from 2008-11 in all Australian medical schools. The influence of gender, age, relationship status and fee-paying status on future career preference (specialty and location) was explored through logistic regression analysis.

Summary of Results: Domestic FFP students were more likely to nominate as their first preference both urban locations (OR 5.58; 95% CI 2.04-15.26) and higher income specialties (OR 1.37; 95% CI 1.07-1.75), and less likely to nominate ‘in-need’ specialties, specifically general practice (OR 0.48; 95% CI 0.30-0.78). Being married or older increased preference for rural location (OR 0.64; 95% CI 0.15-0.22) and general practice (OR 0.89; 95% CI 0.82-0.96). A rural background increased preference for rural location (OR 0.18; 95% CI 0.15-0.22) and ‘in-need’ specialties, as did being older on entry to medical school (OR 0.96; 95% CI 0.94-0.98). International FFP students were more likely to prefer urban practice (OR 1.77; 95% CI 1.16-2.68).

Discussion and Conclusions: Domestic FFP graduates are less likely to prefer careers in rural locations and in lower paid, ‘in-need’ specialties, particularly general practice. Current workforce implications may be relatively minor, but should fee contribution levels rise or more FFP places become available, consideration should be given to potential impacts on workforce distribution.

Take-home messages: Should medical course fees rise, it may be necessary to increase financial incentives to encourage choice of lower paid career pathways.
The mock faculty position competition: a professional simulation for advanced trainees anticipating a competitive job market

Rita Henderson*, University of Calgary, Community Health Sciences, Calgary, Canada
Naweed Syed, University of Calgary, Anatomy & Cell Biology, Calgary, Canada

Background: Canada’s medical residents and PhD graduates face critical job shortages across specializations, from bench science to oncology, cardiac surgery, nephrology, neurosurgery, orthopedics, public health, and preventive medicine. The situation frames a significant and often reluctant brain drain of Canadian-trained experts to more competitive markets, in the United States and elsewhere.

Summary of Work: Troubled by the prospect of preparing specialists for careers unlikely to pan out as expected, in June 2014 senior administration in the University of Calgary’s Cumming School of Medicine spearheaded a professional development opportunity to test the academy’s preparedness to mentor advanced research trainees in reaching their professional goals. The opportunity simulated a full academic job recruitment process to which nearly 200 postdoctoral fellows could apply, with a competition award of $10,000 for the selected candidate.

Summary of Results: Three finalists made research presentations and participated in committee interviews recorded and live-streamed to an audience of +100 faculty and peers. The simulation piloted a practical and experiential learning model tailored to the unique reality of today’s advanced trainees.

Discussion and Conclusions: Lessons learned highlight how this simulation may be modeled as a regular career-development tool. Unanticipated outcomes include new professional networks from collaboration between colleagues at all stages of their careers in this mentorship initiative, as well as agreement between evaluators and audience members in skills assessment. Transferability of this job competition simulation for clinical trainees is also promising.

Take-home messages: The simulation is a unique, relatively low cost career development tool with critical potential to increase the success of advanced trainees in an increasingly competitive job market.

Do the specialty preferences of medical students change during the “basic sciences” years? An exploratory study

Cristiana Ferreira*, University of Minho, School of Health Sciences, Braga, Portugal
Patrício Costa, University of Minho, School of Health Sciences, Braga, Portugal
Manuel João Costa, University of Minho, School of Health Sciences, Braga, Portugal

Background: This study tested the hypothesis that self-reported career preferences at entry of a 6 year undergraduate medical program are key determinants of preferences by the end of the 3rd year.

Summary of Work: This was a retrospective study (4 cohorts, n=380, 84.4% of the population) conducted in one medical school in Portugal, with data from a longitudinal research database. We analysed coherency of specialty preferences in 2 moments: week 1, year 1 (M1) and end of year 3 (M2). 3 specialties of preference collected in each moment were categorized into surgical, medical, primary or diagnostic. We defined coherency as referring only one specialty, or referring at least two preferences of the same category (medical or surgical), or three indecisions. A multinomial logistic regression model was used to predict coherency in M2. Gender, empathy and personality (Big5) scores, academic performance and M1 coherency were used as independent variables.

Summary of Results: The model explained 23.7% of the variance of M2 preference coherency. M2 and M1 coherencies for surgical preferences were associated with (p=0.007; OR=3.7). M2 coherency for medical specialties was associated with M1 coherency for medical preference (p=0.023; OR=2.2) and openness to experience (p=0.002, OR=1.09). Coherency for indecision in M2 was associated with coherency for indecision in M1 (p=0.003; OR=5.0), empathy (p=0.041; OR=0.97) and neuroticism (p=0.025; OR=0.94).

Discussion and Conclusions: Preferences for medical and surgical specialties at entrance to medical school largely determine preferences by the end of year 3.

Take-home messages: Coherency of preferences at entry were the main predictor of preferences coherency at the end of the 3rd year.
#10P  Conference Workshop:  Developing and supporting reflective writing in the medical sciences (27746)

Location:  Dochart 2, SECC

A Silva-Fletcher*, The Royal Veterinary College, LIVE, Clinical Sciences and Services, Hatfield, UK  
K Whittlestone, The Royal Veterinary College, LIVE, Clinical Sciences and Services, Hatfield, UK  
S May, The Royal Veterinary College, LIVE, Clinical Sciences and Services, Hatfield, UK

Background: The ability to critically reflect on one’s performance, and generate plans for improvement is invaluable for ongoing professional development. However, developing reflection and reflective writing is not an easy task. Reflective writing provides a focus for reflection and a means of proving that reflection has taken place. Students and professionals in the health science-related fields frequently struggle to appropriately conceptualise reflection in their writing and often generate 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
- Identify barriers for reflective writing

Structure: The workshop will have three phases:
1. Developing reflective writing (using Hatton and Smith 1995 criteria)
2. Analysing and giving formative feedback on reflective writing (based on level descriptors)
3. Exploring barriers for 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: Faculty development educators and trainers in the healthcare sciences involved in developing and assessing reflective writing, or those considering implementing reflective writing into their teaching.

Level: Intermediate

#10Q  Conference Workshop: Standard Setting using Angoff. Not just for MCQs (26985)

Location:  Castle I, Crowne Plaza

Dwight Harley*, University of Alberta, School of Dentistry, Edmonton, Canada  
Margaret Dennett, Vancouver Community College, Certified Dental Assisting, Vancouver, Canada

Background: Setting defensible standards for academic success is a critical component of assessment that is often left to chance. Challenges arise convincing faculty of the necessity and value of adopting and committing time and energy to a technique. The Angoff method may easily be used in multiple formats making it enticing for adoption. This workshop will focus on the application, and offer possible solutions to the challenges.

Intended Outcomes: At the conclusion the attendees will be better able to:
- Describe the principles and operation of Angoff’s method to assist in determining a passing score.
- Discuss Angoff’s technique and how it can be applied to a variety of item types.
- Discuss the minimally competent candidate
- Discuss the need for calibrating raters
- Develop strategies for dealing with the following problems:
  - Reluctance to adopt the procedure, the standard-setting procedure provides a passing score which in the opinion of the rater is inappropriate, raters who select unrealistic levels of performance on items, and the student who “just” fails

Structure: The speakers will explain the concept of standard setting and present a modified Angoff procedure using realistic examples of various assessment formats. Included will be a discussion of the minimal competent candidate as well as the concept of rater calibration. A facilitated discussion will follow focusing on the advantages and disadvantages of the introducing a formal standard-setting approach and the challenges faced. Time will be reserved for audience question and answer.

Who Should Attend: Everyone interested in fair assessment and application of a standard setting method.

Level: Introductory
#10R  Conference Workshop: Demonstrating Applicant Competencies in Admissions: Use of Competency Templates (24207)

Location: Castle II, Crowne Plaza

Carol Elam*, University of Kentucky College of Medicine, Office of Medical Education, Lexington, USA
Patricia O’Sullivan*, University of California San Francisco, Research and Development in Medical Education, San Francisco, USA

Background: The Association of American Medical Colleges identified core entry-level competencies that premedical students should be able to demonstrate prior to entering medical school (Integrity and Ethics, Reliability and Dependability, Service Orientation, Social and Interpersonal Skills, Teamwork, Capacity for Improvement, Resilience and Adaptability, Cultural Competence, Oral Communication, Thinking, Reasoning, and Science Competencies). We devised three templates to serve as frameworks for thinking about the competencies from the viewpoints of stakeholders including faculty and advisors, students, and institutional leaders.

Intended Outcomes: This workshop is designed to help participants consider how to incorporate competencies into advising, tracking, and evaluating applicant preparation for medical school. Participants will leave the session with ideas about how to use and modify the templates to review development of competencies resulting from an individual’s educational and extracurricular experiences in preparation for medical school. The templates and an overview article describing their construction and intent, published in The Advisor in 2014, will be distributed to session attendees.

Structure: This highly interactive, hands-on workshop will consist of small group activities with large group debriefing. A brief presentation will review the purpose and use of each competency template. Participants will work in small groups discussing case scenarios addressing how the templates could be effectively used in: advising, letter writing, tracking, institutional opportunity audits, and faculty development. Case resolution will be discussed in the large group setting.

Who Should Attend: Medical school admission directors, committee members, and interviewers; medical educators and students interested in preparation for medical school.

Level: Introductory

#10S  Conference Workshop: Evidence–informed teaching: discovering the model for you (23721)

Location: Castle III, Crowne Plaza

Rochelle E Tractenberg*, Georgetown University, Neurology and BEME International Collaborating Center, Washington, USA
Peggy Weissinger*, Georgetown University School of Medicine, Family Medicine and Center for Innovation and Leadership in Education, Washington, USA

Background: Two models, differing mainly in the source of the evidence that is used, generally guide “evidence informed teaching”. The most common models are the “Cochrane” model, which seeks empirical, peer reviewed and published evidence, and the “classroom” model, which uses the instructor’s own experiences as evidence. The presentation will describe these, and introduce a third model, the “Messick” model, most commonly used in departments of education and psychology. This model differs from the others in that it emphasizes evidence that instructors seek and students provide; it is based on psychometrics and educational psychology.

Intended Outcomes: By the end of the session, participants will learn how to recognize each model, discuss strengths, weaknesses, and opportunities associated with each, and how to employ them purposefully in their own courses.

Structure: 1. Introduction to models (10 minutes)
2. Opening Activities (Individual, Dyads, & Small Group) (30 minutes)
a) Personal Reflection: which model(s) have you used/do you use?
b) Think – Pair – Share (the models) – to derive concrete descriptions of personal experiences.
c) Complete a matrix comparing the models, contexts in which “Cochrane” and “classroom” models are most often used; and what, if anything, would need to change to incorporate the Messick model.
d) Debrief
3. Lecturette – contrasting valid assessment and “teaching to the test” (10 minutes)
4. PRO-CON grid (15 minutes)
5. DEMO: activities fitting Messick’s model; participants identify three to use. (15 minutes)
6. Summary, Questions (10 minutes)

Who Should Attend: Course directors and teaching faculty.

Level: Introductory
The BEME User Group

The BEME Collaboration welcomes the opportunity to engage with stakeholders and users of BEME Reviews to determine how BEME can best meet the needs of the health professions education community.

#10U Conference Workshop: Peer-to-Peer Teaching: Possibilities, Perks and Pitfalls (27450)

Location: Gala 2, Clyde Auditorium

Felicity Knights*, Newcastle University, Newcastle-Upon-Tyne, UK
Daniel Knights*, Newcastle University, UK
Paula Baraitser*, King’s College London, UK
Stijntje Dijk*, IFMSA (The International Federation of Medical Student Associations)
Tom Hindmarch*, Frimley Park Hospital, UK

Background: Peer-to-peer teaching is increasingly recognised as an economically effective and scalable technique, which has been shown to be as successful as traditional teacher-student methods (Yu et al, 2011). Students themselves are using it to fill in gaps they perceive in their medical curricula: IFMSA (International Federation of Medical Student Associations) brings together over 1 million students and runs numerous national and international peer-led teaching programmes annually. Teaching is recognised as a core activity of a healthcare professional, but it is rarely formally taught or practised at undergraduate level. This workshop aims to explore how peer-to-peer teaching can be more effectively used in a faculty context.

Intended Outcomes: Participants will:
- Learn about diverse examples of best practice in peer-to-peer teaching
- Gain an understanding of the benefits and risks of peer teaching programmes
- Have the opportunity to share relevant experiences
- Discuss methods to research, improve and develop our understanding of this form of teaching
- Gain practical techniques in training and supporting peer teachers

Structure: This workshop is a collaboration between researchers, practitioners and IFMSA members experienced in peer-to-peer teaching. We will initially introduce core themes and showcase current examples of best practice. Participants will then interactively consider the following questions: What content and contexts are best suited to peer-to-peer education? How can a peer-teaching programme be initiated? How can we manage risks and ensure quality?

Who Should Attend: Faculty members; students and young professionals; educational researchers, those interested in non-technical skills e.g. communication, ethics and professionalism, advocacy and leadership, reflection and feedback.

Level: Introductory
Conference Workshop: Creating interactive medical e-learning modules with open source tools (27141)
Location: Staffa, Crowne Plaza

Mathijs Doets*, Erasmus MC, Desiderius School, Rotterdam, Netherlands
Nathalie De Bruycker*, Erasmus MC, Desiderius School, Rotterdam, Netherlands
Thio Termorshuizen*, Erasmus MC, Desiderius School, Rotterdam, Netherlands

Background: There are many authoring tools for creating e-learning modules (e-modules). With freely available open source authoring tools you can efficiently and cost-effectively develop e-modules. At the Erasmus University Medical Center in Rotterdam, we have several years of experience making interactive e-modules for medical students with the open source tools Xerte Online Toolkits (XOT) and OpenLabyrinth (OL). XOT enables users to create structured tutorials and offers several templates for developing interactive content, while OL is aimed at developing non-linear Virtual Patient cases. Both tools allow for the creation of highly interactive multimedia-rich modules.

In this workshop, we will demonstrate these tools, explain a step-wise approach to developing e-modules and provide tips and guidelines for a good didactic design.

Intended Outcomes:
- have knowledge of the strong and weak points of two open source authoring tools
- have developed ideas for an e-module
- have started to design their own e-module

Structure: Introduction (30 minutes)
- presentation of the authoring tools XOT and OL
- designing an e-learning module – guidelines for didactic design
- examples of modules
- Moderated small group sessions to exchange ideas and start developing an e-module (45 minutes)
- Presentation of ideas and feedback / discussion (25 minutes)
- Evaluation (5 minutes)

Who Should Attend: Healthcare professionals, educationalists and e-learning technologists with an interest in developing interactive e-learning modules or virtual patient cases. Participants are required to bring their own laptop to this session.

Level: Intermediate

Conference Workshop: Moving beyond Surveys: External Assessments for Education and Research
Location: Shuna, Crowne Plaza

Anthony Artino, Jr.*, Uniformed Services University of the Health Sciences, United State of America
Ingrid Philibert*, Journal of Graduate Medical Education, Accreditation Council for Graduate Medical Education, USA
Gail M Sullivan*, Journal of Graduate Medical Education, University of Connecticut, USA

Background: The session will use Kirkpatrick’s four level model for evaluating training and Miller’s pyramid of clinical competence as frameworks for conceptualizing educational and clinical outcomes from educational interventions in undergraduate and graduate medical education. The two frameworks are used to facilitate a thoughtful approach about best methods for outcome assessment, with a focus on effective, lower cost approaches to assessing interventions in medical education research and practice.

Intended Outcomes: At the conclusion of the session, attendees will be able to:
- List common problems with many outcome measures currently used in research in undergraduate and graduate medical education, particularly surveys and learners’ self-reported changes in knowledge, skills or attitudes.
- Describe different assessment methodologies, including tests (MCQ and open-ended), OSCEs, direct observation, multi-source feedback, chart stimulated recall and medical record audits.
- Discuss their feasibility and suitability to different assessment contexts.
- Articulate and discuss “return on investment” (as the suggested Kirkpatrick Level 5) in assessment, with a focus on high feasibility and lower cost approaches and tools to assess the impact of intervention in medical education.

Structure: The proposed 90-minute session will combine mini-lectures on several assessment methods, including tests (MCQ and open-ended), OSCEs, direct observation. Multi-source feedback, chart stimulated recall and medical record audits with facilitated discussion to elicit the audience’s experience with and reaction to these assessment modalities. Outcomes will include attendee discussion and consensus on best practices for matching medical education assessments and outcomes measures to the chosen research interventions.

Level: Intermediate, post-graduate medical education and the clinical period of undergraduate medical education.
#10X  Conference Workshop: From time to competencies: Discovering organizational challenges in a complex health care setting (26247)

Location: Jura, Crowne Plaza

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Background: Competency Based Medical Education (CBME) in Post Graduate Medical Education (PGME) has made a worldwide introduction. CBME not only changes the structures and content of PGME programs, but it also affects the way PGME is organized in teaching hospitals. The transformation from Time-Based Medical Education (TBME) to CBME introduces new organizational challenges; both on the hospital administration level as on the clinical work floor. We observe that these challenges often lead to friction and barriers in this complex setting.

This workshop addresses the following questions: How do these organizational challenges manifest in teaching hospitals? How can they be revealed? And how can they be dealt with. During interactive case studies participants discover the impact of implementing CBME in PGME programmes from an organisational perspective. Participants are handed an analytical perspective based on complexity theory, discover and share best practices and formulate practical strategies. During these case studies participants are encouraged to reflect on their own experiences with the transition to CBME. The workshop results in a framework that helps with formulating pro-active implementation strategies.

Intended Outcomes: Participants will get familiar with organisational issues arising when transitioning from TBME to CBME and gain practical tips to resolve these problems in their own organisation.

Structure: 1,5 Hour:  
Setting the Scene (10m)  
Discovering relevant parameters and share experiences in active Case Studies (1h)  
Back to Reality - Reflection and conclusion (20m)

Who Should Attend: Everyone involved in organising PGME: administrators, programme directors and clinical educator. We also encourage residents to participate since they are experience experts in these issues.

Level: Introductory

#10Y  Medical Education Online – The Understanding and Skills You Need (26809)

Location: Barra, Crowne Plaza

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Background: The World Wide Web and its associated technologies provide new opportunities for learning, and enhancement of traditional face to face education. It is revolutionizing distance learning, particularly in its ability to support interactive, reflective, small group learning. However, as with any other learning medium, it has its own advantages, limitations and difficulties. Teaching in an online environment can present new challenges and opportunities for educators. Transitioning from face to face teaching to online facilitation can be a difficult change to make and requires the development of new skills. This workshop will raise the knowledge and skills of medical educators; both those less experienced and those who wish to gain new skills and knowledge in the future of medical education.

Intended Outcomes: Intended outcomes are to increase participants’ awareness and understanding of the transitional journey when moving from face to face learning to learning in small groups online; improve their ability to develop an appropriate curriculum for an online module/course; increase their skills to conduct successful asynchronous online discussions; and encourage participants to reflect on how online learning can be used to further medical education within participants’ own discipline / country.

Structure: A Presentation-Exercise format will be adopted, with learning content presented and then participants completing reinforcing exercises. Workshop participants will have the opportunity to apply the knowledge acquired in the workshop by developing and designing their own on-line module.

Who Should Attend: Health care educators from different disciplines who are interested in becoming facilitators of online small-group learning

Level: Introductory
#10AA01 (28204)
Maintaining surgical skill competencies in developing countries

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**Background:** Wild life veterinarians are called to treat traumatic injuries such as lacerations, strangulation secondary to snares and amputations. Developing and maintaining surgical skills required to treat those injuries is challenging.

**Summary of Work:** A needs assessment identified the entry level of competencies allowing tailoring of the content of the lecture and application of surgical skills. The program covered surgical case management followed by hands on surgical skills practicum. Surgical skills included suturing, knot tying, tissue/instrument handling, and surgical incision and hemostasis techniques. Specialized suture pads that mimic texture and tissue handling were used for demonstration and hands on practice. The suture pads were taken home for continued practice.

**Summary of Results:** During exit discussions it was clear that participation in the program improved both the cognitive and technical surgical skill proficiency of the participants. Feedback from the participants highlighted the importance of the immediate feedback during the surgical skills practicum and appreciation of the opportunity for continued practice at home.

**Discussion and Conclusions:** Optimum learning was achieved by tailoring of the program to the veterinarian’s level of skill, covering applicable content, repetition of surgical skills, hands on practice and taking the models home for continued practice. Feedback allowed for improved performance. The tailored surgical skill program provides an efficient, knowledge building process allowing for the transition to the practice environment.

**Take-home messages:** Veterinarians in developing countries can maintain surgical skill competencies by participating in a curriculum which covers their specific needs and provides hands on practice.

#10AA02 (28169)
Reflection of self-recorded logbooks on surgical skills in clinical-year medical students

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Gloyjai Khumkong, Faculty of Medicine, Prince of Songkla University, Surgery, Songkhla, Thailand
Piyaporn Kongnuan, Faculty of Medicine, Prince of Songkla University, Surgery, Songkhla, Thailand
Jittima Intarapan, Faculty of Medicine, Prince of Songkla University, Surgery, Songkhla, Thailand

**Background:** Logbooks are one of tools to evaluate curricular objectives, particularly clinical skills. The utility of using logbooks as self-reporting that reflects clinical performance remains controversial. This study focused on the correlation between self-recorded logbooks and the final Objective Structured Clinical Examination (OSCE) scores.

**Summary of Work:** The OSCE scores of intravenous fluid (IVF) cannulation, Foley catheterization, nasogastric tube insertion, wound suture, and wound dressing of 139 first clinical-year medical students, rotated at the department of surgery during April–December 2014, were evaluated in correlation to the volume of surgical skills self-recorded logbooks.

**Summary of Results:** Of 139 students, 81 were female and 58 were male. Median volume of all basic surgical skills-reported was 3 (0-3). Median OSCE scores for all skills ranged from 80-95. Correlation coefficients between volume of each surgical skill and OSCE scores were less than 0.3, indicating poor correlation. Only IVF cannulation skill showed significantly inverse correlation with the score (r = -0.22, p = 0.009).

**Discussion and Conclusions:** Our findings show a negligible relationship between logbooks as an educational process measure and educational outcomes.

**Take-home messages:** Though a self-recorded logbook was a simple tool, it might be interfered and not truly reflected as competency. With the cultural differences, logbooks possibly are not as effective as in Western countries.
Three-dimensional versus two-dimensional vision in laparoscopy – A systematic review

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Background: Laparoscopic surgery is more challenging compared with open surgery, in part because surgeons must operate in a three-dimensional space through a two-dimensional projection on a monitor, which results in loss of depth perception. This is one of the challenges when learning laparoscopy for a novice surgeon. To counter this problem, 3D imaging for laparoscopy was developed. A systematic review of the literature was performed to assess the effect of 3D laparoscopy.

Summary of Work: A systematic search of the literature was conducted to identify randomized controlled trials that compared 3D with 2D laparoscopy. The search was accomplished in accordance with the PRISMA guidelines using the PubMed, EMBASE, and The Cochrane Library electronic databases. Two independent authors performed the search and data extraction.

Summary of Results: Three hundred and forty articles were screened for eligibility, and 31 were included in the review. Three trials were done in a clinical setting and 28 trials used a simulated setting. Time was used as an outcome measure in all of the trials and number of errors was used in 19 of 31 trials. Twenty-two out of 31 trials (71%) showed a reduction in performance time and 12 out of 19 (63%) showed a significant reduction in error when using 3D compared with 2D laparoscopy.

Discussion and Conclusions: Overall 3D laparoscopy appears to improve speed and reduce the number of performance errors when compared with 2D laparoscopy. Most studies to date assessed 3D laparoscopy in simulated settings, and the impact of 3D laparoscopy on clinical outcomes has yet to be examined.

Online learning in Medical Education—changing the learning process in a revolutionary way?

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Background: In a time where many believe online learning will revolutionize the way the next generation learns, we wanted to find out why and which delivery method could best achieve this. AOTruma STaRT—Surgical Training and Assessment for Residents, a safe environment for orthopedic trauma residents to self-assess, identify their knowledge gaps, and find resources at their own pace, provides interactive video-based case discussions, multiple-choice quizzes, and multiple-choice self-assessment tests.

Summary of Work: Usage statistics from the first seven months are analyzed to compare user activity of case discussions, quizzes, and tests to evaluate their trends in use. After initial evaluation is complete, a survey and smaller follow-up interviews with the residents are conducted to uncover most valuable aspects of the three learning activities to identify and determine which has the biggest effect on learning.

Summary of Results: With 3,500 users registered to AOTruma STaRT, there is a higher completion rate of case discussions. Survey findings indicate highly-valued aspects and are categorized based on the adult learning principle. Interviews clarify why case discussions are the most accessed learning activity.

Discussion and Conclusions: Results show that although learners engage in different learning strategies, residents value case discussions most for its delivery method and not for its revolutionary practice of learning. This information provides insight and informs institutions developing a vast array of online learning activities to create elearning environments that incorporate feedback into the instructional design.

Take-home messages: When developing an elearning platform, different delivery techniques can successfully complement a curriculum as long as core principles of learning are ingrained in the framework.
#10AA05 (27340)
A study of research program for Thai general surgical residency training

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Background: Royal College of Surgeon of Thailand has included research program during general surgical training for the last 10 years. This study aims to analyze the results and identify the area that we can improve both the outcomes and maintain good surgical research attitudes after the completion of surgical training.

Summary of Work: Surgical graduates between the year 2006-2011 were selected. Questionnaires were used with surgeons after finishing their training by postal and interviewing was conducted by telephone (randomly selected). Study mainly focused on 1) percentage of participation of surgical residents during doing their researches with the mentors 2) percentage of alumni who would like to continue research works after training 3) publication after finishing the projects 4) problems and obstacles during the researches projects included comment for curriculum improvement.

Summary of Results: Total number of graduated residents is 488 persons and only 55 questionnaires were collected with the response rate of 11%. Percentage of retrospective study is 75% and prospective study represented 25%. Seventy four percent of surgeons had confident that they could conduct their own researches after graduation and 89% believed that their research experience during training will help them for surgical works after graduation.

Discussion and Conclusions: Although research projects are quite new to general surgical research residents in Thailand, the attitude of surgeon to researches after completion of their training is strongly positive. Some of the feedback from this study can be helpful in curriculum development in the near future.

Take-home messages: Surgical research is essential for general surgical residency training program in Thailand.

#10AA06 (28023)
Various strategies for meeting the challenge of Surgical training under European Working Time Directive

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Background: The past decade has seen significant changes to the face of surgical training in the UK, driven in part by an increasing focus on patient safety and the introduction of Modernising Medical Careers and the European Working Time Directive (EWTD). EWTD have restricted surgical trainees’ workweek to 48 hours. Resident work hour limits will likely reduce the incidence of fatigue-related medical errors and improve resident safety and quality of life. Furthermore, other substantial negative impacts include reduced clinical exposure, erosion of professionalism, and inadequate preparation for independent practice. We reviewed various strategies available to make surgical training more effective in this new climate.

Summary of Work: We completed a comprehensive search of all publications to date pertaining to surgical training under EWTD by using PubMed and Medline.

Summary of Results: Numerous effective tools and strategies are available utilizing technologies in terms of simulations and web based learning programmes e.g. Virtual Continuity in Learning Programme (VCLP). The competency-based education and Entrustable Professional Activity should constitute the core of the curriculum. Several validated assessment tools are available to find the efficacy of these strategies and tools of training reforms.

Discussion and Conclusions: In the end, the primary goal of the postgraduate medical education system must be to ensure the creation of healthy surgeons who can provide excellent clinical care in surgical speciality and who will have long fulfilling careers providing this outstanding care to their patients
Take-home messages: The EWTD is here to stay. Time should no longer be the surrogate for adequate training and education. We can all meet the challenge by adopting various novel and effective strategies.
Correlation between pre-training variables and performance during surgery residency training: Is surgical competence predictable?

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Background: Residency selection is a high-stake process that aims to attract applicants who will be successful during training. However, there is a paucity of information on factors that relate to success during residency training.

Summary of Work: The purpose of this study was to identify pre-training factors, known at application, that affect surgical residency performance. Performance measures were in-training knowledge test scores and supervisor assessment scores. Biographical information, pre-academic performance, medical school performance, research experience, and work experience of 43 surgical residents were collected. Regression analysis was used to identify predictors of success.

Summary of Results: Regarding the knowledge test, 27% (Adjusted R² = .266, F = 8.418, p = .001) of the variance was explained by average preclinical grade (β = 10.475, p = .002) and gender (β = -8.130, p = .005). With respect to supervisor assessment scores, 39% (Adjusted R² = .388, F = 7.661, p < .001) of the variance was explained by pre-university grade in Mathematics (β = 3.186, p = .004), mean university preclinical grade (β = 5.327, p = .044) and pre-training work experience (β = -.292, p = .025).

Discussion and Conclusions: The average preclinical and Mathematics grades can be helpful to selection committees when searching for promising surgeons to select. Nevertheless, more research is needed to further explore the negative effect of work experience on performance.

Take-home messages: Secondary school Mathematics, preclinical grades and gender affect performance during surgery residency training.

Facilitating medical competencies development and enhancing health care performances through Healthcare Matrix implementations in surgical residents

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Background: Healthcare Matrix (HM) is a six-by-six matrix that links to the ACGME core competencies and the IOM dimensions of quality as a tool to improve health care. The matrix provides a blueprint to help residents to learn the core competencies in patient care. We implemented HM in grand rounds (GR) and mortality and morbidity conferences (M&M) to enhance surgical residents’ competency development and patient care capabilities.

Summary of Work: Residents in department of surgery had used HM to review all M&M and GR cases with all faculty members since 2013. We applied the annual six core competencies evaluation by their training program directors to exam their competency achievements. Moreover, we surveyed six medical quality indicators which were “prolonged admission over 30 days”, “prescription antibiotic for outpatient”, “return to ED within 3 days after discharge”, “against medical advice discharge”, “completed inpatient consultation within 24 hours”, “completed discharge note within 3 days” to review that HM could help the residents to link mastery of the competencies with improvements in quality of care.

Summary of Results: Comparing 2013 and 2014 surgical residents’ annual competency evaluations revealed all of these competencies had got improvements in which “practice-based learning and improvement” and “system-based practice” have got statistic significant (p<0.05). Reviewing six medical quality indicators retrospective and made the comparisons between 2013 and 2014, we found five indicators showed significantly improved except the rate of completed inpatient consultation within 24 hours.

Discussion and Conclusions: The achievements of implementation HM are particularly encouraging. HM discussions can facilitate surgical residents’ competency developments and were used to improve the quality of health care service.

Take-home messages: Implementation of HM with faculty professional collaborative efforts covers quality of patient care and of clinical education. It is worthy of consideration to be used in other medical fields.
The first 10 minutes of a surgical procedure correlate well to total score

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Background: Video-recording makes un-biased assessment of complete procedures feasible but the approach is very time consuming. Procedure time in surgery is a proxy measure of operative skills. We investigated the correlations between the time to complete the first part-tasks of a surgical procedure and the total objective score of the whole procedure.

Summary of Work: We recorded 86 videos of Lichtenstein hernia performed by first year surgical trainees in Denmark. Three raters using an objective assessment tool (8-40 points) with published evidence of validity (Carlsen et al., 2014) blindly scored all videos. In all of the recordings time to complete important first part: freeing of the spermatic cord.

Summary of Results: Total procedure time correlated to total objective score by -0.708 (p<0.001) (Pearson). Time from beginning to freeing spermatic cord correlated -0.403 (p<0.001) to total objective score. Mean time to freeing the spermatic cord was 9.43 (SD 4.44) min.

Discussion and Conclusions: This study showed that time to complete the first important task in a surgical procedure correlated well to objective assessment score for the complete procedure. Watching only the first 10 minutes may be enough for assessment.

Take-home messages: The first part task of a surgical procedure correlates to total objective score.

Using small group discussion case-based learning in surgical clerkship for fourth year medical students

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Background: For decades our core curriculum consisted of traditional didactic lectures which were generally in slide show format. This style of surgical education was teacher-centered process, passive learning and fails to motivate students. Case-based learning (CBL) is an interactive, student-centered and promotes active learning by clinical case scenarios which reflect real life experiences. CBL has several advantages include promoting self-directed learning and reinforcing the reasoning, collaborative, communication skill of students.

Summary of Work: Fourth year medical students in surgical clerkship at Srinakharinwirot University, ongkarux campus, Nakhon-nayok were divided into groups of 7-8 students and small group discussion case-based learning in topic of gastrointestinal hemorrhage were applied. Student attitudes were examined by questionnaires (using a Likert scale of 1-5) which focused on their learning, collaboration and communication skills.

Summary of Results: One hundred and thirty seven questionnaires were retrieved. The majority of students thought that CBL improved their learning skill 86% (strongly agree 79% agree 7%), analytical skill 93% (strongly agree 80% agree 13%), communication and collaboration skill 89% (strongly agree 80% agree 9%) and effective learning stool for them 91% (strongly agree 81% agree 10%).

Discussion and Conclusions: Small group discussion case-based learning in surgical clerkship for medical students significantly enhances students' competency, knowledge and skills.

Take-home messages: Small group discussion case-based learning promotes active learning and improves students' analytical, communication and collaboration skill in comparison with traditional didactic lecture.
Causes of class cancellation in a department of surgery

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**Background:** Class cancellation during attending in department of surgery affects the medical students learning objectives during clinical rotations. The sequence of topics were interfered and also a lot of lectures were crammed in the last weeks of their course. This study aim to find out what is the most common cause of class cancellation. To have an intervention for reducing class cancellation for the next academic year.

**Summary of Work:** This is a cross-sectional study by implement the Delphi’s approach in medical staffs in department of surgery of Khon Kaen hospital during January 2015-August 2015 to identify the causes associated with class cancellation. All of lecturers in the department were interviewed. The causes of cancellation were obtained and ranking align with Delphi’s method. The most common cause of cancellation was identified and justified as an intervention for the next study to decrease the cancellation rate.

**Summary of Results:** The department of Surgery in Khon Kaen Hospital has 36 surgeons. All of them are lecturers for the 4th to 6th year medical students. Causes of class cancellation included; having emergency operation, forgetting the class, having sicked relative, having others conference, postponing by superior staffs, etc.

**Discussion and Conclusions:** There are many causes of class cancellation. Some causes are preventable and some are unpreventable. The most likely preventable cause of class cancellation is forgetting the class.

**Take-home messages:** Reminding the lecturers before the class could decrease the rate of class cancellation.

Emergency surgical skill training for military medical students in cadaveric models

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**Background:** Our students need to perform military medical service independently after graduation. Reduction in working hours and legal restrictions of interns resulted in lack of operative experience and confidence. We aim to use the embalmed cadavers to recreating clinical scenarios for emergency surgical skills training.

**Summary of Work:** This program is held annually since 2006. Surgical skills included cricothyroidotomy, tube thoracostomy, diagnostic peritoneal lavage, central venous catheterization, pericardiocentesis, venous cutdown, fasciotomy and skeletal traction. Feedback was obtained from the participants by questionnaire. All incision and defect was repaired and cadavers were prepared for human dissection program of second-year medical students.

**Summary of Results:** Students were appreciative of the opportunity to perform emergency surgical intervention. The pass rate for Objective Structured Clinical Examination (OSCE) in 2013 and 2014 were both 100%.

**Discussion and Conclusions:** Cadaver is a good teaching model for emergency surgical skills training. Students can improve their operative confidence and consequently patient safety in emergency management.

**Take-home messages:** Cadaveric model is a feasible and economical method for emergency surgical skills training and cadavers can be preserved for human dissection program after repairing defect. Students can improve surgical skills and operative confidence in emergency care.
Demonstration Videos for Surgical Teaching: A pilot study

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Presenter: Robert Kane*, Newham University Hospital, Undergraduate Medical Education

Background: Surgical teaching received on parallel firms has been demonstrated to be inconsistent. As a result students may not get the opportunity to formally learn more specialist surgical examinations such as breast, thyroid or digital rectal examinations.

Summary of Work: We recorded demonstration videos in accordance with the students’ curriculum for breast, thyroid and digital rectal examinations. These were used for as part of a lab based teaching session on a pilot group of third year medical students undertaking their first clinical firm in surgery. Students practiced the examination skills demonstrated in video using training models, with senior supervision. Their feedback was obtained.

Summary of Results: Nine students piloted the examination practice sessions. All students either strongly agreed or agreed that the video demonstrated the techniques well. Seven students felt their technique improved for thyroid examination, while all students reported improvement for breast and digital rectal examinations following these sessions.

Discussion and Conclusions: Use of formal demonstration videos can standardize the content being taught to students. They can also save time by allowing slightly larger groups to view demonstrations clearly, leaving more time for practice. Lab-based practice can also provide opportunities that many students may not get in a busy clinical setting. This can be very important for more intimate examinations that patients may be more reluctant to allow students to perform.

Take-home messages: Video demonstrations are highly recommended as a method for teaching examination skills with standardized content in a time-saving manner, when coupled with lab-based practice, allows students to gain excellent practical exposure.

Initial evaluation of an educational app on medical issues in orthogeriatrics

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Tobias Roth, Dept of Trauma Surgery, Medical University of Innsbruck, Innsbruck, Austria
Sacha Beck, Geriatric Trauma Clinic, Waid Hospital, Zurich, Switzerland

Presenter: Michael Cunningham*, AO Foundation, AO Education Institute, Zurich, Switzerland

Background: A global needs analysis by AOTrauma identified an opportunity to provide education for surgeons on medical management of elderly patients with a fracture. Faculty developed a point-of-care educational app on osteoporosis, delirium, and anticoagulation based on published evidence.

Summary of Work: From September–December 2014, 5,200 users installed the app worldwide: iPhone (39%), Android smartphone (30%), iPad (23%), Android tablet (8%). A registration questionnaire was integrated to profile users and their expectations. An evaluation survey was sent to participants to gather usage patterns, ratings, and feedback for the planning committee.

Summary of Results: 500 orthopedic/trauma surgeons (73%), residents/fellows (17%), and other clinicians (10%) registered from over 50 countries: India (n=45), Brazil (n=37), Egypt (n=31), etc. The main intended uses were “To aid decision making” (67%) and as “An educational tool” (60%). Fifty one users completed the evaluation and median responses included: number of times module accessed in week (2–5), average visit (3–5 min). Median ratings for content, navigation, and overall were 5 and 4 (5=Excellent). 78% found the answer to their question on their last visit and 35% reported making a change in some aspect of patient management.

Discussion and Conclusions: Initial evaluation shows the app matched its intended audiences and uses. It provides easy access to valuable information and initial data suggests it helps users prepare for their clinical decisions. Suggestions for improvement focused on the addition of new modules.

Take-home messages: Initial evaluation data must be gathered on new apps for point-of-care learning to: assess if goals are being achieved, inform further development, and design outcomes evaluation.
Co-curricula supplement surgical suturing workshops: Are they useful for medical students?

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Presenter: Alberto Abreu da Silva*, School of Health Sciences of The Minho’s University, Portugal

Background: Although practical skills, including surgical, are essential for a graduate medical doctor they are often neglected in medical curricula.

Summary of Work: During 2012 - 2014, 9 surgical suturing workshops on models were held for medical students of University of Zagreb School of Medicine. Each workshop took 2 hours. Workshops were conducted with variety in number of tutors and student assistants. Post-workshop self-assessment survey assessed year of study, sex, usefulness and students’ satisfaction. The participation was free while materials were provided by sponsors.

Summary of Results: In total 401 medical student applied and 180 were selected on first-come first-serve basis. All participants found workshop useful, 46.66% expressed the need for regular workshops, 10% complained about length, and 45% about quality of materials. 27% of participants in workshops held by one tutor without student assistants expressed the need for more tutors, compared with 5% in workshops with two tutors and additional student assistants.

Discussion and Conclusions: Students from both clinical and preclinical years were equally interested in workshops, with 79% increase of interest in last workshop which coincided with introduction of compulsory OSCE into surgery exam. The satisfaction would be higher with higher number of tutors and/or student assistants per workshop. The limitations of these kind of workshops are irregular organization and dependence on volunteer work of student organizers, tutors, and financial resources. Surgical suturing workshops are needed with improvement in tutor: student ratio, better quality equipment and more frequent organization.

Take-home messages: Implementation of surgical suturing workshops in medical curricula should be considered.

Experiences of medical students’ innovation on practical surgical skills in medical education worldwide

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Eleonora Leopardi, Sapienza University of Rome, Italy
Ivana Di Salvo, International Federation of Medical Students’ Associations, Netherlands

Background: Medical education widely covers theoretical surgical skills, but practical practice is less represented. As future doctors, medical students need to be provided with both, regardless of their final specialty.

Summary of Work: The International Federation of Medical Students’ Associations (IFMSA) believes that all future physicians should be well trained in basic surgical skills. In order to cope with lack of surgical practical courses in medical education, medical students organized internationally reviewing literature, exchanging experiences from different universities and finding solutions.

Summary of Results: So far there has not been a large-scale analysis of the different programs, whether institution- or student-led. Several student-led initiatives have arisen with different scope and objectives in numerous countries, but have often stayed largely unknown to any overseeing medical education institution, leading to quality standards largely variable. Good practices of student-led non-formal workshops often stayed not recognized due to lack of communication and support from universities.

Discussion and Conclusions: Medical students have recognized the need for more scientific research and actions to reach census of such initiatives. IFMSA network has provided opportunity to build capacities and exchange of good practice student-led initiatives among medical students worldwide. Worldwide-scale analysis of present institution- and student-led practical courses will give further recommendations on guidelines. Efforts arising from student-level initiatives should be recognized to find common basic standards and assure their feasibility and efficacy.

Take-home messages: Better coordinated institution- and student-led initiatives and research can serve as a tool for advocacy towards the institutions.
**#10BB01 (27452)**

**Professor perception of the use of realistic simulation in undergraduate programs in the healthcare area**

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Angelica Bicudo, UNICAMP, São Paulo, Brazil

Karen Cristine Abrão, Anhembi Morumbi University, São Paulo, Brazil

**Background**: The interest in realistic simulation on the teaching of healthcare professionals has grown along with the trends to improve the teaching process of such professionals, emphasizing the development of competences necessary for their proper training. The aim of this study is to identify the professor perception of the realistic simulation insertion in the undergraduate program, considering the advantages and challenges faced in working with this resource.

**Summary of Work**: We conducted a qualitative study with intentional sample according to pre-defined criteria, following a semi-structured outline regarding data saturation. We have interviewed 14 faculty members of healthcare courses from a teaching institution that employs realistic simulation in their syllabi.

**Summary of Results**: The majority of the interviewed professors considered that the use of scenario followed by debriefing is an excellent teaching tool. However, we found difficulties such as the workload necessary to the assembly of the scenario, the correlation between scenario goals and the competences of the program, and the relationship of the number of students by professors.

**Discussion and Conclusions**: Considering the statements analyzed, logistics needs arise and need to be considered in a way that professors may perform their simulation activities in the best way possible. One of these factors is to fit the number of students per professor in the trainings comprising simulation, so that it can effectively apply the proposed methodology. Another point to be considered is the needed time to assemble the scenario from the professor’s side.

**#10BB02 (25145)**

Does simulation training help to prepare final year medical students for their roles as junior doctors?

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**Background**: In recent years the use of simulation as a teaching tool has risen in popularity. But is it useful in preparing medical students for their roles as practitioners and does it add anything not provided by traditional teaching methods?

**Summary of Work**: Simulation allows our students to both participate and observe the management of acutely unwell ‘patients’ in a simulated ward environment. The students learn to make an assessment and differential diagnoses and to institute a management plan. It also assesses how the students communicate, manage stress, work as part of a team and deal with interruptions.

**Summary of Results**: 95% of students strongly agreed with the statement ‘I found the simulation stations useful in preparing me for my finals and FY1 year’. 75% strongly agreed and 24% agreed that ‘I feel more confident in my approach to patient assessment’.

**Discussion and Conclusions**: The students found this to be a stimulating representation of possible real-life scenarios. They felt challenged and yet safe. Debriefing addressed clinical themes and allowed us to expand on human factor issues that may not have been addressed in such depth previously. Conclusions The students found this method of teaching extremely useful. They felt that it helped to prepare them for their roles as new doctors.

**Take-home messages**: Simulation is a successful and valid tool for preparing medical students to become practitioners. It is a useful addition to more traditional teaching methods.
Multidisciplinary simulations to improve teamwork and medical skills at the same time

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Background: In the effective treatment the teamwork and communication are as crucial as the proper medical skills, especially in acute cases. The healthcare education should be prepare the whole medical staff for these situations also.

Summary of Work: We developed more specific scenarios involving different medical fields’ representatives including nursing and paramedical staff in the same situation. We equipped a simulation room, where the necessary simulators were available at the same time (high fidelity patient-, US-, laparoscopic simulators and audio-visual system, which was able the reach the PACS and lab-systems). Written feedback were taken after all scenario from all participant.

Summary of Results: We could perform simulations involving paramedics, emergency medicine physicians, radiologists, anaesthesiologists, laboratory medicine specialists, surgeons and nurses also. The education was mainly focused on the teamwork and communication, but performing the medical interventions were also obligatory. All of the students and instructors assessed this method effective and useful.

Discussion and Conclusions: The novel, innovative combination of the available educational technologies and equipment can provide an effective method to improve the interdisciplinary teamwork and communication improving the medical skills too, which can be a critical factor in the treatment of acute cases.

Take-home messages: The combined, multidisciplinary simulations can improve the effectiveness of the patient care.

Simulation training and management of emergencies in Palliative Medicine: experience of trainees

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Background: Medical simulation is increasingly utilised for training, as it allows management of complex scenarios in a controlled, risk free, environment. Exposure of Palliative Medicine trainees to emergencies can vary, and promoting simulation training in postgraduate medical education provides an opportunity to address this.

Summary of Work: The Palliative Medicine curriculum requires trainees to competently manage an acutely deteriorating patient. Our aim was to use simulation training to enhance the knowledge, skills and confidence of trainees to manage hypoglycaemia and gastrointestinal haemorrhage. Both scenarios necessitated recognition of any potentially reversible causes to the patient’s deterioration and individualisation of management. 8 specialist trainees attended ranging from first to final year. The session was lead by consultants with the support of the simulation team. We obtained trainee feedback pre and post teaching session.

Summary of Results: Trainee confidence was rated before and after the session (0-5 scale), and showed an increase in each of the 5 domains measured; recognising acute emergencies in Palliative care (3.6 vs 3.9), approach to immediate management (3 vs 4), communication with medical and nursing staff (4 vs 4.3), approach to team work (3.4 vs 4.1) and seeking senior help appropriately (3.6 vs 4.1). Trainees were satisfied with the content and effectiveness of the session.

Discussion and Conclusions: Trainees found simulation a useful tool to aid management of these medical emergencies. Written and verbal feedback suggested trainees would be able to integrate this learning into clinical practice.

Take-home messages: Simulation training provides an acceptable means of delivering teaching on the management of emergencies in the context of Palliative Medicine.
#10BB05 (26448) Simulation-based teaching in using acute ABCDE assessment: improved final year medical student clinical confidence in preparation for foundation years.

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**Background:** Medical simulation has been shown to improve clinical competence at the undergraduate level and reduce healthcare costs through improvement of medical provider competencies. One of the most important steps in medical curriculum development is to ensure students are exposed to emergency cases in a manner that is safe for patients. Traditionally this learning has been done ad-hoc and dependent on cases occurring in clinical settings.

**Summary of Work:** We aimed to evaluate student perception and confidence managing emergency scenarios prior to and following simulation based training. Small groups of students ran through individual scenarios using the A to E assessment approach to manage an acutely unwell patient. They then received peer and teacher feedback. The primary outcome was students perception of confidence managing these scenarios.

**Summary of Results:** 42 students attended. They stated they felt better prepared to face such medical emergencies as a junior doctor. Students felt simulation should be used more or should be mandatory in training and valued the opportunity to learn skills in a safe environment.

**Discussion and Conclusions:** Previous research shows students feel they are inadequately trained in acute clinical skills. Medical simulation may help cover this educational gap and there is a growing body of evidence to support this. This study demonstrated medical students value simulation-based learning. Students were satisfied with use of a medium fidelity simulator as opposed to high fidelity, which may help offset the costs associated with simulation.

**Take-home messages:** Simulation based teaching should be considered as an educational tool in training medical undergraduates for clinical practice.

#10BB06 (27213) Development, Implementation and Assessment of a Longitudinal Simulation Curriculum for the Management of Medical Emergencies: The RAPID Training Program

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**Background:** Responding appropriately to urgent or emergent situations is an essential skill for medical students to acquire during medical school. The era of patient safety has reignited discussion regarding whether medical students possess the skills expected on day one of residency. In an effort to ensure our students meet these expectations, a longitudinal simulation curriculum was developed.

**Summary of Work:** The RAPID (Responding Appropriately to a Patient In Distress) training program is a simulation-based curriculum that fosters progressive implementation and deliberate practice across all four years of training. Global objectives include the ability to recognize and respond to a patient in distress, communicate effectively, and engage and utilize team members effectively. To enhance communication training, an online learning module was also developed.

**Summary of Results:** Faculty aim to explore the hypothesis that repeated exposure through longitudinal curriculum improves skills and retention by evaluating the following: 1) Validity and reliability of assessment tools; 2) Retention of knowledge and skills throughout the medical school experience; and 3) Overall performance before and after program implementation. Data collection methods include video recordings, checklists, and online survey and database software. Analysis will be conducted within and between student cohorts.

**Discussion and Conclusions:** Preparing future doctors for emergency situations is crucial to improving patient safety outcomes. Our innovative RAPID curriculum provides learners with a methodical approach that continues to build and reinforce skills each year.

**Take-home messages:** Research is needed on the effectiveness and retention of emergency management skills within a standard curriculum. The RAPID training program will provide data on the success of such a program.
Using simulation to teach medical students assertiveness and negotiation: an example from a psychiatry placement

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Background: It is important to offer medical students ample opportunity to practice communication skills. A recurrent feedback theme from the Southampton psychiatry placement is the need for more contact with acutely unwell patients. We identified assertiveness and negotiation as useful skills to manage potentially challenging interactions in this context. In addition, higher levels of assertiveness are associated with better performance in clinical placements.

Summary of Work: We organised a student selected module for third year medical students. This ran on a rolling basis for different groups as an afternoon small group session. All students participated in role play scenarios with simulated patients both before and after being taught basic assertiveness and negotiation skills. All had the opportunity to give and receive feedback. The simulation involved a sexually disinhibited manic patient and a suspicious acutely psychotic patient.

Summary of Results: Each session was improved with feedback from the previous one. The main challenge was selecting simulated patients who could portray acutely unwell psychiatric patients. The potential risk of students reacting negatively to the challenging nature of the scenarios was averted by the many measures put in place to create a safe practicing environment.

Discussion and Conclusions: The students enjoyed and found the session useful. The success suggested that third year is not too early to introduce advanced communication skills. However, it should be noted the participants were self selecting.

Take-home messages: The psychiatry placement in medical school offers an opportunity to combine teaching of specific clinical presentations with advanced transferrable communication skills.

The GMC Panel: High Fidelity Teaching on the Use of Social Media

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Nicola Crowther, The Great Western Hospital, Undergraduate Department, Swindon, UK
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Background: 88% of medical students in Severn have viewed colleagues acting ‘unprofessionally’ on Facebook. Unprofessional use of social media can compromise patient confidentiality and jeopardise the public’s regard of the medical profession. Hence, the GMC receives numerous complaints regarding doctors’ use of social media. Only 26% of students were aware of any advice on the use of Facebook. We aimed to promote the importance of staying professional on social media.

Summary of Work: We designed high-fidelity, simulation teaching sessions for medical students. We created five cases, which were based on real scenarios where a healthcare professional’s unprofessional use of social media resulted in disciplinary action. We used Photoshop to create Facebook pages, which illustrated the cases. The students were assigned to the cases, in small groups. They presented their cases in a simulated disciplinary hearing, to a mock panel.

Summary of Results: Anonymous feedback was collected on a paper questionnaire. On 10-point Likert scales, students (n=26) reported:

Factor | Before | After | Improve | P value
---|---|---|---|---
Consciousness of personal Facebook content | 6.54 | 8.54 | 2.00 | 0.0005
Awareness of what is ‘unprofessional’ | 6.27 | 8.42 | 2.15 | <0.0001
Awareness of implications | 5.54 | 8.31 | 2.78 | <0.0001
Awareness of support and advice | 4.88 | 7.77 | 2.88 | <0.0001

Lastly, students (n=17) gave an average of 7.29 out of 10 change in the way they think about their Facebook use.

Discussion and Conclusions: Our teaching session increased our students’ consciousness of staying professional on social media.

Take-home messages: We must continue to promote and educate on professional use of social media to maintain patient safety and the public’s opinion in us as a profession.
Pharmacists on the Frontline: Lecture Based Acute Simulation (LBAS)

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Background: New Royal Pharmaceutical Society Guidelines propose that pharmacy services should expand, increasing clinical responsibility to offload National Health Service burden. Minimal curriculum focus and consequent lack of confidence within the profession in managing acutely unwell patients are recognised barriers to uptake.

Summary of Work: A 6-hour LBAS course was designed to teach a structured approach to deteriorating patients. It utilised actors with real-time remotely controlled projected observations of heart rate, blood pressure, oxygen saturations, respiratory rate and electrocardiogram. Students reacted to deteriorating physiology, via situation pausing and group decisions on 1 of 5 intervention options, with actor and observations responding dynamically. Scenarios would progress to stability or further deterioration according to a pre-designed algorithm.

Summary of Results: On a score of 1 to 5, MPharm students (n=73) rated interactivity as 4.7±0.6, relevance 4.7±0.6, engagement 4.6±0.6 and educational value 4.6±0.6. Feeling of preparedness (4.3±0.7 vs 1.6±1.1, p<0.001) and confidence (4.1±0.8 vs 1.7±1.3, p<0.001) in managing acutely unwell patients after the session were both significantly greater compared to before the session.

Discussion and Conclusions: Students found the LBAS highly informative and relevant, with increased confidence in managing acutely deteriorating patients. High interaction and engagement suggests LBAS may be useful in introducing and encouraging students to uptake future independent prescriber accreditation and expanding clinical roles.

Take-home messages: LBAS offers a low fidelity method of increasing skill and hence confidence that may help increase uptake of independent prescribing accreditation and allow development of front-line community pharmacy services.

Perception of the impact of clinical simulation in professional clinical practice of medical graduates from Universidad Andrés Bello

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Background: Clinical simulation has proven to be a significant, objective tool for improving competences in medical students. At Universidad Andrés Bello School of Medicine, simulation is incorporated into student training, through various undergraduate courses.

Summary of Work: Objective: The impact of clinical simulation in the professional development of medical graduates, was evaluated one year post graduation. 21 graduates from 2013, previously trained in clinical simulation to respond to medical emergencies, were invited to participate in a likert type, self-administered, anonymous survey, formulated and validated by expert judgment within our University, which aimed at measuring the degree of contribution of clinical simulation in various areas of professional practice. Survey questions included: Working in an emergency service, confronting life-threatening situations, perception of the degree of contribution of simulation for current clinical practice, communication skills and teamwork, and the importance of structured debriefing after each stage, among others.

Summary of Results: 93% of medical graduates answered the survey. 90% currently worked in an emergency room and had faced life-threatening emergency situations. 70% strongly agreed that clinical simulation, communication skills and teamwork, contributed positively in their professional clinical practice. The remaining 30% agreed. No indifferent or disagreeing results observed. 90% strongly agree that structured debriefing is fundamental to learn from mistakes.

Discussion and Conclusions: After a year, medical graduates state that training through clinical simulation is essential for professional clinical practice. Communication and Teamwork were best evaluated.

Take-home messages: Improve communication with medical graduates. Perform more simulation scenarios during internships.
Transposing problem based learning tutorials into high fidelity acute medical simulation: Familiarity promotes learning

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Background: Barriers to skill acquisition for undergraduates in simulated medical emergencies are unfamiliar clinical scenarios and simulated learning itself.

Summary of Work: Nine students participated in simulation. Each scenario mirrored a problem based learning tutorial delivered a week previous. Students completed a questionnaire before and after simulation. Questions examined confidence in the clinical problems and non-technical domains. Each question responded 0-10. A further questionnaire examined the impact/acceptability of the session.

Summary of Results: Before simulation understanding of non-technical skill scores was low (max=4, min=0 median=2). All students reported an improvement in their understanding of non-technical skills (score difference: max=7, min=4, median=4).

Students reported median improvement of +2 score points in decision making with a median of +1 in the other three domains.

Students reported positive score differences for identifying (median=2,max=4,min=0) and early management of sepsis (median=3,max=5,min=1). For haemorrhage equivalent score differences were (median=2,max=4,min=0) and (median=4,max=5,min=2).

The mean score for each of the impact/acceptability metrics was 9.

Discussion and Conclusions: An improvement in reported ability to identify and initiate management of the clinical scenarios was demonstrated following a short simulation session. The most pronounced effect was an improvement in understanding of non-technical skills. With reduced stressors students may be able to reflect in real time on non-clinical interactions/behaviours. This is in contrast to reflecting during debrief when it may be difficult to remember emotions and exact cognitive states.

Students scored highly on all impact/acceptance questions. This is reflected in an improvement in learning metrics.

Take-home messages: Aiming to reduce stress in undergraduate simulation training may improve learning of non-technical and clinical skills.

A mobile application to facilitate debriefing after cardiac arrest simulation

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Background: Effective debriefing is essential to the success of simulation-based education. However, the optimal format by which to facilitate debriefing remains elusive. A free iOS mobile App, CodeTracer, was designed to map team-based interventions during resuscitation simulation into a unique timeline graph for real-time review. We then evaluated whether this particular tool could help in the debriefing process after simulations.

Summary of Work: 60 participating nurses were randomly assigned into teams of six. Each team completed two scenarios of adult cardiac arrest simulation following a mini-lecture of learning objectives and practice guidelines in resuscitation. A structured debriefing was held immediately after every simulation. 24 and 36 subjects were randomly assigned to "oral debriefing alone (OD)" or "software-assisted debriefing (SD)" groups, respectively. Data and event graph by the mobile App were shown to the SD group, but not OD group, in debriefing sessions.

Summary of Results: A total of 20 postsimulation debriefings were recorded. Overall, SD groups made more delta comments than OD group, while the differences of plus comments made between two groups were not significant. In the subdomains of delta comments, the SD groups made richer feedbacks on the technical skills than OD groups, but not significantly different on the knowledge, task management and teamwork.

Discussion and Conclusions: Software-assisted debriefing had advantage over oral debriefing alone that permit participants to better identify gaps in technical skills in cardiac arrest simulations.

Take-home messages: Incorporating with fundamental education theories, specifically tailored software can be beneficial in achieving a particular goal in the field of simulation in healthcare.
The unspoken attitude among instructors and participants towards videotaping in team based clinical simulation training

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Background: It is observed that many instructors in simulation training did not use video in debriefing even the facilities were available. The aim of this study was to explore the attitude of local instructors and participants towards videotape assisted debriefing in team based clinical simulation training.

Summary of Work: A series of semi-structured interviews were conducted among the local instructors and participants to explore the feelings, attitudes and perceived pros and cons of using video playback as a tool of debriefing.

Summary of Results: Videotaping was thought to be a good tool for effective learning in many aspects. However, this intervention may cause anxiety among some participants. For instructors, there were several possible reasons for not using videotaping despite the known advantages, including technically difficult to learn, required extra efforts, was time consuming and some had reservation on its value over oral debriefing. In general, instructors wanted to have it but not frequently use it in debriefing.

Discussion and Conclusions: Video assisted debriefing has both a positive side as well as a negative side. Teachers in clinical simulation should know them clearly and use the intervention wisely.

Take-home messages: A teacher in simulation training should know the pros and cons of using video as a debriefing tool and choose to use it when feasible.

Assessment of Student Skills in Practicing Ambulatory Medicine using Simulated Patients with the problem of Cough & Dyspnea

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Background: Cough & Dyspnea are among common problems in ambulatory practice that have varieties of aetiology. Teaching this topic with real patients usually leads to non-uniformity of learning experiences and difficulty in assessment, so the session using standardised patients was introduced.

Summary of Work: Four simulated patients with complaints of cough and dyspnea but of different aetiologies (asthma, COPD, pneumonia and tuberculosis) that could be diagnosed by careful history and general assessment were prepared. The assessment scores for student skills were constructed for each patient. A week after the lectures of related topic, all 5th-year medical students were assigned to attend simulated patient session by interviewing and examining patients, assessing and choosing appropriate investigations, making diagnosis and treatment according to information they got. The assessment was based on the medical records during their performances. The satisfaction of the students were also assessed.

Summary of Results: There were 38 students, divided into 3 groups, practiced the session at different time of learning schedule. There were no difference in means of total score among groups. The means (95% confidence interval) of each part of clinical skills including history taking, physical examination, assessment and investigation, final diagnosis, treatment plan and holistic approach were 87.34 (1.21), 87.52 (1.79), 73.49 (1.89), 81.84 (2.12), 70.30 (2.19) and 74.44 (2.47), respectively. Most of students (>80%) rated satisfaction scores of over 80% for all assessed areas except “interesting physical signs” (78.3%).

Discussion and Conclusions: Teaching of ambulatory practice using simulated patients provides effective learning and assessment of student skills.

Take-home messages: Concern using simulated patients in ambulatory teaching/learning.
**A New Rating Scale for Assessing Standardized Patients' Performance**

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**Background**: Most of the related articles about quality assurance of SPs' performances focused on accuracy, consistency and replicability of SPs' performances. Since the purpose of quality assurance is to assure the fairness of examinees' score, examinee-centered quality assuring method may meet the goal more closely. We have developed a newly general rating scale for assessing standardized patients' performance across different SP cases after reviewing and categorizing common errors during video clips. This study is to assure the feasibility of this newly developed rating scale.

**Summary of Work**: Twenty-four video clips from 12 SPs with a range of performance levels were selected, by a staff member in SP training program, for expert/rating scale comparisons. SP performance was evaluated by two nurse raters who applied the developed rating scale and two extramural experts who used global judgment. We use Kappa value to estimate the concordance between expert opinions and our developed rating scale.

**Summary of Results**: With comparative analysis with Kappa Statistic, only one paired comparison revealed moderated agreement (Kappa coefficient = 0.571, P value= 0.028). The other three paired comparisons revealed chance agreement. However, both of the nurse rater and the expert with moderated agreement are stringent, while others showed leniency when rating.

**Discussion and Conclusions**: Though only one paired comparison showed moderated agreement, it seems feasible to develop a newly general rating scale for assessing standardized patients’ performance. However, rater training for rating consensus will be recommended for applying this new rating scale effectively.

**Take-home messages**: Since the purpose of quality assurance of SP's performance is to assure the fairness of examinees' score, examinee-centered quality assuring method may meet the goal more closely. It is needed and seems feasible to develop a newly general rating scale for assessing standardized patients’ performance.

**The Standardized Patients in Taiwan Now**

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**Background**: Standardized patients are applied in medical education at Taiwan for near 16 years. They were help to assessment the performance of year-5 medical students’ clinical skills in Group Objective Structured Clinical Examination (GOSCE) since 1999 at National Yang-Ming University. Then, we started to apply using standardized patients in teaching of physical examination, communication skills, neurological examination and Objective Structured Clinical Examination (OSCE).

**Summary of Work**: After the development of standardized patients in 16 years, we sent the questionnaires to 15 schools of medicine or clinical skill centers in hospital at Taiwan in November 2014 and eleven of them were replied before January 2015.

**Summary of Results**: The respondent rates of the questionnaires in these 11 organizations with standardized patients are near 92% to 100%. There are 339 male and 801 female standardized patients, whom had been certificated by Taiwan Association Medical Education (TAME) respectively 188(56%) and 515(64%). They contact with standardized patients by telephone (73%), mobile (100%), E-mail (82%), Line Apps (36%), and Facebook (27%). The activities of standardized patients in these 11 organizations are including OSCE (100%), taking video tapes for teaching or examinations (100%), communication skills (64%), physical examination skills (55%), neurological examination skills (36%) and other skills (36%).

**Discussion and Conclusions**: There are more female standardized patients (70%) than male (30%) in Taiwan. Just sixty-two percent of standardized patients were certificated by TAME. The most useful tools to contact standardized patients are mobile and E-mail. Standardized patients would joint OSCE and taking video tapes for teaching or examinations in these 11 organizations.

**Take-home messages**: 1.There are more female standardized patients in Taiwan, and just 62% standardized patients were certificated by TAME; 2.Mobile and E-mail are the most useful tools to contact with standardized patients; 3. The major activities of standardized patients in Taiwan are OSCE and taking video tapes for teaching or examinations.
Teaching with adolescent simulated patients, what can we learn from medical students? A mixed methods study

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Background: Communication and interviewing skills are essential for adolescent healthcare. The recent introduction of programs with adolescent simulated patients (ASP) in medical education has been an opportunity to meet the substantial challenge of teaching these skills to medical students. Identifying ways to optimize this learning experience through a thorough understanding of how learning with ASP works is of utmost importance to medical educators in charge of such programs. Therefore, the purpose of this study is the in-depth exploration of the students’ learning experience with ASP at the University of Lausanne (Switzerland).

Summary of Work: Our mixed methods study includes two parts that will be conducted simultaneously in spring 2015. Part A consists of a qualitative inquiry using grounded theory approach. It includes semi-structured interviews, focus groups and in-field observation of workshops with ASP among fourth-year medical students, as well as ASP and teachers involved in these workshops. Part B consists of an online cross-sectional survey with both quantitative and qualitative data collection that will be submitted to all fourth- and sixth-year students.

Summary of Results: We will present near-final results of both parts of the study that are essential to understand barriers and positive factors contributing to an effective learning process and to build a model of student learning with ASP.

Discussion and Conclusions: These results will help medical educators and teachers in adolescent medicine find ways to improve the teaching curriculum with ASP and pay attention to the prerequisites for successful learning when implementing programs with ASP in the undergraduate medical curriculum.

International Faculty Development in Fundamental Simulation Methods for Japanese Healthcare Educators

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Background: Fundamental Simulation Instructional Methods (FunSim) is an international simulation faculty development course for Japanese healthcare educators, with English and Japanese language versions.

(Objectives)
1) Describe demographics of Japanese healthcare educators taking FunSim
2) Assess post-course outcomes of international “FunSim” for Japanese healthcare educators.
3) Identify barriers to implementation of simulation based education (SBE) methods for Japanese simulation educators.

Summary of Work: A 73 item web-based questionnaire was distributed in 2014 to Japanese participants who completed FunSim between 2011 and 2013. FunSim course outcomes were assessed at Kirkpatrick model levels one (Reaction); two (Learning); and three (Behavior). A Likert-type rating scale (1-7) was used for the course evaluation (level one), and for confidence and competency (level two); four different types of Yes-No questions were used for level three outcomes. A Likert-type rating scale (1-5) was used to rate twelve pre-defined potential barriers to implementation of SBE methods.

Summary of Results: 178 (63%) of 283 participants responded; 45.6% Physicians and 35.7% Nurses. FunSim language was 47.8% English(E) and 57.3% Japanese(J), with no differences between (E) and (J) “language barrier” responses. 88% of ratings on 7 course evaluation items were >4 (1-strongly unhelpful / 7-strongly helpful). Confidence and competency scores decreased “at the time of survey” compared to “at the end of the course” (P< 0.05). Pre/Post-course participants who were active simulation faculty increased from 68 to 112 (P< 0.001). Human factors such as “Simulation specialist availability”, “Time for teaching and faculty development”, “Number of trained faculty”, “faculty development availability”, “Faculty skill” were predominant barriers compared to other issues.

Discussion and Conclusions: FunSim participants reported positive course feedback. However, barriers to implementation of SBE are Work-release, hiring simulation specialists, and faculty development.

Take-home messages: Work-release, hiring simulation specialists, and faculty development must be addressed to establish effective SBE systems.
Enhancing quality of Comprehensive Examination step 1

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Background: Our medical graduates have to pass step 1-3 of the Comprehensive Examination for MD degree. Since 2003, all Thai medical graduates must pass the National Licensing Examination (NLE) for medical licensure. The passing rates of the NLE step1 (NLE1) of our students were lower than the Comprehensive Examination Step1 (Compre1). Intensive analysis revealed that NLE1 tested more application of the knowledge than the Compre1. Faculty development focusing on test construction was one of the strategies that we implemented to improve the passing rates of the NLE1.

Summary of Work: Since 2008, test items of the Compre1 have been set to more application of knowledge (80-90%) and evaluated by the test committee. The objective of this study was to determine the correlation between the Compre1 and NLE1. The cut-off scores of the Compre1 to ensure 100% passed of NLE1 using the scores of 924 medical students from 2009-2013 were also studied. Spearman’s rho was used for data analysis.

Summary of Results: Preliminary evidence suggests that the results of the evaluative simulation are more representative of a resident’s clinical competence than either the oral or written exams. By measuring clinical competence, evaluative simulation fills a gap in the current assessment process in place at North American medical schools which tests knowledge (the written exam) and the application of knowledge (the oral exam).

Discussion and Conclusions: Evaluated simulation provides a more comprehensive assessment of anesthesia residents in preparation for their national exams. Further research is planned to compare the results of evaluative simulation with resident success at the national exam.

Take-home messages: Simulation is an effective means of assessment and may fill in current gaps for assessing competence.
Experiences of students and teaching faculty members of a recently implemented system for programmatic assessment of medical students

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Background: Programmatic assessment (PA) is a novel concept, which has been implemented in few medical schools. PA systems aim at optimizing utilization of different student assessment methods for better attaining the summative and formative functions, and assuring curriculum effectiveness. Since evaluative data on such systems are scarce, this study explored the perceptions of students and teachers on a recently introduced PA system.

Summary of Work: In this ethnographic case study, 10 medical students and 8 faculty members underwent a semi-structured, anonymously recorded interview, which lasted 18-33 min (median: 28 min) for students and 18-30 min (median: 21 min) for teachers. Audio-files were transcribed into texts, which were submitted to content analysis through multiple readings.

Summary of Results: Although criticizing a few aspects and expressing different perspectives, students and teachers shared a positive view of PA. Students valued most the wealth of opportunities to receive constructive feedback from supervisors in clinical years and the multiple formative and summative structured exams of clinical skills. Teachers valued most the PA organization and effectiveness in detecting poor performing students and praised the many training opportunities for them to play different roles in assessment.

Discussion and Conclusions: Implementing a programmatic student assessment system is complex and resource consuming. Medical students and teaching staff, although pointing to the need for improvements, had predominantly positive experiences of a recently introduced system for medical student integral assessment, using a programmatic approach.

Take-home messages: Complexity and costs for implementing a medical student programmatic assessment system seem to be counterbalanced by its positive effects, as indicated by perceptions from students and teachers.

ADEM Plus: Performance Assessment of Medical Students and Doctors in Brazil

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

Summary of Work: The objective of this study is to support and promote medical students’ performance assessment, and physicians assessment in first two postgraduate years, and to support program evaluation of Brazilian'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 wrote, reviewed and validated by a Brazilian Committee for ADEM+ (HSL-IEP).

Summary of Results: Results of the two administrations have been encouraging and yielded useful information which will be described in the presentation. One result was that students in higher training levels obtained higher mean scores, as expected. Also, mean scores in the second administration were higher than in the first, suggesting that the students were getting habituated to this form of testing.

Discussion and Conclusions: The program is presenting visible progress in increasing the length and quality of the examination.

Take-home messages: Assessment of medical students and doctors is a needed and useful process to develop students’ and doctors’ assessment and program evaluation in Brazil.
#10CC05 (26582)
Are oral vivas a credible means of assessing medical student competencies in modern health care?

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Background: Oral examinations are a form of assessment where a set of stimulus questions are designed to specifically address critical areas of knowledge or sets of abilities. Students are expected to respond in their own words, which allow an assessment of the student’s depth of comprehension, and capacity to apply knowledge and insights to different situations.

Summary of Work: Students from various European countries were interviewed and their responses analysed to supplement a literature search of peer-reviewed journal articles relating the subject matter.

Summary of Results: Oral exams are highly dependant on the quality and knowledge of the examiner. Evidence suggests that they are able to effectively gauge a student’s understanding of a specific topic. However, oral exams are rarely used in countries such as England for a number of reasons mostly relating to the subjective nature of the assessment and susceptibility to bias. Only a few questions can be asked within the given time period so limited topics are covered which often varies between students further contributing to the lack of standardisation.

Discussion and Conclusions: In order to address the relatively poor validity and reliability of oral exams, the OSCE has been increasingly used for assessment at most medical schools in Europe. However, there are still some concerns such as associated cost and staff time which makes it less feasible in low income countries.

Take-home messages: Oral exams should be phased out owing to its various weaknesses. OSCEs are a more accurate tool to assess the knowledge, problem solving and clinical management ability of students.

#10CC06 (26686)
Proposal of a Model of Competences-Based Assessment Focused in the Needs and Expectations of Students

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Background: The evaluation within the constructive and formative approach considers the rights of the students through an interactive-participative process where the motivation affects their learning; therefore, the aim is to make known a proposition of competences-based assessment focused in the needs and expectations of students.

Summary of Work: Descriptive- correlational study with a quantitative approach used to evaluate practice of teachers. The data was obtained with a questionnaire with 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: The study showed that the variable “to identify knowledge and skills of students at the beginning of the semester” has significant correlation with: “assess knowledge, skills and attitudes” ($r=0.43$), “take into consideration the needs, interests and expectations of students” ($r=0.42$), “solve doubts related to the contents of the course” ($r=0.31$) ”propitiate evaluation among students” ($r=0.45$), “congratulate or recognize their hits” ($r=0.35$) and with “achieve the expected learning of the course” ($r=0.38$).

Discussion and Conclusions: In competences-based assessment the initial diagnosis is essential to accomplish the aims of the course, taking into consideration the needs, interests and expectations of the students.

Take-home messages: A student-centered assessment involves answer their questions, propitiate the co-evaluation as well as recognize their successes to motivate their learning.
Multi-dimensional assessment of undergraduate medical students in Emergency Department

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Background: Clinical Emergencies requires physicians to address complex diseases, to make quick decisions, to develop communication skills, to assume leadership in a multi-professional teams and to deal with a stressful environment. We developed a multi-dimensional assessment to address all this topics, in two different environments: emergency room (ER) and emergency ward (EW).

Summary of Work: Between November(2012) and October(2014), during two months rotation (1 month in each environment), students (n=212) took two theoretical tests (TT); two practical tests (OSCE); an assessment of attitudes and behaviors (AAB), including technical aspects, attitudes and behavior, with feedback by professors; AAB was also utilized by students to self-assessment (SA); and assessment by three real patients (AP) in the ER using CARE scale. We searched for correlations (Spearman’s) among those formats of assessment and with the final grade (FG) in the discipline.

Summary of Results: In both environments, we found strong correlations between TT and FG (r=0.75593;p<0.001); TT and OSCE (r=0.75144;p<0.001); TT and AAB (r=0.75144;p<0.001); TT and FG (r=0.87791;p<0.001). In both environments we found weak correlations between AAB and cognitive evaluation(TT, OSCE, FG), with a trend to be higher in the ER. There was no correlation between: AAB in ER and EW; between AP and FG, TT, OSCE, AAB or SA; between AAB and SA.

Discussion and Conclusions: Several formats of assessment may be necessary to evaluate all skills (cognitive, attitudes and behavior) necessary to emergency care. Feedback from multiple sources (professors, peers and patients) may improve these skills. Environment may influence students’ evaluation. Multi-Dimensional evaluation may assess skills and competencies that are not assessed by traditional methods.

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Background: National Licensing Examination (NLE) for medical graduates is a mechanism for ensuring standard and competency of graduates across different medical schools in a country. This study reviewed and synthesized NLE experiences in China and Thailand.

Summary of Work: Using a common protocol jointly designed by researchers in China and Thailand, the study applied qualitative approach with review of relevant literatures. Content analysis was applied to identify common themes.

Summary of Results: As legally mandated, China and Thailand launched NLE in 1998 and 2001 respectively. In China, there was a three level implementing agencies; national, provincial and city/county whereas Thailand Center for Medical Competency Assessment and Accreditation (CMA) is the key player. Two step exam, written test and clinical skill assessment was applied by China while three consecutive parts was applied by Thailand: preclinical and clinical MCQ exam in Part one and two, and objective structured clinical examination (OSCE) in Part three. Students with successful NLE were granted with license to practice.

Discussion and Conclusions: NLE is one of the effective instruments in ensuring competency of all medical graduates in a country. If managed well, in particular engaging faculty members in NLE implementation, NLE is useful in strengthen the medical curriculum, the instructional dimension and assessment of student performance. In the light of call for transforming health professional education, NLE contributes to ensuring competency of medical graduates.

Take-home messages: NLE is feasible in China and Thailand. Engagement of Faculty member is a key success factor.
“I learnt a great deal, didn’t I?” How reliable and valid are students’ self-assessments of their learning success?

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**Background:** Students' self-assessments are often criticized. It is argued that students lack the ability to accurately assess their own strengths and weaknesses. There is also evidence that the comparison of competency related self-assessments before and after an intervention may suffer from response shift bias. Thus, the effect of educational interventions might be over- or underestimated. To add to the existing evidence on this issue we analyzed whether students’ self-assessment related to their pre-training level of competency differs when measured before compared to after the intervention (i.e. retrospectively). Furthermore, we analyzed the relationship between the self-assessments of learning success and the results of the final examination to examine the validity of the self-assessments.

**Summary of Work:** 312 medical students in their first year rated their competency concerning five learning objectives at the beginning of a PBL-module (T0). At the end of the PBL-module (T1) we assessed their ratings of pre-training level of competency and their current level of competency. Results of the final examination were taken into account.

**Summary of Results:**

<table>
<thead>
<tr>
<th>Competency</th>
<th>T0pre/MT0pre</th>
<th>T1pre/MT1pre</th>
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<tbody>
<tr>
<td>1</td>
<td>2.58/2.26</td>
<td>2.59/1.13</td>
</tr>
<tr>
<td>2</td>
<td>1.85/1.69</td>
<td>1.59/1.23</td>
</tr>
<tr>
<td>3</td>
<td>2.88/2.61</td>
<td>2.53/3.60</td>
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<td>4</td>
<td>3.53/3.60</td>
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<td>5</td>
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There were three significant differences between these ratings, but the effect sizes were small to moderate (Cohen d = .07 -.32). Significant correlations between the self-assessments of learning success and final examination results at the end of the PBL-module ranged from r = .12 to r = .32.

**Discussion and Conclusions:** We conclude that retrospective and pre-assessment-ratings do not differ substantially. Further analyzes with data of another cohort are underway in order to verify these results.

Comparative study between self-assessment of sixth-year medical students towards Modified Essay Question (MEQ) and their actual scores

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**Background:** Modified Essay Question (MEQ) has been used as one of National Licensing Examination in sixth-year medical students. Ten competencies are included for examination blueprint construct. Self-assessment is one of the important skills for medical students to evaluate competencies by their own. However, the accuracy of self-assessment is still uncertain. We compare their self-assessment of MEQ and the actual scores.

**Summary of Work:** In 2014 academic year, eighty-three sixth-year medical students were tested with six MEQs. After finishing the examination, they were invited to evaluate their competencies by themselves. Self-assessment and actual scores in terms of achievement were evaluated to find the correlation.

**Summary of Results:** There were 50.6% of male and 49.4% of female. The first three competencies that students did not achieve in their viewpoints were evidence-based medicine (66.3%), patient management (62.7%) and patient education (48.2%), while the top three actual failures were basic science knowledge (50.6%), patient education (41.0%), hypothesis generation (41.0%) and patient management (37.3%). For pair comparison in each student, there was minimal correlation (r = -0.052-0.176) with no statistically significant.

**Discussion and Conclusions:** Medical students could estimate themselves rather accurate. Patient management and patient education were the most weakness competencies. When the accuracy of self-assessment was analyzed in each student, however, the results were not good.

**Take-home messages:** Although self-assessment of students is not sound for accuracy, it is the early tool for improvement both learning and teaching to achieve the learning goals. Training students to evaluate their competencies before taking examination should be emphasized.
#10CC11 (24906)
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 leans modules were implemented in eight courses of College of Medicine, Fu-Jen Catholic University. These leans 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 (3.5~6.5minutes 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: Among the 186 students who responded to the outcome evaluation, 56% of them demonstrated various psychological change from quantitative measurement as well as qualitative analyses. These results suggested 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”.

#10CC12 (24525)
Equality and fairness in MRCP(UK) examinations

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Background: In 2014, a pilot scheme to collect data about all nine protected characteristics for 418 MRCP(UK) candidates was successful, and full-scale data collection is planned. Additional research on examiners, showing no sex bias and only one case of ethnic bias, was undertaken. Research focusing on UK graduates’ performance in MRCP(UK) examinations in 2003-04.

Summary of Work: Research on examiners’ bias: to assess the extent of hawkishness as well as sex bias and ethnicity bias, in individual examiners. Research on UK graduates performance: We examined the effects of ethnicity and gender on pass rates for UK medical graduates sitting MRCP(UK) in 2003-4.

Summary of Results: Research on examiners’ bias: no examiners showed significant sex bias, and only a single examiner showed evidence consistent with ethnicity bias. Research on UK graduates performance: In all three parts of the examination, white candidates performed better than other ethnic groups. Non-white men performed more poorly than expected, relative to white men or non-white women.

Discussion and Conclusions: Research on examiners’ bias: Examiner bias is a potential risk in any examination. Research on UK graduates performance: Male students and students from ethnic minorities have been reported to underperform in undergraduate medical examinations. The conclusion of our study confirms this.

Take-home messages: Research on examiners’ bias: In high stake examinations bias against some types of candidates should be routinely monitored and when identified, it should be eliminated promptly. Research on UK graduates performance: Male students and students from ethnic minorities have been reported to underperform in undergraduate medical examinations. The conclusion of our study confirms this.
#10CC13 (26096)
Setting student-based passing scores for MCQ

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Background: Besides selecting appropriate teaching techniques and assessment tools, setting appropriate minimal passing level (MPL) also seems to be one of the difficult tasks in medical education. There are various ways of standard setting such as picking up any magic number under agreement for example 50 or 60 of 100 etc., or using mean of percentage adjusted with SD, even using assessor-based such as Angoff’s or AI. This study aimed to find out a new model for standard setting by using student-based scoring plus their confidential percentage.

Summary of Work: The questionnaire was done after pediatric MCQ finished with; “What is appropriate MPL for this MCQ?” After that the mean scores, student-based, were compared with their MPL calculated by Angoff’s, assessors-based.

Summary of Results: Two different sets of pediatric MCQ were selected for this pilot study. Angoff’s scores, assessor-based, were 58, 57; Meanwhile student-based were 52, 49 respectively. To be humanistic, 10%, 15% and 20% of the student-based passing score were added to its primary calculated. The results from this preliminary study showed that the MPL from student-based plus 15% of its score (15% adjusted student-based) seem to be the most suitable score compared with Angoff’s.

Discussion and Conclusions: Adjusted student-based passing level seems to be suitable for our medical school, CPIRD Thailand with a small group students. This new model is better than the traditional because it is student-centered. However finding any suitable adjusted percentage is different in each country and culture.

Take-home messages: If assessor-based standard setting, Angoff score, is difficult and complicated to perform then student-based might be substituted. However further study to make the appropriate add-on percentage might be needed.

#10CC14 (27914)
A study to explore how nonverbal behaviour influences OSCE assessors’ global rating when examining undergraduate medical students

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Background: OSCEs are a well-recognised format for assessing clinical competence. Current research focuses on factors contributing to differences in assessors’ judgements and the impact on inter-rater reliability. This paper investigates how nonverbal behaviour influences OSCE assessors’ global ratings when examining undergraduate medical students.

Summary of Work: 18 OSCE assessors participated in in-depth interviews. Each scored 2 videos of students consulting with a simulated patient, and made judgments on each performance using a standard checklist and written feedback. A retrospective think aloud methodology was used as a stimulus to explore factors in the students’ performances. Interview transcripts were coded and a grounded theory approach used to develop a framework to interpret results.

Summary of Results: Thematic analysis revealed a rich framework where the interaction and non-verbal behaviours of assessors, patients and candidates all contributed to global ratings. Assessors’ identification and response to candidate behaviours was complex and individual. Subthemes included the importance on ‘body language’ and the impact of assessor fatigue, coupled with the use of pre-determined stereotypes.

Discussion and Conclusions: The nonverbal behaviours of the three ‘characters’ in the OSCE (student, patient and assessor) make significant contributions to global ratings. This has importance in station and scoring format design, assessor training and the ongoing research into the assessor as ‘trainable, fallible or idiosyncratic’ (Gingerich et al, 2014).

Take-home messages: ‘It does not have to be voiced to be counted’. Non-verbal behaviours within an OSCE station have a significant impact on assessor judgements, and contribute to the multiple factors that reduce inter-rater reliability.
Discordance between methods of pass decisions for objective structured clinical examination (OSCE) in fifth-year medical student in obstetrics and gynecology

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Background: Objective structured clinical examination (OSCE) is one method of evaluation, especially how to do. It can assess many aspects such as history taking, physical examination, counseling, laboratory interpretation and procedure.

Summary of Work: 20 stations of OSCE were assessed in 600 fifth year medical students at the end of the session in 2010-2013. Pass score was decided from two methods, firstly, the score is more than minimum power level (MPL) in each station and number of stations is more than 60%. Secondly, total scores of 20 stations are more than 60%.

Summary of Results: The medical students had a number of stations where the score was more than MPL 30-100% and the total scores 35-87%. The students had passed the examination in both methods 92.2%, and failed the examination 1.8%. There were medical students who had passed the examination in the number of stations but failed in total score 3.8%. On the other hand, there were medical students who had failed in number of stations but passed in total score 2%.

Discussion and Conclusions: There is discordance between methods of deciding on the passing score for the OSCE examination.

Take-home messages: OSCE is important in assessment but decisions on the passing score may vary.

Validation of Professor Assessors’ Global Rating in OSCE

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Background: The Objective Structured Clinical Examination(OSCE) uses CBA(Criterion Based Assessment) principles within a complex process. With increasing scrutiny of the techniques used to support high level decision making in academic disciplines, Criterion Based Assessment(CBA) delivers a reliable and structured methodological approach.

Summary of Work: Fourth grade medical school students 427 in the Busan-Gyeongnam Consortium were included in the study. The examination was consisted of 6 clinical performance examination(CPX) and 6 objective structured clinical examination(OSCE) stations. Analysed data included global rating scores and checklist scores in 12 OSCE stations. Cronbach’α reliability analysis, Pearson correlation analysis, and variance analysis was carried out to examine the validation of global rating by professor assessors.

Summary of Results: There were significant positive corelation(.040~ .851) in global rating scores and total scores of checklists. Results of variance analysis showed significant inter-grade discrimination and between–group variation by global ratings.

Discussion and Conclusions: Global rating scales scored by professors showed higher inter-station reliability. These results suggest that global rating scales administered by professors are a more appropriate summative measure when assessing candidates on performance-based examinations.

Take-home messages: Many factors influence the reliability of OSCE assessment method. Therefore we have to consider factors of main influences on the reliability of an OSCE.
Can medical students set credible and reliable standards for their peers’ examinations?

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Koshila Kumar, Flinders University, School of Medicine, Adelaide, Australia
Brian Jolly, University of Newcastle, School of Medicine & Public Health, Newcastle, Australia

Background: Factors important in setting standards for assessment include expertise in subject content, understanding of the examination method and familiarity with those being assessed. It is argued that students could be the real experts, in this regard, but there are few data to support this.

Summary of Work: In this preliminary work, we used established methodology to compare the credibility and reliability of two student panels, from year 2 (n=8) and year 5 (n=10), in setting the standard for a first year examination (n=60 MCQ items). Each panel calculated the passing score using a modified Angoff technique. The passing scores were also compared to fixed and relative standards. We used generalisability theory to assess the standard’s reliability by calculating the root mean squared error (RMSE) of the passing score, as a function of the number of items and the number of judges.

Summary of Results: Mean passing scores for year two and five panels were 55.8±2.1% and 54.5±3.3%. Fixed and relative standards were 57.0% and 53.6%. The respective RMSEs were 0.75 and 1.05. To achieve an RMSE of 0.50, a panel of 12 judges or 80 items is required for year 2 panel and 20 judges or 250 items for year 5 students.

Discussion and Conclusions: These data support the concept that students could play a role in standard setting. Their passing scores approach both credibility and reliability. What remains to be determined is whether these findings can be replicated and whether the regulatory authorities will consider this approach acceptable.

Take-home messages: Students could play a role in standard setting.

Consistent Application of Learning Outcomes in Assessment

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Background: In the fall of 2013, the two colleges, osteopathic and podiatric medicine, began a process where faculty tagged every exam question with the appropriate learning outcomes. Initial analysis indicates faculty are not consistent in tagging learning outcomes such as critical thinking as well as elements of Bloom’s taxonomy. Due to the inconsistency, this study was initiated to better understand tagging practices of faculty. As the curriculum is shared between two colleges the study is an interprofessional endeavor.

Summary of Work: Utilizing the ExamSoft Worldwide computer-based testing software, the study will analyze a variety of exam questions from the majority of preclerkship courses to compare how each faculty will tag the exam questions. The results will be compared with the original faculty author’s tagging of the same questions. A frequency table will be generated to determine the standardization and consistency of faculty tagging of learning outcomes.

Summary of Results: Results are pending, but anticipate full analysis by June 2015.

Discussion and Conclusions: Based on the information gathered, the authors will create faculty development workshops to calibrate and educate faculty members regarding the definition and utilization of competencies in assessment practices. As a follow up study, the authors will then conduct a separate analysis to determine the effectiveness of the training.

Take-home messages: Utilization of competencies is imperative in assessment; however, it is critical that faculty have a clear and standard definition of the competencies, otherwise, the outcomes are of limited value.
A Evaluation of Standard Setting Methods on Final Year Examinations

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Yan Jin, The Chinese University of Hong Kong, The Teaching and Learning Resource Centre, Hong Kong
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Background: The Chinese University of Hong Kong (CUHK) is using an absolute pass mark (PM) of 50% as a standard setting method. Although this method is easy and cost effective to administer, it has major flaws in which that it is very difficult to justify the same cutoff for all the different examinations. Therefore, Teaching and Learning Resource Centre (TLRC) is evaluating different standard setting method with CUHK’s final-year examination. The following methods were compared: • CUHK cutoff • Angoff method • Mean minis one standard deviation (-1SD) • Cohen method • Modified Cohen Method

Summary of Work: TLRC reviewed ten final-year examination result with the standard setting methods for PM and Failure Rate (FR).

Summary of Results: CUHK’s PM (standard deviation) and is 50(0); FR is 1.94(3.86). Angoff method’s PM is 60.9(2.18); FR is 13.72(11.37). -1SD method’s PM is 61.98(5.31); FR is 14.49(2.38). Cohen method’s PM is 55.22(1.9); FR is 4.46(5.63). Modified Cohen method’s PM is 56.67(2.29); FR is 5.8(5.94).

Discussion and Conclusions: CUHK PM has a low FR which may not be desirable; especially these are high-stake examinations. The Angoff method and -1SD method give a very high PM and FR which may not be desirable. The Cohen and modified Cohen methods offered a reasonable FR and a low standard deviation for the PM, they are also justifiable and easy to administer. Therefore, it is reasonable to adopt the Cohen method or the examination committee can adopt their own Modified Cohen method.

Take-home messages: There are no golden standard setting methods. Each institute should look for a standard setting method that suit their requirements and needs.
A survey to explore the open feedback culture in Dutch medical students

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Background: There is increasing awareness among healthcare professionals of their duty to call to account for each others’ conduct. The question of this research is to what extent medical students call each other to account for misconduct.

Summary of Work: In November 2013, 14,570 student members of the Royal Dutch Medical Association were invited to complete an online survey. Four real-life situations were presented in which the respondents were confronted with misconduct by a fellow student. The participants were asked for their behaviour, either retrospectively or prospectively depending on whether the participant has ever experienced the presented situation.

Summary of Results: After 2 months 2,660 participants were included (response rate 18.8%). The number of respondents who experienced the presented situations varied between 6.2% and 29.9%. Of respondents surveyed prospectively, 79.5% to 82.9% would have called the fellow student to account. Of those surveyed retrospectively, 29.5% to 57.6% has actually called the fellow student to account. 21.3% of respondents admit to not having called to account a misbehaving student, while the participant believes he should have (26.8% among sixth-year medical students). Most frequently mentioned reasons are to not disrupt the good relationship (21.8%-34.7%) and to not feel responsible (14.8%-32.4%).

Discussion and Conclusions: Surveyed medical students overestimate themselves to the extent they call each other to account for misconduct. Many students don’t feel equipped nor responsible to contribute to an open feedback culture.

Take-home messages: Students should be made aware that they are responsible for each others’ conduct and an atmosphere should be created in which students feel equipped and safe to give feedback.

Improving collaboration practices of health management in boarding school: A lesson from Nusantara Health Collaboration, Indonesia

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Background: According to Ministry of Education and Culture there are more than 25,000 boarding schools spreading in Indonesia. Boarding schools should make sure all their students are living healthy daily activities. Nusantara Health Collaboration (NHC) was an event hosted by a collaboration of (Indonesian) health care students. Various disciplines gave a workshop to handle health society problems especially health management in boarding school.

Summary of Work: Health care professionals and health care students were grouped from various disciplines. A panel lecture on health communities management and short case were conducted and then every group received a case. After discussion, they presented the results analysis regarding health management in the boarding school case. Every group was given panel reflection from the expert. A pretest and post test were used to evaluate the program.

Summary of Results: More than 80% of participants perceived the advantages of the program. Participants felt satisfied and enjoyed interprofessional working and hoped the program would be continued in other themes.

Discussion and Conclusions: This program serves a specific approach to addressing health problems in communities such as boarding school through interprofessional practice. By using an inter-professional approach, the outcome of health services can be improved greatly.

Take-home messages: The product of this program should be followed up and developed further to gain even better results.
Creativity of Medical students for Emergency Room of Lampang Hospital

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Background: There are many conditions that needed emergency management in emergency room, especially invasive procedure, such as intubation and central venous catheter insertion. Normally we must inform patients or their family and they must sign the consent form before beginning the procedure. Sometime we spent long time to proceed. So, we assigned the last year medical student helped us to solve this problem by their creativity.

Summary of Work: Since year 2013, the last year medical students whom rotated emergency department were assigned to make a new tool that could apply to patient management according to their opinion in each problem, one tool for one group rotation. Those tools, such as a flow chart for explaining central venous catheter insertion, venous cut down, chest drainage insertion (ICD) and pain rating scale doll for small child were used with the patients by all staffs in emergency room. After graduation, the most useful tool was selected to receive price, voted by emergency physician and nursing staffs.

Summary of Results: The innovation from many groups of medical students could be applied to emergency management and help us so much, especially saving time and convenience.

Discussion and Conclusions: Creativity of medical students could really help us, just let they do it.

Take-home messages: Medical students are not only learner, sometimes they can be our co-workers and sometimes they are our teacher by their own creativity.

Students Associations’ Roles in Enhancing Undergraduate Medical Education

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Background: Students are essential stakeholders in medical education. Recently, medical student organizations started taking major roles in restructuring medical curricula. Literature depicts that student led initiatives and undergraduate medical research have increased concomitantly. This illustrates that investing in young undergraduate medical students in terms of medical education has a great potential to develop medical research in the near future.

Summary of Work: Extensive literature review has been done through different databases including: Pubmed, EBSCO, and Clinical Key. The search is inclusive for the role of medical students’ associations in: 1) Enhancing curricula and their delivery 2) Providing feedback to reconstruct better curricula in medical schools 3) Promoting research culture among undergraduate medical students.

Summary of Results: Many evidence supported the participation of medical students in strengthening the medical curricula. For instance, studies reported the emergence of student led journals and scientific congresses. In addition, medical student associations have facilitated the integration of innovative programmes into the medical curricula. Moreover, studies depicted formation of student scientific societies, research groups, and undergraduate research committees. Collectively, this enables students to commence their research profession; thus enhancing research vibe among undergraduate medical students.

Discussion and Conclusions: Since several studies demonstrated a positive impact of student associations in strengthening the medical curricula and research, medical students should be empowered by educators to participate in enhancing their educational experience.

Take-home messages: By encouraging students to become equal partners in curriculum development, medical institutions will create an improved learning experience by facilitating undergraduate students’ participation in medical research and an empowered medical education; taking into consideration student’s perspective.
Exploring the role of a student-organised national undergraduate conference in improving medical students’ awareness of global child health

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Background: Student-organised undergraduate medical conferences aim to engage fellow students interested in particular career fields whilst providing further clinical teaching. However, the scope for student-led conferences to enhance the UK medical curriculum may be under-recognised.

Summary of Work: A two-day undergraduate paediatric conference (2014) was attended by 105 delegates, representing 17 UK medical schools. The conference had an overarching theme of “Global Child Health”, and comprised of symposia, lectures, workshops and a research poster competition. Lectures explored global causes of child mortality, whilst workshops focused on clinical and communication skills. Data gathered from feedback forms included free-text responses and Likert scales (1=poor, 5=excellent). Questions focused on reasons for attending, career aspirations and improvements for future conferences.

Summary of Results: The feedback response rate was 73% (n=77/105). Overall, the conference was well received, with mean conference enjoyment rated at 4.5/5.0. Mean conference relevance was rated lower (4.4/5.0), possibly due to the lack of emphasis on global health within examinable components of the medical curriculum.

Many delegates highlighted inspirational lecturers by name, emphasising the importance of providing students with clinical role-models. Students also appreciated the ability of the conference to cover topics seldom addressed within undergraduate curricula.

Discussion and Conclusions: Student-organised undergraduate conferences are likely to have wider and unseen benefits with their ability to inspire students and promote early engagement within specialist fields. Undergraduate conferences also enable exploration of topical issues, with benefits likely to resemble those of Student-Selected Components.

Take-home messages: Student-led conferences are an excellent opportunity for undergraduate students to direct their learning and enthuse fellow colleagues about broader health issues.

A student initiative for research in medical education in Brazil

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Background: Undergraduate research activities can improve professional skills. Aside research in medical education has been stimulated nationwide.

Summary of Work: In 2008 a group of about 17 students intended to create a student group for research in medical education (NAPEM). They sought for teachers who were available for mentoring scientific projects in the field. There were proposed up to 8 projects initially. As time passed by, colleagues were invited to gather the group and keep on the projects. Different teachers were also involved – some of them without previous experience on medical education research.

Summary of Results: One project received government funding. Up to 15 abstracts were presented in national congresses and 4 abstracts received awards during medical education congresses. Five articles have been published. The results from one project were useful for institutional curricular assessment. Many students graduated and NAPEM continues its activities and projects as a University research group.

Discussion and Conclusions: Our singular experience shows how students are aware of the importance of research in medical education and how this initiative contributed for scholar improvement.

Take-home messages: Students can contribute with research in medical education.
To access: dgp.cnpq.br/dgp/espelhogrupo/409644195022049
Lights, Camera, Surgery! A Novel Medical Student Experience

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Background: Deciding on a medical specialty can be a difficult and often early decision for medical students to make. The Office for Paediatric Surgery Innovation and Education (OPSEI) tackled this challenge by creating a summer project for first and second year medical students to introduce them to the operating room and various surgical specialties.

Summary of Work: From 2009-2011, 31 medical students participated in Lights, Camera, Surgery! in three separate cohorts. The students were split into groups of 2-3 and assigned to create 5-7 minute videos of various surgical topics. Mentors in the form of staff surgeons and anesthesiologists were assigned for each video. The medical students role was to research and develop story lines for the videos then work with their staff mentor to design and film the project. Videos were then edited and posted on the UBC medicine website for students and residents to use.

Summary of Results: A total of 49 videos were made during the three-year project. The videos are currently available online for medical students and residents from UBC and one of the videos won an award at the Halifax 10: Patient safety conference in 2010.

Discussion and Conclusions: Lights, Camera, Surgery! was a novel project carried out at BC Children’s Hospital from 2009-2011. This project gave first and second year medical students a great chance to shadow surgeons and anesthesiologists. Students’ feedback on the project was that it was both a great learning opportunity and also helped build relationships between students and their staff mentors.

Take-home messages: Lights, Camera, Surgery! is a novel project that exposes students to surgery and allows the student to take on the role of educator while working closely with staff mentors to produce instructional videos.
Changing education culture through empowering junior doctors to lead in education

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Background: In March 2014, junior doctors in our paediatric teaching hospital published a report outlining their concerns regarding education and training, including perceived paucity of teaching and a sense of poor teaching culture. The potential to learn in this institution with high volume highly specialised clinical exposure and world-class research was recognised but there were apparent barriers to accessing these learning opportunities.

Summary of Work: We created a Junior Doctor Education Lead Development Program, which aimed to empower junior doctors to lead education improvement in their departments. The launch day incorporated leadership, project planning and improvement methodology, coupled with a facilitated project development session which drew on the experience of the group and created networking and peer support opportunities. The participants then engaged in a leadership experience through immersion in a leadership simulation, followed by debriefing exploring their personal strengths as leaders within a team. The launch day was followed by six months supported project development.

Summary of Results: Participants found the peer supported project development session and the leadership simulation especially useful. The effects of engagement in the course were seen through change in attitude, "I always thought someone should do something, but now I realise it is me that can act". Positive outcomes were also seen in the actions taken by participants through the development and delivery of significant educational interventions.

Discussion and Conclusions: An effective approach to improving educational culture is the empowerment of junior medical staff to lead on educational change.

Take-home messages: Junior Doctors are effective drivers to producing educational improvement and should be supported to achieve this.

Interdisciplinary projects seeking solutions for real-world entrepreneurial problems creates innovative solutions in the field of medicine

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Background: BMI Innovation project is an interdisciplinary collaborative and student driven project between medical-, industrial management-, information networks and bioinformation technology students between two universities in Helsinki. Students work together in small groups for three weeks on assignments given by collaborating enterprises. Students combine their knowledge of different fields to come up with new, innovative solutions for the problems. After three weeks, they present their project at the BMI Project Wrap-up. The first BMI Innovation project took place in 2012, had positive feedback from students and enterprises and has become an annual event.

Summary of Work: Data used in this research derived from the projects in years 2012-2014. A survey was sent to the collaborators in enterprises and to the participating students. The aim of the study was to answer the research questions: How did the enterprises benefit from BMI-projects? How useful were the students’ solutions? Did the companies use the solutions created? Data were analyzed with quantitative and qualitative methods.

Summary of Results: Collaborators found the solutions useful, and many of them were commissioned for further development and possible future use. The enterprises were interested in collaborating with the BMI in future. Interdisciplinary learning and cooperation with enterprises provided medical students with valuable networks and learning experiences.

Discussion and Conclusions: Interdisciplinary learning among students with different scientific backgrounds is valuable for both enterprises and students. It gives a new impetus for medical education. Many problems we face today cannot be solved with just medical expertise.

Take-home messages: Real-world entrepreneurial problems for which the students collaboratively seek solutions stimulate networking and learning.
Students’ community intervention in non-medical CPR skills in Curitiba, Brazil

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Background: Community performance of medical students may be a good strategy to improve health. Besides, cardiorespiratory arrest (CRA) is considered an alarming situation, since time until onset of reversal procedures has a direct influence on patient survival. Given the importance of pre-hospital treatment, the state of Parana, Brazil passed a law obliging establishments with a large amount of people passing through them to have an automatic external defibrillator (AED) available, in addition to personnel qualified to provide basic life support and operate the AED.

Summary of Work: Medical students from Curitiba began a community work in order to identify the percentage of establishments with a daily flow of more than 2000 individuals that have an AED, assess the technical level of trained personnel in treating CRA and help these trained personnel to improve their skills when necessary. The sample was composed of 40 establishments in Curitiba, Parana state. The presence of AED as well as its functionality and accessibility were assessed. Next, a clinical case was presented to evaluate the performance of emergency responders in treating CRA. Performance was based in accordance with American Heart Association (AHA) guidelines.

Summary of Results: Twenty-eight establishments agreed to take part in the study, 13 (46.4%) of which had an AED on their premises. Five agreed to undergo a test to evaluate the emergency responder’s performance, 2 obtaining a score of 9, one 8 and two below 3. Medical students, in a supervised way, gave a feedback and helped these professionals to improve their knowledge.

Discussion and Conclusions: This work is an example of how medical students can work with their communities improving community skill of solving a health problem.

Take-home messages: Medical students in supervised way may be a good strategy to improve community CPR ad health skills.

Integration among students and cancer patients support institute: IJOMA’s project

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Background: Macapa is one of the smallest Brazilian capitals and is located inside Amazonia. In this city very rich and very poor people live side by side. Many of these poor people don’t have access to basic health services and education. This way they find some difficulty to live a healthy life.

Summary of Work: In the end of 2013, Federal University of Amapa - UNIFAP’s medicine students signed a partnership with Cancer Institute Joel Magalhaes (IJOMA). Student’s participation in the institute intended to encourage humanitarian training and interaction between service-health-community advocated by the new national curriculum guidelines. UNIFAP adopts PBL method, intending to prepare doctors to work at SUS, the brazilian public health system.

Summary of Results: The students collaborated by different ways, like collection and donation of food for patients, lectures at the institute and at Basic Health Units, distribution of flyers and collaboration at the IJOMA’s bazaar. Teachers orientated lectures organization for Family Health Strategy groups. The students, from first to fifth year, held educational conversation to people, acting their social role as medical students.

Discussion and Conclusions: The integration among the university and the community was an enriching experience for the students and community. The volunteer work was very rewarding for students, especially for freshmen, who might have contact with cancer patients and see up close the emotional repercussions of the disease. The students also felt more motivated to learn about Macapa’s demands and poor people demands. They even felt more confident about talking to community and advising needy people.

Take-home messages: A doctor is not only a professional that gives medicines and treats diseases. He must treat the whole person a his or her own environment, and it will only happen if students are put in touch to these issues since the first year of the medicine course.
A student and evidence driven evaluation of Indigenous Health and Cultural Immersion Training in an Australian postgraduate Medical Course

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Background: Indigenous Australians have worse health outcomes than non-Indigenous Australians and most of Australia’s medical practitioners are non-Indigenous. This makes cultural training in medical schools essential. Student perceptions of this need, and how these learning outcomes are best delivered, require careful consideration. The model developed at Deakin Medical School involves an Indigenous Cultural Immersion Program (ICIP) undertaken in the first year followed by careful curriculum integration in the following 3 years.

Summary of Work: This student-led, survey-based project was conducted on three consecutive cohorts of medical students (2012-2015, n=135 each year). Questions determined pre- and post-knowledge of Indigenous Health issues, the requirements of culturally adept medical practice and prevailing attitudes towards the ICIP. Additional student interviews were conducted once students had entered the clinical environment.

Summary of Results: Student responses (response rate >95%) highlighted the strengths, weaknesses and challenging situations encountered within their cultural training and particularly the ICIP. Overall the content was considered valuable for future practice, although raised cultural safety apprehensions within the student cohort. In particular, lecture-based learning pertinent to the students’ own cultural background created dissatisfaction compared to field-based learning.

Discussion and Conclusions: With refinement, student engagement with these important learning opportunities has improved over the three years of this project. The curriculum has evolved to take a more solution-oriented approach to culturally sensitive medical practice and continues to influence students through the remainder of their medical training.

Take-home messages: Invaluable insights from students have driven the development of a more engaging and impactful cultural curriculum aimed at addressing the considerable cultural gaps in Australian medicine.
Factors underlying students' engagement in extra-curricular clinical training activities

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Background: Many medical schools provide students with extra-curricular training opportunities to practice clinical-skills. Little is known about the factors that drive medical students to engage in those activities. The aim of the present study was to identify student’s individual characteristics, which might favor participation in extra-curricular clinical training activities (ECCTA).

Summary of Work: The number of ECCTA, that took place between September 2008 and July 2014 in the School of Health Sciences in Minho, Portugal was registered. A total of 542 medical students participated in these activities (participation rate=48%). Participation ranged between 0 and 16 times (M=1.48; SD=2.37). A multiple Poisson regression model was performed considering the number of times a student participated in training sessions as dependent variable and personality traits and also gender as predictors.

Summary of Results: Higher scores in the personality dimensions of “openness to experience” and “conscientiousness” were positively associated with participation. Also female students were more likely to participate.

Discussion and Conclusions: Personality traits and gender have a unique and statistically significant contribution to students’ participation in extra-curricular training. This study demonstrates the contribution of students’ individual characteristics to self-directed engagement in relevant activities for their future clinical proficiency.

Take-home messages: Promotion of engagement in extra-curricular clinical training activities should consider student gender and personality traits, targeting male students in particular.

The learner-centered student-run clinic: A novel approach to teaching pharmacotherapeutics

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Background: Medical students should be better prepared for their future role as prescribers. A new educational concept to achieve this is learning by doing. This encompasses legitimate, context-based training and gives students responsibility as early as possible in their medical education. Student-run clinics (SRCs) are an example of this concept. We describe the development of a new SRC primarily focused on medical pharmacotherapy education, the learner-centered student-run clinic (LC-SRC), and its feasibility.

Summary of Work: A feasibility study was performed in which teams each comprising of 3 students (1st, 3rd and 5th-year) treated patients under the supervision of an internist. Patients were selected from the internal medicine outpatient clinic for follow-up in the LC-SRC. Feasibility was evaluated using a set of questionnaires for patients, supervisors and students.

Summary of Results: In total 31 consultations were conducted; 31 students and 4 clinical specialists participated. A pharmacotherapeutic treatment plan was drawn up in 33% of the consultations. Patients were content with the care provided and rated the consultation with a 7.9 (SD 1.21) (1(min)-10(max)). Supervisors regarded LC-SRC safe for patients with guaranteed quality of care. They found the LC-SRC a valuable tool in medical education although it was time-consuming. Students appreciated their (new) responsibility for patient care and considered the LC-SRC a very valuable extracurricular activity.

Discussion and Conclusions: The LC-SRC is feasible and could be a valuable addition to the medical curriculum.

Take-home messages: We describe and evaluate the first LC-SRC in an European healthcare system with insured patients and consider the LC-SRC concept feasible; The LC-SRC was considered a valuable addition to the curriculum; The LC-SRC could play a valuable role in context based pharmacotherapy training of students.
#10DD17 (26590)
Addressing health inequalities in antenatal care: A community-based student-led initiative
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Background: In the UK, women from black and minority ethnic (BME) groups have relatively poorer maternal health outcomes compared to the white-caucasian population. This is particularly true for women from South Asian and Black African communities who have recently migrated to the UK. Although there are multiple determinants for ethnic health disparities, the NHS is encouraging greater efforts to address this pressing public health issue.

Summary of Work: Medical students delivered small-group interactive workshops to the BME community in a London borough with high levels of socioeconomic deprivation. Pre- and post-workshop questionnaires were administered using a Likert scale to assess participants’ understanding of pregnancy risk factors and attitudes towards antenatal care services.

Summary of Results: 77% of participants had never attended a workshop of this kind before, nor had they received any such relevant information prior to their first pregnancy. There were significant improvements (p<0.05) in knowledge across all domains relating to the risk factors affecting pregnancies such as diabetes, hypertension and smoking. Most of the attendees felt that they had inadequate support from their GP and difficulty communicating with health workers during their pregnancy.

Discussion and Conclusions: Women from BME communities are genetically at higher risk of complications from diabetes and hypertension during their pregnancies which is further exacerbated by inadequate access to educational resources and antenatal services. Discrimination by healthcare workers also affects the staff-patient relationship at a time where women are in greatest need of support and advice.

Take-home messages: Medical students from the diaspora community are an effective yet underutilised resource to educate BME women about antenatal care.

#10DD18 (27357)
Decreased non-communicable disease by surveillance, control, prevention systems and community engagement process in Phayao, Thailand
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Background: Recently, the patients of non-communicable diseases (NCDs) are increasing in Thailand; especially hypertension and diabetes. Hypertension and diabetes patients were found to be of 3.7 million in 2008. The varieties of human behaviors have been extensively changed in health. Hence, Thai Government has policy to reduce NCDs. Generally, primary care plays an important role in treatment using medical process. However, NDC patients have not been decreased.

Summary of Work: Here we report that primary health care (PHC), which is a primary process to screening, rapidly seek the person’s risk. The screening tool of the study was “Vichai’s 7 color balls model”, the medical education tool to transfer knowledge from student health team to community through health volunteers, creating community engagement in terms of social participation. It was found that people in community were realized in their health and they can evaluate the level of risk using this model.

Summary of Results: Project implementation (2014) in Phayao (target group; 15-60 years, 27,929), risk group (light green) was decreased to normal group (white) from 15,495 to 16,062. Health program in behavior change with best practice of 3Es (Eating, Exercise, Emotion) and 3Rs (Reducing tobacco, alcohol, obesity) were applied in risk group.

Discussion and Conclusions: This is the first demonstration of knowledge transfer to community by student, which is the sustainable education in PHC.

Take-home messages: Finally, outcome of study not only reduce the patient and mortality rate but also increase the quality of life, could apply in different areas and propose to be the national policy, effectively for a long term operation.
Peer Assisted Learning and Pair Assessment as an accurate predictor of anxiety and performance in first-time clinical examination

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Background: Peer assisted learning (PAL) is widely acknowledged and used teaching method, but the “clinical efficiency” of this method is seldom explored. We examined the clinical applications of peer assisted learning and pair assessment in the students’ first independent patient examination.

Summary of Work: Clinical teachers and the student’s pair (peer) attending the same teaching session assessed 78 3rd year medical students. One half of the students had attended PAL session before the beginning of the 1st clinical semester. They rated their own anxiety level before the patient examination. In addition, the clinical teachers and the student pairs rated the students’ clinical skills and estimated their anxiety levels.

Summary of Results: We found no differences in anxiety or skill levels between the students who had attended the PAL session and the ones who hadn’t. Anxiety was significantly lower for those who had prior experience in working in a hospital. The student pair’s assessment correlated highly with the experienced anxiety level of the student examiner (r=0.46, p<0.05), whereas the teachers’ evaluation did not. The anxiety level before the examination correlated with the performance indicator given by the clinical teacher.

Discussion and Conclusions: Attending the PAL course did not modulate the performance or anxiety levels of the students at a group level. Instead, prior working experience decreases anxiety. Teachers are not as sensitive to student anxiety as their peers.

Take-home messages: PAL has limitations in its clinical effectiveness, but peer assessment in clinical real-patient attachment might provide added value to monitoring student performance and anxiety.

Using peer assessment and written feedback to encourage medical students in team-based learning

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Background: Performances in team-based learning have been improved by peer feedback. The objective of this study is to qualitatively analyze the use of a peer assessment and written feedback among medical students.

Summary of Work: Peer assessment was implemented with open-ended questions through online. Third year medical students (n=60) were asked to describe their peer performances of group work in team-based learning and give improvement feedback. They self-assessed their performances, as well. Qualitative analysis was done to comprehensively understand what medical students concerned for teamwork and gaps to be improved. After class, self-administered questionnaires were distributed to all medical students to evaluate this process.

Summary of Results: Good performances described more common among peers were group participation and responsibility. Team leader was a performance that medical students would like to be and improved. Self-sacrifice and confession were concerned by students, but not by teachers in formative and summative evaluation form. Most of students agreed with peer assessment tool and written feedback. They believed that this tool is reliable and reflective. They would like to know their performances given by peers whether it would be positive feedback or not and preferred written feedback to scoring.

Discussion and Conclusions: Peer assessment and written feedback offer medical students an opportunity to improve their performances. Some performances concerned by medical students should be re-considered to be an indicator for students’ development.

Take-home messages: Peer feedback is an important tool in medical education to encourage students actively engaged in team-based learning.
#10EE03 (26569)
A quantitative evaluation of student-tutor perceptions to peer-led teaching as a learning method during a medical undergraduate course

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Background: Peer learning is currently offered at Aberdeen University, the UK. We aimed to determine student-tutor perceptions to peer learning in a peer-assisted learning scheme (PALS) for medical students.

Summary of Work: The project was approved, and conducted over one academic year. Fifth year medical students applied as PALS-tutors and attended staff-led Training the Trainer workshops. Tutorials were optional and available upon application to Year 3 & 4 students. A survey of PALS-tutor’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: Overall, 27 PALS-tutors delivered the tutorials, all of whom had not previously participated in PALS teaching. Pre-tutorial, 50% of tutors agreed they had opportunities to teach, but only 21% agreed they had opportunities to learn how to teach during the undergraduate MBChB course. All tutors agreed peer-led teaching is a useful learning tool, and that PALS teaching is a positive experience. Post-tutorial, all tutors agreed delivering PALS sessions enhances their own learning and 84% agreed peer-based learning helped them learn better than lectures. Importantl, 83% of tutors agreed, post-tutorial, that peer-based learning should be incorporated into the undergraduate curriculum; pre: 4 median (3-4 interquartile range) and post-tutorial: 4 (4-4). Post-tutorial all PALS-tutors agreed it was beneficial to teach and more PALS events should be organised.

Discussion and Conclusions: This scheme suggests 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 student teaching experience during the undergraduate course.

#10EE04 (26908)
Supporting peer teachers with a blended learning format

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Background: Peer teaching is well established in medical education and frequently used throughout the first years of medical studies. Charité Berlin runs extracurricular cross-year peer teaching tutorials in physics, chemistry and biology. Peer teachers face one major challenge when leading tutorials: heterogeneous groups that require a great deal of time for explanations of basics and unnecessary attendance to overqualified tutees. We created tutorials in a blended learning format for first year students to reduce such tutee heterogeneity.

Summary of Work: We developed a three-step blended learning format to support peer teachers. Online pre-courses include a formative assessment, the existing tutorials remain face-to face and an online post-course is now offered. This structure intends to reduce the heterogeneity of the groups by keeping overqualified students from attending tutorials (pre-course assessment), establish minimal subject knowledge among tutees (pre-course task) and provide further information on the subject to interested tutees (post-course resources).

Summary of Results: Courses are highly accepted among students: 83.9% of the 2014 cohort participated in at least one part of the voluntary programme (83.9% pre-course tasks; 39.9% face-to-face tutorials; 15% post-course resources). Moreover, the courses are well evaluated among the tutees (mean participant satisfaction on a 7-point Likkert scale: 2.44 (pre-course tasks with self-assessment) and 1.98 (face-to-face tutorials). In focus group interviews, tutors describe a decrease in tutee heterogeneity.

Discussion and Conclusions: Structured pre-courses and formative assessments are an effective way to reduce tutee heterogeneity and establish minimal subject knowledge in an extracurricular peer teaching programme.

Take-home messages: Blended learning is an easy, well-accepted and cost-effective way to support peer-to-peer tutorials.
**#10EE05 (25325)**

Implementation of an extracurricular, student-organised peer-teaching programme into a partly curricular programme

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**Background:** Since 1999 the "Lernzentrum" of the Charité offers well-established extracurricular peer-tutorials on practical skills. Student-tutors compiled these tutorials to a comprehensive programme covering 33 topics. Tutorial objectives were matched with the national consensus statement. After introducing the modular curriculum (MSG) at the Charité in 2010, compulsory attendance of a small contingent of Peer-Teaching-Sessions will be implemented into the study regulations this spring. With this in mind, the current programme was adapted to fit the MSG.

**Summary of Work:** Tutorials were matched against the learning objectives of all modules by two experienced tutors separately. The resulting allocation underwent a consensus process by the respective module planning committees. On the basis of this data the final mapping of the tutorials against individual modules was compiled.

**Summary of Results:** 19 of 38 modules are supplemented by one or more matching tutorials. For semesters 1 to 5 semester-overlapping advanced courses are offered and new tutorials will be designed to improve module coverage.

**Discussion and Conclusions:** Mapping of the tutorials against the MSG is intended to guide students in selecting tutorials appropriate to their semester and thus facilitates the transition from extracurricular to elective programme.

**Take-home messages:** Alignment of voluntary extracurricular peer-tutorials with the mandatory curriculum is helpful for students orientation.

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**#10EE06 (25524)**

Peer assisted learning: filling the gaps in basic science education for pre-clinical medical students

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**Background:** In contrast to Peer Assisted Learning (PAL) in clinical training, there is scant literature on the efficacy of PAL in the teaching of the basic medical sciences to pre-clinical students. The few initiatives that have been published have been limited in scope and scale, focusing on a single basic medical science topic.

**Summary of Work:** A group of senior medical students aimed to design and deliver clinically-oriented small-group tutorials after every module in the pre-clinical curriculum at a UK medical school, covering the most challenging topics. Twenty different tutorials were delivered by senior students throughout the year and were open to all first and second year students. A baseline survey was delivered to inform the development of the scheme, followed by an end-point survey the next year (n=122). Additionally, each tutorial was evaluated via a questionnaire for participants (n=949).

**Summary of Results:** Students found the scheme to be relevant to the course, useful for revision purposes and appreciated how tutorials contextualised basic science to clinical medicine. In contrast to formal medical school teaching which is mainly lecture-based, students appreciated the interactive nature of the sessions nature and agreed that, with the inclusion of the scheme, there were now an adequate number of small group tutorials throughout the year. Furthermore, they found receiving personalised feedback about their learning and consolidating information with someone familiar with the material to be useful.

**Discussion and Conclusions:** This study shows that senior medical students can design and deliver a year-long tutorial scheme for pre-clinical students that effectively complements and adds value to the formal curriculum.

**Take-home messages:** Medical Schools should consider utilising Peer Assisted Learning to fill in the gaps in the pre-clinical curriculum, especially where there is a lack of interactive, small group teaching.
Objective measurement of the value of peer assisted learning in an undergraduate medical school setting

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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 two 2-day peer-assisted clinical skills courses for 2nd and 3rd year students at the University of Glasgow, School of Medicine. Twenty different teaching stations were delivered by 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: 139 (72 group A, 67 group B) of 205 enrolled students were eligible for the final analysis. There was no significant difference between the overall test scores of group A and group B (p=0.180) or paper 1 and paper 2 (p=0.230), indicating no bias in terms of the performance of each group or the complexity of each test. The mean test score before the course for all participants was 59.79% and 72.82% after (mean difference 13.03%; 95% CI 9.46% to 16.60%, p<0.001).

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.

Near Peer Assisted Learning Scheme incorporating MCQ Question Generation

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Background: At King’s College London there was strong student desire for more teaching and learning opportunities and practice MCQs, coupled with the absence of large-scale peer teaching programs.

Summary of Work: We developed a scheme whereby students facilitated educational sessions for the year below. 4-facilitator groups ran sessions for the same 3-5 students each week. Recruitment consisted of an application form for the facilitators, a ‘PAL Handbook’ and a 3-hour interactive training session (with some input from faculty).

Sessions were facilitator-led, interactive and based on a particular topic – Year 2 aligned to the Scenario-based Curriculum, Year 3 designed around 10 core cases per rotation. In addition, 1 student per group was to write an MCQ for a question bank each week. Non-attendance rate was 4% (removed from the course); a further 54 students were recruited for the second term.

Summary of Results: In the first cohort, 77 facilitators were recruited (33 into Year 2 scheme, 44 into Year 3), and 115 students enrolled (Year 2 = 51, Year 3 = 64). 154 sessions were held in the first term, with 34 MCQs generated (22% of sessions). Feedback from the sessions was overwhelmingly positive. Non-attendance rate was 4% (removed from the course); a further 54 students were recruited for the second term.

Discussion and Conclusions: A student-led, large scale (>200 students) near-peer teaching program can be successful, and can be used to generate MCQs. However, while students are very positive about MCQs being generated, the majority do not submit any themselves. Additional incentives may be required.

Take-home messages: Large-scale student-led peer learning programs are desired and can be successful. Voluntary generation of MCQs can be included but participation is somewhat low.
#10EE09 Near-peer tutoring improves medical student knowledge of female pelvic floor anatomy without dissection

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Background: Anatomy teaching in the systems-based curriculum at Dundee University Medical School primarily involves dissection and lectures. The pelvic floor is not dissected, instead taught during system teaching blocks through anatomy workshops which focus on core clinical problems and relevant clinical anatomy.

Summary of Work: Teaching materials used in a female pelvis anatomy workshop were redesigned. New written materials, student worksheets and a prosection were created to highlight the clinical relevance of the female pelvic floor and pelvic organ prolapse. Teaching was delivered to year 3 students (n=139) by a student near-peer facilitator. Feedback was obtained using a 5-point Likert-scale (strongly agree to strongly disagree).

Summary of Results: Students selected that of the new materials, they received the most educational benefit from the near-peer tutor (73/139). 87% of students strongly agreed/agreed that their overall understanding of pelvic organ prolapse and pelvic floor anatomy had improved. Comparison of before and after Likert responses showed that this improvement was significant (p=0.001, Wilcoxon rank sum test).

Discussion and Conclusions: In this study, a near-peer tutor was an important educational intervention showing that pelvic floor anatomy and pelvic organ prolapse can be successfully taught without dissection. In addition to the educational benefits this method also allows students to gain experience of teaching, a curriculum requirement of ‘Tomorrow’s Doctors’.

Take-home messages: Female pelvic floor anatomy and clinically relevant topics (pelvic organ prolapse) can be successfully taught without dissection.

#10EE10 New student-centered Basic Life Support (BLS) education improved the quality and efficiency based on “Teaching is Learning”

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Background: To improve quality and effect of medical education, we implemented a new BLS training method in 2007, in which fifth-year students in clinical clerkship who have already acquired BLS skills (CC-students) directly instruct first-year students (1st-students), termed “The Roofing Tile Method for Undergraduates”.

Summary of Work: After instructors review their BLS skills, CC-students directly instruct 1st-students in practical skill development under the monitoring of an instructor. The instructor provides advice to CC-students only if needed. Finally, the instructor judges the acquired BLS skill of the 1st-students, and then both groups of students complete a questionnaire about the training.

Summary of Results: The 1st-students not only acquired BLS theory and skills, but also were able to obtain various advice about future learning and student life. Furthermore, the levels of BLS skills instructed by CC-students were indistinguishable from those by instructors. The CC-students were able to improve their communication skills and review BLS, thus enabling them to experience medical communication before the clinical stage.

Discussion and Conclusions: The Roofing Tile Method normally requires control by an instructor; however, we could manage it under only instruction by the CC-student. One student instructor could train different grades of students with notable results, comparable to instructor-led education, suggesting that we can apply to various skill-up programs. Our student-centered BLS training is more effective and results in higher degree of proficiency than instructor-led education.

Take-home messages: Our education method can be applied to various skill-up programs in clinical clerkship. We wish to acknowledge the Support Center for Medical Research and Education, Tokai University, for help with instruction.
#10EE11 (26063)
Collaborative learning in course of training clinical skills by simulation in undergraduate students of respiratory therapy: Experience from Kaohsiung Medical University

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Background: Simulation is an important method for teaching and learning clinical skills. Instructors or teachers in a simulation course would check on student’s performance and give feedbacks to help students getting to know about their ability and learn from the practice. However, the possibility of student’s learning from observation of peers’ practice is usually overlooked. Curricular design of simulation with small group collaborative learning may benefit student’s learning in clinical skills.

Summary of Work: In Kaohsiung Medical University, the department of respiratory therapy design a course for collaborative learning in simulation practice on clinical skills that would allow students in the group to observe and give feedbacks to their group member during the simulation practice. Tutors were also assigned to each group to facilitate students’ observation and feedbacks, and give feedbacks by themselves as well. A group report after the practice was made to enhance the over-all learning outcome of each group.

Summary of Results: A surveillance after course found that students found the feedbacks from their group members helpful in their own learning of clinical skill. The satisfactory questionnaire revealed that students are very satisfied by collaborative learning and agreed that such curricular design allowed more interactions during the course.

Discussion and Conclusions: The curricular design with collaborative learning would allow students to learn not just from their own practice, but also the practice by others. Feedbacks from peers would be as helpful as those from the instructors.

Take-home messages: Collaborative learning could be an effective approach for simulation course for training on clinical skills.

#10EE12 (26929)
Medical educator cultivation — Medical education electives in clerkship rotation

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Background: Medical education has been established as a discipline among the medical professional. Medical curriculum will be more complete if students are provided the opportunity of exposure to the experiences of medical education scholarship.

Summary of Work: We have initiated the elective program since 2009. The students need to select topics from either project-oriented or mission-oriented category. Also a faculty is matched as advisor to work with the student on the elective rotation. Students with mission-oriented topics can join the teaching activities, including classroom teaching, faculty development activity, PBL tutorial or case preparation. While students with project-oriented topics can do proposals of variety of interests, like “working load of medical students at clinical rotations”, “medical humanity education”, “quality assessment of PBL cases”, etc. The students are asked to write up a report, and the works are assessed by a committee board.

Summary of Results: In average, 10% of students in each class chose the electives. More students had topics of project-oriented category. Some of the student reports became trigger of research proposals or evidence for policy modification.

Discussion and Conclusions: Although there has not been long-term outcome of these electives, we continuously followed up the students on their career development and performances in medical education. Providing opportunities of exposure and role modeling in curriculum are crucial in cultivating practitioners in medical education as a developing professional career.

Take-home messages: We provide students opportunities of exposure to medical education scholarship and career in their clerkship electives.
Improving the knowledge and making multiprofessional discussion on Clinical Skills

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Background: To know more about the lack of clinical skills and to improve the knowledge between students, clinical skill teachers and senior students offered a workshop during the annual academic and cultural event promoted by the University.

Summary of Work: The senior students prepared 5 rotations (cardiovascular, respiratory, neurology, digestive and osteoarticular) with a 20 minutes explanation and posterior training peer. Clinical Skill teachers were present to support the action. The workshop was open to the different health courses (nursing, medicine, biomedicine, physiotherapy and dentistry). The participants answered a survey about the reasons to do the activity, their course and made an activity evaluation at the end.

Summary of Results: Twelve students participated (67% female) of different courses (50% biomedicine, 42% medicine, 08% nursing). The mean age was 21 years old and the principal reason to do the workshop was improving the clinical skill technique, followed by curiosity about the activity. They liked the lessons (25%), the possibility of practice (25%) and the structure of the workshop (17%). They felt better on their knowledge on clinical skills (42%) and much better (50%) after the training. They wanted more time to practice (25%).

Discussion and Conclusions: The activity was successful on putting together students of different health courses to work and learn. The students evaluated positively the initiative it and was a great opportunity to stimulate the leadership inside the senior students group.

Take-home messages: Stimulate more multiprofessional actions and leadership inside students groups strengthens the teaching/learning process.

Too lazy to teach, what are you going to do?

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Background: When teachers have to teach class after class, it’s quite boring to repeat the lectures. By using the new technique of teaching may refresh not only the teacher, but also the students.

Summary of Work: Last year medical clerkship ‘externs’ are still taught relevant knowledge and skills. This new method of teaching is introduced to students in order to brief them of the new technique, which divides students into 4 groups with stationed teachers. Each teacher teaches his/her group and chooses 2 students to stay to be the teachers of the next group. Then 2 students are chosen again to be the teachers of the following group, while the stationed teachers will support or add as necessary. We measure the knowledge gained by comparing pre to immediate post test, 1-2 following months in order to evaluate whether the knowledge retaining by ‘teaching others’ is the best method or not.

Summary of Results: Learning by teaching others is more fun for the students to Play & Learn. The smarts can show more potential and better scores.

Discussion and Conclusions: Student participation as teacher is an interactive tool to improve knowledge gaining and retaining. It can refresh the teachers’ work and assess the teaching outcome, and we can also learn the youngsters’ techniques of teaching their peers.

Take-home messages: It’s true that the best way to retain your knowledge is to teach others.
#10EE15 (25952)
An innovation of a large group teaching for medical microbiology, “Microbiology Fantasia”

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Background: In medical school, effective microbiology education in limited allocated time is critical. To improve the medical microbiology teaching, we invented an innovative large-group peer teaching method called Microbiology Fantasia (MF), adapted name from a Thai popular singing-contest reality show.

Summary of Work: Briefly, 12-14 medical students volunteered to give lectures in selected topics to the whole class of 330 students with formative evaluation after each topic, instead of a traditional lecture (TL) by faculties. These students were vigorously trained for both microbiological knowledge and presentation skills by faculties. All training sessions were broadcasted using a social network. The activity was run as a three-round competition, qualifying, semi-final and final rounds. Selections for winners of each round were done by medical-educator judges and popular vote from all students.

Summary of Results: Efficacy of the MF-style teaching starting in the year 2013 was compared to TL-style by faculties in the same topic of the previous year (2012). Comparing to TL using a questionnaire, MF was more satisfactory (3.89vs3.62; P<0.001) and more interesting (4.25vs3.41; P<0.001) and comparably in term of understanding the subject (3.61vs3.63; P=0.659). Knowledge was compared using summative evaluation scores and showed no significant difference (1.009vs0.999; P=0.905). Moreover, in subsequent small group discussions, groups with MF volunteers had better presentation scores (89%vs84%; P<0.001). However, teaching by MF was more time consuming for faculties (32.8vs16 hours).

Discussion and Conclusions: MF results in higher satisfaction and interest which in turn increase attention of students without a compromise in students’ gaining of knowledge. Moreover, MF may enhance presentation skills of the student.

Take-home messages: A well-organized peer teaching is more effective teaching method for medical microbiology but more time-consuming for preparation.

#10EE16 (26555)
Training "Students-as-teachers" in a Medical Course - does it focus on teaching skills?

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Background: Students-as-Teachers formal training in Brazil are often a regulated processes called “monitoring”. Descriptive, exploratory, qualitative, and quantitative research was done in a public institution in São Paulo which evaluated the regulated reference, within the perception of teachers/tutors and students/monitors, to obtain conceptions of educational skills.

Summary of work: A questionnaire of closed (Likert scale) and open questions was applied considering aspects of motivation, planning framework, and monitoring skills. The research was approved by the Research Ethics Committee.

Summary of Results: 16 tutors (67%) and 20 students (53%) from 13 Monitoring programs in five different learning scenarios responded. Tutor’s motivations included: having personal contact with students, starting research activity, and closeness to their specialty. In monitors’ view, 63% showed interest in teaching, and 80% in the specialty. The main goal of monitoring is to promote collaborative teaching activities; however when students were evaluated for stimulation or the opportunity to teach, the scope of affirmative results reached 50%. When questioned about which educational competencies should be transmitted, tutors pointed communication skills, teamwork, and leadership.

Discussion and Conclusions: Monitoring showed strong cooperative potential for the teaching-learning process, although it didn’t favour the acquisition of teaching skills. Benchmarks of motivation and planning had conceptual differences when compared with monitoring regulations. Other aspects were considered equally important to planning, like starting researching and training in a specific specialty. However, these conditions bypass the program’s primary educational objective and do not favour a general practitioner formation.

Take-home messages: Training students in teaching after graduation can prepare new generations and initiate teaching careers.
Learning by teaching in gynecology: The best way of student learning

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Background: The retention of knowledge is high on the learning by teaching others. This was applied to our undergraduate medical course in Obstetrics and Gynecology department, Udonthani medical education centre, Udonthani, Thailand. In some gynecological topics, teaching others method was added to facilitate the learning process.

Summary of Work: By the coordination of our centre and school in our community, the sixth year undergraduate medical students during the rotation at Department of Obstetrics and Gynecology, Udonthani hospital, Thailand was assigned to teach the high school students about sexual transmitted disease, teenage pregnancy, contraception and adolescent gynecology. They have to assign the two hours teaching course which composed of knowledge and fun under the observation and supervision by staff. The satisfaction of medical students and high school students were evaluated by questionnaire after the end of session.

Summary of Results: 62 medical students in 16 groups participated in this program in two years. 96.4 % of audiences and 96.9 % of medical students had very good satisfaction in the new program. The style of teaching varies from interactive lecture, role play, game show and drama. The satisfaction was highest in the knowledge gain and group process. The relation of medical students and staff with the community was improved. Most of medical students agreed with this learning method help them to gain knowledge more than only the traditional lecture.

Discussion and Conclusions: Learning by teaching others is a good way of learning. It can be used to enhance the learning of students with good satisfaction of medical student and community.
Establishing a robust Trust doctor revalidation process
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Background: The GMC’s revalidation process is well defined for doctors within accredited training programmes and Consultants. Increasing numbers of Trust doctors hold temporary posts for which processes are less established. We report an initiative to ensure Trust Doctors within our organisation all experience a supervised placement, providing directed support and enabling them to obtain evidence to support revalidation submissions.

Summary of Work: Standardised process and documentation developed. Named Supervisor allocated. Minimum 3 meetings per post required. Pre-revalidation Supervisor report template. Independent pre-revalidation portfolio review panel to inform Responsible Officer.

Summary of Results: In 2014/15, 178 Trust doctors were employed in 54 specialties. 24 Trust doctors were required to revalidate within this time. All submitted evidence to pre-revalidation panels. CPD: Complete no concern n=22 (92%); Incomplete evidence n=2 (8%) QI: Complete no concern n=22 (92%); Incomplete evidence n=2 (8%) Significant events: Complete no concern - n=24 (100%)

Feedback from colleagues: Complete no concern - n=17 (71%); Complete concerns identified - n=7 (29%)
Feedback from patients: Complete no concern - n=19 (79%); Complete concerns identified n=2 (8%); No evidence submitted n=3 (13%)

Complaints / compliments: Complete no concern - n=24 (100%)

In 25% of cases the panel identified issues which were not reflected or documented in the supervision report. The Trust doctor and their Supervisor received feedback so additional discussion and actions occurred before a revalidation recommendation was made. Following this process, all Trust doctors received an Outcome 1 - satisfactory evidence in all domains - recommend for revalidation.

Discussion and Conclusions: Trust doctors and their Supervisors have actively engaged with the process. Medical Education team panel reviews have provided independent oversight to assist the Responsible Officer make revalidation recommendations for transient workforce.

Take-home messages: It is practical and feasible to implement supervised, evidenced Trust doctor revalidation process.

Group completion of ABIM Maintenance of Certification knowledge assessments: Mayo Clinic experience
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Background: Part II of American Board of Internal Medicine Maintenance of Certification (MOC) includes completion of case-based knowledge assessment modules, which often require a time-consuming search for answers. Physicians usually complete these alone. We anticipated that group completion would promote enhanced learning and reduce redundancy in knowledge searches.

Summary of Work: In 2006 we began organizing large-group sessions for completing MOC modules in Minnesota, with telecasts to sites in Florida and Arizona beginning in 2007. Physicians answered each case-based question using an audience response system, then engaged in collaborative discussion in conjunction with selected published evidence to determine the best answer. Post session surveys assessed effectiveness and satisfaction.

Summary of Results: Between 2006 and 2015 we have held 16 MOC sessions (15 Internal Medicine, 1 Cardiology). 959 physicians from 3 Mayo Clinic sites have attended (10-82 per session, average 31). Thirteen sessions, each about 2 hours, focused on one MOC module. Three sessions focused on 2 to 4 modules each (3 to 5 hours). 86% stated that the sessions were very useful and they would change their practice based on this CME.

Discussion and Conclusions: Collaborative group sessions are a feasible, engaging, effective approach to completing MOC knowledge assessment modules.

Take-home messages: Medical schools and clinical departments should consider organizing group MOC sessions using institutional resources and personnel.
Comparative CME/CPD frameworks and accreditation systems in GCC

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Background: The State of Qatar’s National Health Strategy 2016 required the development and implementation of a CME/CPD framework and accreditation system. An analysis comparing CME/CPD systems of Gulf Cost Countries (GCC) informed the development of the Qatar CME/CPD framework and accreditation system.

Summary of Work: A detailed study of the CPD frameworks, credit systems, CPD requirements for licensure, participating healthcare practitioners and recording systems was conducted.

Summary of Results: All GCC except Bahrain and Qatar have CME/CPD as a mandatory requirement for healthcare practitioners to renew their licensure. The type of CPD activities and credit requirements varied significantly across different scopes of practice.

Discussion and Conclusions: Requirements for engagement in CME/CPD varies across GCC members. Mandatory CME is not a uniform expectation of renewing licensure. Variations related to governance, regulation and inclusion of CPD accreditation process were continuously evolving. The findings contributed to the development of a unique CME/CPD framework and accreditation system for Qatar that integrates all healthcare practitioners under a single regulatory authority. Qatar is designing a single national CME/CPD framework and credit system applicable to all health professions and a CME/CPD accreditation system applicable for all CPD Providers and Programs. The development of a National CME/CPD accreditation system will follow best practice to support the National Health Strategy and Vision of implementing mandatory CME/CPD participation policy for all healthcare practitioners in early 2016.

Take-home messages: Regional and international best practice provides useful resources and opportunities for developing innovative CME/CPD frameworks and accreditation systems.

Developing and piloting national CPD accreditation standards: State of Qatar

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Background: Effective 2016, all healthcare practitioners registered to practice in the State of Qatar will be required to participate in CPD activities that meet the standards and policies established by the Qatar Council for Healthcare Practitioners Accreditation Department (QCHP-AD).

Summary of Work: The QCHP-AD and Royal College Canada International initiated a collaborative project in 2014 to create a single national set of CPD accreditation standards for all health professions in the State of Qatar. The joint project team established a CPD framework including a CPD credit system and hybrid CPD accreditation system focusing on both providers and activities. A governance model, policies, processes and a common set of accreditation standards were developed through an iterative process involving multiple consultations with key stakeholders in Qatar.

Summary of Results: In 2015, the new CPD accreditation standards will be piloted with two accredited CPD provider applicants; one organization reapplying as an accredited CPD provider and one new applicant organization. The pilot will assess the process of accreditation and evaluate the appropriateness and applicability of the new standards. It will include narrative questionnaires, documentation review and site visits with trained surveyors.

Discussion and Conclusions: A national CPD accreditation system of providers and activities has been created in the State of Qatar. The new CPD accreditation standards reflect a common set of values, principles and metrics and will apply to CPD provider organizations across all health professions in the State of Qatar.

Take-home messages: A commitment to collaboration across organizations and professions is critical to implement system change; we can share, learn, and improve global systems together.
Effective engagement of non-consultant career grade doctors in development: a peer-based model

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Background: The Scottish Government has funded the creation of a project to support 1300 Staff Grade, Associate Specialist and Specialty (SAS) Doctors and Dentists in Scotland and encourage development that would contribute to service improvement and patient care. The project provided access to funding for significant periods of learning and experiential placement in new skills. However, the SAS community is largely service based and has little contact with other training structures in Health Boards. In addition, SAS doctors and dentists reportedly feel their development is not locally encouraged. Measures to develop engagement at a local level through peer-based contact were developed.

Summary of Work: SAS doctors and dentists were recruited from each health board in Scotland to be trained as Educational Advisors in areas such as leadership, coaching, awareness of specialty training pathways and to form a network actively identifying and contacting SAS clinicians in their health boards, championing local SAS training and development with service and educational leads and advising on applications for funding to the project. An independent analysis of the benefit of this network was undertaken using a realist approach.

Summary of Results: The analysis found that “there is a clear synergy between the aims and objectives (the “programme theories”) of the SAS Programme Development Fund and how it has been implemented on the ground. The combined approach of creating the EA posts and providing direct funding for CPD is essential to the success of the project in terms of communication, practical support and encouragement. Those who have engaged with the fund report feeling valued and are very positive about the increased contribution they can make to service as a result of their new skills and knowledge. The EAs are excellent role models for other SAS doctors in terms of their proactive and positive focus on supporting and representing their colleagues.”

Sepsis Awareness: An Audit of Staff Awareness of Sepsis on Elderly Care Wards

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Background: Every year, 37,000 patients die from sepsis. Improving identification of sepsis, reducing delays in treatment and appropriate escalation can improve outcome and reduce mortality associated with sepsis.

Summary of Work: Members of staff on two elderly care wards were asked to complete a questionnaire related to sepsis recognition and initial management. The questionnaire was handed out to staff unannounced to avoid bias, with questionnaires remaining anonymous. Nursing staff were then invited to attend 30 minute workshops on the “sepsis six” pathway. Key messages were displayed on posters on both wards as on-going reinforcement of topics taught. The same questionnaire was then repeated and data was collected and analysed.

Summary of Results: The audit identified that knowledge of sepsis could be improved in team members of all levels. Following intervention there was an improvement in all areas of awareness. Mean number of SIRS criteria known increased from 4.2 to 4.8. Furthermore there was improvement at all levels of nursing staff of the “golden hour” for intervention and knowledge of the six priorities within that hour.

Discussion and Conclusions: Simple teaching sessions proved highly effective at increasing knowledge of sepsis and enforcing the “sepsis six” priorities. Integrating regular teaching sessions to nursing staff could prove a valuable resource to improve standards in outcome and care of septic patients.

Take-home messages: Nursing staff are at the forefront for detecting potential cases of sepsis, especially in the older population with multiple co-morbidities, where symptoms and signs can be more subtle. It is important that we work together to improve knowledge and understanding as a team.

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Background: Most of Japanese primary care physicians work alone at their own clinic and they feel difficulty in reflection of their daily practice due to lack of check mechanism from other doctors. In addition, a method to secure the quality of the healthcare is demanded because the Japanese doctor’s license is not necessary to update.

Summary of Work: “Oyama potluck conference” named for the potluck party to be able to consult about cases willingly was hosted by Oyama Medical Association (which mainly provides primary care), Shin-Oyama City Hospital (regional core hospital), and Jichi Medical University every other month since August 2014. In this conference, we discussed the patients who had some difficulty in managing or referred to a higher order medical institution.

Summary of Results: The conference had been held four times. We performed a questionnaire survey of the 4th conference’s participants and 55% of them responded the questionnaire. Satisfaction level evaluated by 5-point Likert scale was 4.5 (standard deviation 0.51). The top three participation motives were “lifelong learning for themselves”, “expectation for useful clinical information”, and “strengthening the connection with higher order medical institutions” (82%, 55%, and 32%, respectively). The 80% of respondents had changed their daily practice through the participation in the conference with keeping broad viewpoints and attentive physical examination in mind.

Discussion and Conclusions: This conference provided an opportunity for reflection and we could observe behavioral change in primary care physicians. Continuous holding and further improvement are needed.

Take-home messages: “Potluck conference” has a potential to be a novel lifelong learning method for Japanese primary care physicians.

Consultant Continued Professional Development; one hospital’s account of a curriculum for culture change

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Background: 5 years ago the previous rich traditional of regular senior and substantive staff teaching and training had died out in our hospital. In 2000 the lecture theatre would be full; discussion diverse and informative. By 2007, less than 4 people would attend each session.

Summary of Work: Feedback from staff was used to enable effective scheduling and a curriculum was devised by mapping to the Academy of Medical Educators requirements, General Medical Council guidelines and incorporating recommendations from the Royal College of Paediatrics and Academy of Royal Colleges.

Reviews of qualitative and quantitative feedback from sessions, statistics on attendance and an understanding of the changes to the hospital systems have enabled successful evolution of the programme and positive cultural change.

Summary of Results: We now have a successful in house programme with quarterly sessions. Feedback has enabled development of a parallel programme for theatres and surgical teams with in situ simulation and enhanced human factors training. Two subspecialties: patient themes with multiple team input; are covered in depth per year with two sessions for educational supervisor training and mandatory appraisal topics.

Discussion and Conclusions: There are multiple sources of training for senior substantive but each works within specialty silos and often requires travel to other centres and cancellation of whole days of service.

By working across disciplines, considering the needs of the hospital and the individual we have enabled closer working, cover of educational requirements as trainers, wider specialty knowledge and embedded a positive educational culture within the hospital.

Take-home messages: Effective face to face educational programmes invest in the social capital of an organisation and heal a corrosive negative culture.
Interprofessional collaboration: What matters more - shared leadership (SL) or shared memory system?

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Background: High-functioning interprofessional teams are characterized by shared decision making and lack of hierarchical structures. They also tap upon a “group mind” or transactive memory system (TMS) during team exchanges to solve a common task. We aim to study the relative influence of SL and TMS on satisfaction outcomes among 115 members attending interprofessional team meetings (IPTM) in a geriatrics subacute ward.

Summary of Work: We measured: 1) quality of TMS using the 11-item Faraj and Sproull (2000) scale; 2) SL via the 14-item modified Woods (2005) scale, and 3) satisfaction with working in interprofessional teams and satisfaction with IPTM experience. We conducted hierarchical logistic regression with satisfaction outcomes as the dependent variable, entering TMS in the first step, covariates of age, gender, interprofessional role, clinical experience, and number of IPTM attended in step 2, and SL in step 3.

Summary of Results: TMS and SL are moderately correlated (r: 0.620, p<0.01). In hierarchical logistic regression, a higher TMS score explains a smaller proportion of variance for satisfaction working in interprofessional teams (R-square 17.7%) relative to satisfaction with IPTM experience (R-square: 36.6%). Adjusting for SL scores in step 3 significantly predicted team satisfaction (p=0.005), explained an additional 15% variance and rendered TMS insignificant (p=0.973). In contrast, SL scores did not predict IPTM experience satisfaction (p=0.09), and accounted for only a further 4% variance (p=0.199).

Discussion and Conclusions: Relative to TMS, SL has a greater influence on satisfaction with working in interprofessional teams than satisfaction with IPTM experience.

Take-home messages: TMS and SL are inter-related yet distinct aspects of interprofessional collaboration; this may have implications for continuing interprofessional education.

Why learners use our Learning Management System (LMS): The results of a questionnaire administered to over 400 regular users

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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 learners perceived needs, we offer different CME products, targeting different learning styles and preferences. In the past two years we have more than 12,000 viewings of the available online conferences by LMS users.

Summary of Work: CME has been part of the mission of the FMOQ since its beginning. In 2014 we conducted a demographic analysis of the users of our different training products. This analysis allowed us to confirm that the majority of our members prefer group activities over solo learning. We then administered a questionnaire to frequent users of the LMS to identify their preferences and further demographic characteristics.

Summary of Results: At the end of June 2015, we will provide a statistical report from our questionnaire. Preliminary results show that the age distribution of conference attendees is the same as that of the LMS but only 400 of the 8800 members use the LMS as a modality of learning. Why do they use that modality?

Discussion and Conclusions: Learning preferences are a reality and as a CME/CPD provider we need to offer material and CME credit opportunities that meet 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.
Using technology to facilitate small group forming and learning for PBSGL

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**Background**: Practice Based Small Group Learning (PBSGL) is a well-established form of continuing professional development widely used in Canada and Scotland more recently in England. In Wessex we did not have the resources to match people to groups, manage subscriptions or module distribution, so we set about creating a website to facilitate this.

**Summary of Work**: A bespoke website was created to perform these actions, without the requirement of maintenance. It took several months of design and testing before it went live on the Internet.

**Summary of Results**: The website is now complete and is very user friendly but quite complicated in the background functionality.

**Discussion and Conclusions**: The website performs the majority of the key functions that would normally have to be done by an administrator. Most importantly it helps to facilitate doctors getting together to form small groups by using a map and search function. It also allows for course booking for training, paying subscriptions and organising meetings. Modules can be viewed online by members to identify which they would like to discuss next. A very helpful part of the site is the ability to record your CPD from the sessions and view the group feedback. Since going live 18 months ago the website membership has continued to increase and has now surpassed 400 members.

**Take-home messages**: Websites can be used as an effective method to match small groups together as well as manage a whole programme.

Modify and Construct The Desk Calendar of Anesthesiology Crisis Checklists and Related Medical Simulation Training

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**Background**: The crisis checklists had been advocated to handle operating room crises. We sought to modify and develop the crisis checklists to improve adherence to best practices during such events.

**Summary of Work**: The multidisciplinary expert panel edited the crisis checklists according to the corresponding evidence-based treatments and available resources. We transformed the crisis checklists from flip papers into stand calendar with sidehead. The employees of our department were instructed to use the crisis checklists. We conducted in-situ simulation by using high fidelity simulator in operation room, post-anesthesia care unit and induction room according to the scenarios derived from the crises. The objectives of the medical simulation training are early access to crises, early treatment of the crises according to the crisis checklist algorithm.

**Summary of Results**: Ninety-two nurse anesthetists and thirty-five physicians were trained with this protocol in 17 courses. The questionnaire revealed that the stand calendar and training program were useful. They updated their knowledge of crisis management, gained more confidence, improved performance, and provided effective assistance in handling crisis.

**Discussion and Conclusions**: Checklists for routine perioperative use have been shown to substantially reduce death and complications. Mostly important, the crisis checklists should be modified according to the corresponding evidence-based algorithms and available resources. The form of crisis checklists is also crucial. Stand calendar on the anesthesia machine is a highly acceptable form. Crisis checklists and simulation curriculum are valuable to improve competence, teamwork, and overall performance.

**Take-home messages**: It’s crucial to establish hospital-based resources crisis checklists as the standard of care.
#10FF13 (24263)
Sepsis 6 - are we on target?

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Background: The mortality in the septic patient can be reduced if the “sepsis 6” protocol is implemented within an hour. Whilst a large push has been placed on the implementation of treatment, it has been suggested that there may be a delay at times. The aim of this audit was to assess whether patients presenting to an OMFS unit in a Monklands hospital were commenced on the protocol within the 1 hour time-frame by either the referring or receiving clinicians.

Summary of Work: A retrospective study completed by examination of the notes for all septic patients presenting to the department within a 1 year period (August 2013-July 2014). The gold standard set was 100% for all aspects of the protocol.

Summary of Results: 45% of cases did not meet the gold standard. Time to first antibiotic was within an hour in 65% of cases. The results found that although the sepsis 6 protocol was followed for the majority of cases, improvement in areas, namely administration of oxygen and monitoring urine output, is required to ensure that all aspects of the protocol were implemented and documented within the 1 hour-time frame.

Discussion and Conclusions: More education is required to guarantee the implementation of treatment in a timely fashion to ultimately provide the optimal care and treatment to the septic patient. Updated protocols may be required with a focus on the deficient aspects and inserting a ‘sepsis six’ checklist onto the clerking proforma to re-educate staff. The audit will be repeated after a 6 months period to examine for any improvements.

Take-home messages: Deficiencies were found within the current system, therefore changes need to be implemented to ensure the most effectively and timely care is given. This should improve patient outcomes.

#10FF14 (25888)
Relationship between personal insight and judged readiness to change

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Roger Worthington, Yale University, General Internal Medicine, New Haven, USA
Michael Williams, Wales Behavioral Assessment, Department of Psychiatry, Lawrence, USA

Background: Underperforming medical professionals exist across the educational continuum. Understanding and remediating the causes of underperformance is an ongoing challenge. Hays et al. (2002) hypothesize that underperforming practitioners lack recognition of a need to improve. They suggest this lack of insight affects remediability.

Summary of Work: This study analyzed data collected on 24 physicians who have been assessed at an evaluation and remediation center focused on medical professionals in difficulty. Collected data include participants’ change statements and the assessment team’s determinations of participants’ readiness to change.

Summary of Results: Change and readiness statements were analyzed for semantic themes. The analysis demonstrates that “Readiness” and “Difficulties” were the two most frequent word phrases. “Anxiety” and “Awareness” were subordinate terms that occurred frequently. The sample was partitioned by readiness to change. Those scoring high in readiness had identified a need and developed a preliminary strategy for change. Those with low scores did not demonstrate a belief in a need for change.

Discussion and Conclusions: Those physicians judged as most ready to benefit from remediation services are most likely to demonstrate personal insight. Our data support that insight is an important variable in a physician accepting remediation. It also has implications for faculty and how they approach the remediation of underperforming practitioners.

Take-home messages: Our data is consistent with that of Hays et al and suggests the importance of insight for learners. It extends that work and suggests learner insight has implications for faculty engagement.
#10GG Posters: Clinical Teaching: Physical examination and practical skills

Location: Hall 4, SECC

#10GG01 (27042)

First year medical students can pursue physical exam findings in a hypothesis driven manner: results of teaching the Hypothesis Driven Physical Examination

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Jeremiah Menk, University of Minnesota Medical School, Clinical and Translational Science Institute, Minneapolis, USA
Sharon Allen, University of Minnesota Medical School, Family Medicine, Minneapolis, USA

Background: The physical examination is essential for clinical competence. The traditional head-to-toe approach teaches maneuvers without necessarily understanding the context in which they will be used. Alternatives like hypothesis driven physical exam (HDPE) promote students' understanding of the contribution of the physical exam to diagnostic reasoning.

Summary of Work: In order to determine if beginning students can learn HDPE first year medical students at the University of Minnesota Medical School were taught the physical exam using both the head-to-toe and HDPE methods. At the end of the course students were given a standardized patient case with two hypotheses and then selected 15 of 25 items. Items were weighted and selection order was recorded.

Summary of Results: Students performed well on both the head-to-toe and the hypothesis driven physical exam sections of the final exam. For the HDPE section students tailored their selection of physical examination maneuvers to differentiate between possible etiologies of a patient’s symptoms. All students selected the correct diagnosis for the HDPE case. Additionally, students varied the order in which they selected exam maneuvers by selecting first those with greater diagnostic importance.

Discussion and Conclusions: First year students were able to demonstrate a hypothesis driven approach to the physical exam on an end of course exam. Additionally they were able to efficiently differentiate between diagnostic hypotheses in a simulated patient encounter.

Take-home messages: A combination of HTT and HDPE instruction is a viable option for physical exam instruction with first year medical students.

#10GG02 (27459)

Do medical students acquire practical skills during clinical clerkships?

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Background: The medical school at Aalborg University has a problem based curriculum emphasizing early integration of clinical competencies. Clerkships are preceded by a week of skills training and simulation. During this week the students work with evolving patient cases, practising a number of practical skills and resuscitation scenarios. After the clerkships there is test of practical skills.

Summary of Work: The students answered a questionnaire regarding confidence in selected skills and number of performed procedures. We compared the results from high achievers in the practical test with the remainder. We focused on five procedures: arterial puncture, suturing, placement of urinary catheter, nasogastric tube and peripheral i.v. line.

Summary of Results: There was a significant increase in procedural confidence immediately after the skills course but minimal increase after the clerkship (1.6 vs. 3.2 vs. 3.4 on a scale from 1 to 5). The students had performed very few procedures in real life (mean of 5 i.v.’s and arterial punctures and no catheter or gastric tube placements). There was no correlation between a high score in the practical test and number of performed procedures (Spearman’s rho 0.13, 0.63, 0.11, -0.20, 0.08 for the 5 procedures).

Discussion and Conclusions: Although high confidence is achieved by skills training, medical students perform very few clinical procedures during their first clinical clerkships in our institution. An explanation could be that the procedures are handled by nurses. Further initiatives are needed to ensure clinical competence in core practical skills

Take-home messages: Pre-clerkship concerns in medical students are addressed in a skills training laboratory. Clinical legitimate participation must be ensured.
#10GG03 (26692)
A Basic Clinical Skills Course for Preclinical Medical Students

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Selman Demirci, University of Istanbul, Cerrahpasa Medical School, Department of Medical Education, Istanbul, Turkey
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Sema Umut, University of Istanbul, Cerrahpasa Medical School, Department of Respiratory Diseases, Istanbul, Turkey

Background: A Basic Clinical Skills Course was established in 2008 at the University of Istanbul, Cerrahpasa Medical School. The course is designed to develop and demonstrate knowledge and skills in history taking, communication, clinical reasoning and procedural skills. This course includes 7 different types of basic skills labs: Communication Skills, Surgical Suturing, Venipuncture, Basic Life Support, Patient Transportation, Infection Prevention, and Obtaining Informed Consent. We performed a student satisfaction survey to assess the students' perception of this course.

Summary of Work: After completion of 7 weeks of Basic Clinical Skills Courses (2013-2014 academic year), 151-second year medical students completed a questionnaire. Students responded to three statements using a 5-point Likert scale and answered four open-ended questions. Also, their general satisfaction was assessed with a 0-10 scale for each module.

Summary of Results: Most of the students (n=135, 89%) found that the instructors were very helpful and friendly. Surgical suturing and venipuncture modules received the highest satisfaction ratings (7.42±1.72). The communication skills module took the second place (7.38±2.37). Other modules: Basic life support (6.62±2.20), patient transportation, (6.87±2.13), infection prevention, (7.16±2.21), and obtaining informed consent (6.54±1.99). The open-ended questions showed that students found the entire course very useful and motivating before starting into their clinical clerkship years.

Discussion and Conclusions: Our medical students perceived the implementation of our basic skills course very well. It was considered very useful before starting into the clinical clerkships. On the other hand, feedback from students on content and presentation helps us to continuously improve the quality of the Basic Skills Course.

Take-home messages: The Basic Clinical Skills Course increased students’ motivation and self-confidence before starting into their clinical clerkship years.

#10GG04 (27895)
The value of teaching normal: learning clinical examination on normal subjects in pre-clinical years

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Background: The acquisition of examination skills is an important part of medical undergraduate training. There are many approaches for teaching physical examination skills but there is little evidence to support one particular model over another (Easton, Stratford-Martin & Atherton, 2012). The Lee Kong Chian School of Medicine has developed an innovative approach for teaching examination skills. This focuses on learning normal: pre-clinical students are taught examinations using simulated patients or healthy volunteers over two years, before progressing to examining patients with abnormal findings. This work considers the benefits of and pedagogical principles underlying learning physical examination skills in themselves, without distraction from signs or formulation of differential diagnoses.

Summary of Work: A narrative review of relevant literature was undertaken. The program was critiqued and comparison made with examination teaching at Imperial College London, in light of learning objectives for the teaching itself and those for Year 3, the first year of clinical placements.

Summary of Results: Early results suggest this approach is valuable in developing psychomotor skills in clinical examination. More detailed exploration and review of the literature is ongoing.

Discussion and Conclusions: Early results suggest this approach is valuable in developing psychomotor skills in clinical examination, backed by sound educational theory. Further work is necessary to understand how familiarity with both the normal and processes of physical examinations influences competence in examinations with abnormal signs.

Take-home messages: Teaching students normal physical examinations alone appears valuable in developing examination skills and is underpinned by educational theory. Further work would be valuable to understand how this influences competence in clinical examination with abnormal signs.
Increase consistency reliability in joint examination between rheumatology nurse specialists, fellow-in training, attending physicians by assessing symptomatic patients and agreement discussion

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Background: Rheumatoid arthritis is a chronic inflammatory disease, manifested by arthralgia, joint stiffness and tenderness. Early diagnosis and treatment prevent bony erosion and deformity. Physical examination regarding joint palpation is essential and critical. Disease activity score also relies greatly on core joints examination.

Summary of Work: We conduct joint assessment concordance between rheumatology nurse specialists, rheumatology fellow-in-training and senior rheumatologists. 3 patients with different disease activity were assessed by palpating 28 joints individually before agreement discussion. Post discussion joint examination was performed on the other 3 patients.

Summary of Results: There was significant difference in swollen joint counts between physicians and nurse specialists (Mann-Whitney test, p<0.005) before agreement discussion, while there is no difference in tender joint counts. Post discussion joint examination showed increased consistency reliability.

Discussion and Conclusions: Physical examination regarding swollen joint assessment is essential and critical for general practitioner, rheumatology nurse specialists and rheumatologists. It can be trained efficiently by assessing few symptomatic patients and agreement discussion.

Take-home messages: Increase consistency reliability in joint examination between rheumatology nurse specialists, fellow-in training, attending physicians can be achieved by assessing symptomatic patients and agreement discussion.

Using the Emergency Surgical Ward round to optimize teaching opportunities

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Background: Combining teaching with a busy emergency surgical ward round (eSWR) can be difficult. This audit aimed to define critical roles in the eSWR and to designate these roles to the key ward round participants to optimize teaching opportunities whilst maintaining high quality patient care.

Summary of Work: Audit was conducted over 5 weeks in 2 phases: phase 1 - observation of the weekly eSWR with definition of 6 key criteria leading to development of protocol (2 weeks); phase 2 – implementation of protocol (3 weeks). Each eSWR participant’s satisfaction was recorded (scale 1-10).

Summary of Results: eSWR key participants were defined as: consultant (Con); registrar (Reg); FY2 and FY1. The 6 key criteria (and designated roles) were: patient presentation (Reg); case-notes writing (FY2); review of kardex/ results/ observations (Con); patient examination (Reg); jobs list (FY1); communication (Reg/Con). Implementation of Phase 2 found excellent role adherence with participants reducing their role number when compared to phase 1. The Reg had the greatest role change: predominately case-notes (phase 1) to actively participating and leading the eSWR in phase 2. No adverse events were documented and overall satisfaction ratings improved after phase 2: 6.65 (3-10) versus 8.25 (6-10).

Discussion and Conclusions: Definition and designation of eSWR roles rationalized the number of roles each participant performed leading to improved feedback and increased teaching opportunities for surgical trainees.

Take-home messages: With careful planning, teaching opportunities can be enhanced in busy clinical situations.
#10GG07 (25508)
Medical students’ basic life support skills retention after 1 to 4 years – time to review the cardiopulmonary resuscitation curriculum

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Background: Basic life support training (BLS) is mandatory to all first-years’ medical students from the Faculty of Health Science - University of Beira Interior (FCS-UBI - Covilha-Portugal). Studies report poor retention of BLS following training.

Summary of Work: The objective was to evaluate BLS skills’ retention among medical students after 1 to 4 years of the BLS course. Questionnaire and BLS station were used to assess cardiopulmonary resuscitation (CPR) skills among 2nd to 6th year medical students.

Summary of Results: One hundred and fifty students (30/year - 2nd to 6th year) participated in the study after invitation sent to all medical students. Overall, 56% was the mean score on the written exam, existing a trend to worst results after longer years after BLS course approval. Only 2.7% passed the BLS practical evaluation (100% correct check-list). Sixty-eight percent was the mean score on the skills station, best results (71%) for 2 year interval after the course, and worst results (61%) for 4 years interval. Lowest retention rate was found in the initial assessment and BLS algorithm (56%). Ventilation technique was better performed (78%) than chest compressions (65%). Regarding the use of automated external defibrillator, 38% did not “cleared” properly the area before delivering the shock.

Discussion and Conclusions: The current FCS-UBI’s CPR curriculum consists of BLS in the 1st year, and Advanced Cardiovascular Life Support in the 6th year. Confirming the poor students’ BLS skills’ retention, and considering it an important competence, the curriculum should be revised to improve students’ skills.

Take-home messages: Intervention should be made to increase BLS competencies retention.

#10GG08 (27432)
What’s going on with the patient? Situation awareness of medical team members during acute medical condition management

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Background: In management of acute medical condition (AMC) all team members should have a good situation overview. We aimed to assess the impact of team communication skills on situation awareness of team members.

Summary of Work: We used iStan patient simulator set to have an acute deterioration of chronic obstructive pulmonary disease. Six teams (T1-6) of three year-6 medical students were randomly enrolled in simulation scenario. In every team each member was assigned a role (doctor, medical student or nurse). Three teams (T4-6) were given a lesson about communication in medical team (use of Situation Background Assessment Recommendation (SBAR) approach, Closed loops approach (CLA), importance of being a leader/follower). All three aspects of communication were precisely evaluated and scored. We observed information transfer between team members and their overview of current simulated situation.

Summary of Results: T1-3 gained 50%, 59.1% and 36.4% of overall communication points, comparing to T4-6 reaching 95.5%, 72.7% and 90.9%, respectively. All teams used SBAR approach satisfactorily. In comparison to T1-3, T4-6 leaders gave more exact instructions, followers acted in higher accordance with their directives and they used CLA more efficiently. Teams with communication lesson were also better aware of patient management process, consequently reaching 100% of points for situation awareness.

Discussion and Conclusions: Use of communication skills allows better situation overview and effective cooperation of people who are not regularly working together as a team.

Take-home messages: Team communication skills are beneficial for situation awareness in management of AMC.
**#10GG09 (27981)**
Exploring final year medical students' educational experience and perspectives of Do Not Attempt Resuscitation (DNAR) decision-making

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**Background**: Do Not Attempt Resuscitation (DNAR) decisions are usually made by the most senior clinician involved in the patient's care. However, junior doctors often gain a good impression of patients' co-morbidities, functional state and quality of life, and so may play a key role in these decisions. Little is known about final year medical students' educational experience and views regarding DNAR discussion.

**Summary of Work**: Semi-structured interviews and focus groups were conducted with final year medical student participants at Barts and the London School of Medicine and Dentistry. We aimed to investigate final year medical students' educational experience of DNAR discussions, their perspectives on issues surrounding DNAR orders, and their educational needs with regards to DNAR teaching.

**Summary of Results**: The data analysis highlights issues regarding student perspectives of DNAR decision-making. This includes their educational experience of DNAR decisions through clinical placements, formal and informal teaching activities. Similarly, we explored the students' perspectives on how undergraduate DNAR teaching can be enhanced. The study also investigates students' awareness of ethical issues surrounding DNAR discussion.

**Discussion and Conclusions**: DNAR decision-making is an important issue that needs to be addressed at an undergraduate level, in order to prepare doctors to care holistically for patients and their family. Strategies to promote the clinical relevance of teaching material to students may be important in transforming attitudes to DNAR decision-making.

**Take-home messages**: Issues surrounding DNAR should be taught and assessed in undergraduate medical education to improve patient care.

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**#10GG10 (26923)**
Providing video demonstration of neonatal resuscitation to improve clinical skills and self-confidence among sixth-year medical students

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**Background**: At Suratthani hospital, neonatal resuscitation course is given one year before the real practice on their last year for medical students. No additional materials are provided in between. Here, we aimed to determine the effectiveness of video demonstration of neonatal resuscitation to improve the skills and self-confidence among sixth-year medical students.

**Summary of Work**: Sixth-year medical students were divided into video rehearsal support group and non-video group. Students were given videos compact disk 7 days before working in pediatrics ward. Students can review the video on their own pace. We determined clinical skills including initial resuscitation, neonatal evaluation, and ventilation skills using Objective Structured Clinical Examination (OSCE), and self-confidence using self-administered questionnaire. Overall OSCE scores and each particular skill were calculated, and compared among the two groups.

**Summary of Results**: A total of 43 students were included; 21 students were in video support group and 22 were in non-video support group. The video support group had significantly higher overall OSCE scores (92.8±5.9 vs 83.0±8.9), and ventilation skill scores (33.9±1.8 vs 28±5.2) than non-video group, (p<0.001). There is no statistically significant difference in initial resuscitation skills, evaluation skills and self-confidence.

**Discussion and Conclusions**: The results show an improvement in ventilation skills by using video demonstration. We believe that video demonstration is beneficial for reviewing and self-learning to improve students' skills. Demonstrated video of neonatal resuscitation helps to improve clinical skills among the students, but might not impact on self-confidence.

**Take-home messages**: Using neonatal resuscitation rehearsal video in pediatrics curriculum could effectively improve clinical skills of sixth-year medical students.
Performance of using Pediatric Emergency Drug Card in ED

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Background: Age and size-related issues in pediatric patients affect resuscitation in the Emergency Department (ED). In Thailand, the lack of specialist in ED is an important problem. Most pediatric patients are treated by non-pediatric physicians who may have less skill and experience in pediatric care. Medical errors and delay in pediatric resuscitation are more common problems in ED than adult resuscitation.

Summary of Work: Three groups of participants (6th year medical students, non-pediatric residents, pediatric residents) were asked to complete 4 paper-based tests about pediatric resuscitation using each of 2 methods (2 tests by conventional method and 2 tests by using Pediatric Emergency Drug Card (PED card). Completion time and number of errors were recorded and compared.

Summary of Results: Eighty seven participants were enrolled in this research. 6th year medical students and non-pediatric residents, using the PED card reduce the completion time and number of errors in all 4 paper-based tests compared with the conventional method (p<0.05). In pediatric residents or pediatricians, using the PED card still reduce number of errors in all 4 paper-based tests compared with conventional method (p<0.05), but completion time did not difference between the 2 methods.

Discussion and Conclusions: Using the PED card in pediatric resuscitation by non-pediatric medical personnel can reduce time and medical errors compared with the conventional method in ED.

Take-home messages: Using the PED card can help efficacy of pediatric treatment in 6th year medical student equal emergency resident.

A Survey of Cardiopulmonary Resuscitation Training for Undergraduate Medical Students in Thai Medical Schools

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Background: The medical students lack competency in knowledge and skills of cardiopulmonary resuscitation (CPR). Adequate education in CPR should be considered as an essential aspect of the medical curriculum.

Summary of Work: The aim was to analyze the status of CPR training for undergraduate medical students among 21 Thai medical schools. The questionnaires asked about basic life support (BLS) and advanced cardiac life support (ACLS) training, the number of hours taught (theory and practice), and the departments in charge of training. The questionnaires were distributed to the Deans of medical schools.

Summary of Results: 21 questionnaires (100%) were returned. There is a great diversity exists in form and content of CPR training among medical schools. Most medical schools have BLS and ACLS training courses during clinical years (year 4-6). The training hours in CPR vary between medical schools. There is only one institution that has regular training course in each year (BLS in year 1-3 and ACLS in year 4-6). Anesthesiologists and emergency physicians are the main instructors in charge of BLS and ACLS training.

Discussion and Conclusions: Most medical schools have resuscitation training within their curricula to help medical students meet competency to commence life support in case of cardiac arrest. The trainings meet the criteria described in the direction for undergraduate medical education by professional standards for Thai medical practitioners 2012. This survey may facilitate the design of education programs for the Thai Resuscitation Council and the Consortium of Thai Medical Schools to identify priority in CPR training curricula among Thai medical schools.

Take-home messages: CPR training for undergraduate medical students should be emphasized in the medical academic curriculum. It should therefore be taught during early training, as early as the preclinical years.
Teaching emergency medicine with workshops improved medical student satisfaction in emergency medicine education

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Background: There are different teaching methods; such as traditional lectures, bedside teaching, and workshops for clinical medical clerkships. Each method has advantages and disadvantages in different situations. Emergency Medicine (EM) focuses on emergency medical conditions and deals with several emergency procedures. This study aimed to compare traditional teaching methods with teaching methods involving workshops in the EM setting for medical students.

Summary of Work: Fifth year medical students (academic year of 2010) at Ramathibodi Hospital, Faculty of Medicine, Mahidol University, Bangkok, Thailand participated in the study. Half of students received traditional teaching, including lectures and bedside teaching, while the other half received traditional teaching plus three workshops, namely, airway workshop, trauma workshop, and emergency medical services workshop. Student evaluations at the end of the clerkship were recorded. The evaluation form included overall satisfaction, satisfaction in overall teaching methods, and satisfaction in each teaching method.

Summary of Results: During the academic year 2010, there were 189 students who attended the EM rotation. Of those, 77 students (40.74%) were in the traditional EM curriculum, while 112 students were in the new EM curriculum. The average satisfaction score in teaching method of the new EM curriculum group was higher than the traditional EM curriculum group (4.54 versus 4.07, P-value, 0.001). The top three highest average satisfaction scores in the new EM curriculum group were trauma workshop, bedside teaching, and emergency medical services workshop. The mean (standard deviation) satisfaction scores of those three teaching methods were 4.70 (0.50), 4.63 (0.58), and 4.60 (0.55), respectively.

Discussion and Conclusions: Teaching EM with workshops improved student satisfaction in EM education for medical students.

Patient safety in lumbar puncture with the 5th year medical student in the new medical school

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Background: Practice with a model in Lumbar puncture is important for medical students. The new medical school teaching program and material may not be completely practiced for each one. Frequently self practice can improve this medical skill and also increase patient safety.

Summary of Work: To interview 3rd medical students generation of Walailak University, (5th year, n=16) who performed at Vachira Phuket Hospital. Practicing with the model and patient, level of confidence in the real situation and complication was analyzed with the descriptive statistics.

Summary of Results: The 5th year medical student began practice the ‘Lumbar puncture’ procedure since the 4th year. The average of practicing with model is 3.2 times (range 0-10 ; SD = 3.5) and with the patient is 0.3 times (range 0-2 SD = 0.6). In the 5th year, the average of practicing with the model is 3.7 times (range 1-10 ; SD = 2.7) and with the patient is 8.2 times (range 5-11;SD = 2.3). Level of confidence at the first patient is 50% (SD = 0.9) and after practice with patients was increased to 81.2% (SD = 0.6). Post-puncture headache, the only one complication was found in 1 patient (0.8%).

Discussion and Conclusions: Medical students got little practice LP in model in each year, the 4th and the 5th, but more patient practice in the 5th year. When they practiced more in patients, level of confidence is increased and also fewer complications were found.

Take-home messages: The 4th year medical student should not practice on the patient. But more practice with the model and patient will increase performance and safety with this skill.
#10GG15 (26820)
The 'Mastery Programme' - improving quality and safety in high risk procedural skills

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Background: Postgraduate medical curricula contain mandatory high-risk procedural skills, which can unfortunately result in patient harm. To minimise these risks NHS Lothian has developed the 'Clinical Skills Mastery Programme' to address the challenges of appropriate training, quality assurance and patient safety. We propose a feasibility study to identify whether this combined educational and quality assurance initiative can be successfully implemented in UK trainees.

Summary of Work: Trainees receive knowledge packs (written and video resources) and a 2-phase supervised simulated training programme. Phase 1 is in the skills lab and phase 2 is in situ. Training is currently available for lumbar puncture, central venous cannulation and thoracocentesis. Candidates are marked against a standard set checklist to ensure a minimum passing standard is achieved. We are trialing all 3 procedural skills on one site and thoracocentesis across all 3 acute care sites on trainees where these competencies are mandatory requirements.

Summary of Results: A combination of quantitative and qualitative data outlining trainee performance, and identifying challenges and potential solutions of programme development and delivery will be presented.

Discussion and Conclusions: ‘Mastery Learning’ has an evidence base to support its methodology in the development of clinical skills in the USA. This study aims to expand the current literature to identify whether this form of ‘mastery learning’ can be effectively implemented for UK trainees as both a learning tool and for quality assurance purposes in view of the different pressures the NHS faces.

Take-home messages: With appropriate resources, mastery learning can be a valuable tool to help drive up standards of training and improve patient safety.

#10GG16 (26562)
Introduction of a point-of-care ultrasound course in a medical school curriculum: the students’ perception

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Background: Point-of-care ultrasound (POCUS) has been recognized as a new semiotic tool and several Medical Schools all around the world incorporated this method into their curricula. Beyond the learning assessment, it is important to know how students perceive the introduction of a POCUS course.

Summary of Work: A blended-learning POCUS course (twenty-hours theoretical and practical classes and an e-learning platform) has been introduced to 6th year students (n=96) of a public medical school in Brazil, during their Critical Care rotation. Students were asked to evaluate the course through an anonymous questionnaire.

Summary of Results: We observed high medium scores on the course’s evaluation section: teaching methodology-9.3, theoretical classes-9.4, practical classes-9.0, correlation between ultrasound and clinical cases-9.0, overall course-9.3. On the self-evaluation section, a great majority of the students agreed that learning POCUS may have influence on the way they learn (95.8%) and practice (98.9%) medicine, may improve their clinical reasoning (86.4%), make them feel better prepared to deal with emergency cases (77%) and may motivate them to study (70%). POCUS may potentiate their “anatomical and pathophysiological comprehension” and may lead to “a quicker and more accurate diagnosis”.

Discussion and Conclusions: Learning POCUS may improve students’ clinical reasoning, confidence, diagnosis’ speed and accuracy, leading to improvement in the way they learn and practice medicine. This blended-learning course was well accepted by undergraduate students who realized the importance and applicability of this method.

Take-home messages: The introduction of a point-of-care ultrasound course was positively perceived by undergraduate students.
E-learning of point-of-care ultrasound enhances diagnostic skills of Emergency Doctors

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Summary of Work: A formal training in POC Ultrasonography was developed in an university hospital. The training consisted in a 2 day workshop with a team of experts. A total of 10 participants, all emergency team doctors, without prior knowledge or contact with POC applications, were trained on obtaining ultrasound images. Thereafter, for a 3-month period following the training, participants were to obtain ultrasound imaging of their emergency care unit patients, in addition to the formal care normally dispensed. Images were sent by email to the instructors for discussion.

Summary of Results: Eleven clinical cases were discussed with POC instructors via Internet. From these, 2 were critical cases: an acute pulmonary edema was identified after a COPD crisis, and a critical aortic abdominal aneurism was identified after a pulmonary embolism presumption.

Discussion and Conclusions: A brief formal training in POC Ultrasonography followed by real time follow-up and validation of images by internet, may enhance the diagnostic skills of physicians working in an Emergency setting. Some critical cases could be excellent targets for training with experts. Post-training problem-based e-learning may trigger a rapid learning curve.

Take-home messages: A brief POC course directed to Emergency Doctors followed by problem-based e-learning discussion and validation may be a good model for continuous education in Emergency Medicine.

Efficiency of the Mastery Learning approach in gaining competence performing FAST

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Background: Medical school graduates are increasingly expected to demonstrate proficiency in ultrasound diagnostics, which has provided a means for medical schools to ensure an adequate level of ultrasound education for their students. We conducted a study to evaluate, whether a mastery learning approach is a feasible, practical and lasting method to teach a FAST-ultrasound to medical students.

Summary of Work: 160 undergraduate medical students were randomized into two groups, one of which was thought by a mastery learning approach compared to a peer guided module. All students indicated their previous US experience by completing a questionnaire. A second questionnaire was filled in to record changes in self-assessment. In addition, the students underwent two OSCEs to evaluate their performance. The first one was scheduled directly after the skills lab, the other one three months later.

Summary of Results: 160 students took part in this study. 113 participants stated to have no US-experience, 47 indicated to have gathered minimum US-experience before starting the course. The Mastery learning group achieved 90% overall percentage on average compared to 78% of the control group. In the practical section the mastery group achieved 41 out of 46 possible points on average (88%), whereas the control group achieved 34 points (73%). In the second OSCE the results of both groups converge. The Mastery learning group achieved 87% overall percentage, the control group 85%.

Discussion and Conclusions: A mastery learning approach proves as a successful teaching method for FAST-sonography for medical students. Further work should focus on long-term-retention and implementation of this method into the medical curriculum.

Take-home messages: A mastery learning approach proves as a successful teaching method for FAST-sonography.

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Background: 5th year medical students have no ENT examination skill before the rotation. They need practice to gain the skill. Augmented reality (AR) is a live direct or indirect view, real-world environment whose elements are augmented by computer-generated sensory input such as video. This study aims to prove that AR can enhance capability of describing remarkable ENT physical findings.

Summary of Work: The nineteen 5th year medical students, academic year 2014, were included. Five video clips of otitis media with effusion, otitis externa, hemorrhagic vocal nodule, laryngeal carcinoma, and nasopharyngeal carcinoma were used as pre and post test. The students described remarkable findings that they had seen. Four pictures that contain augmented video clips of perforated tympanic membrane, acute otitis media, nasal polyposis, and left vocal cord paralysis were distributed to students in AR application. Pre-post test score were compared by paired-t test. Satisfaction of AR was evaluated by Likert scoring questionnaires.

Summary of Results: Post test score (244.47±53.17) was significantly higher than pretest score (146.05±36.19) p < 0.001. Medical students scored the appreciation from 4.47-4.58. The approachable score of AR is 3.84 due to technical problems.

Discussion and Conclusions: AR is modern technology that can be used as a medical teaching tool that makes students achieve success in describing remarkable ENT findings. The post-test score showed statistically significant improvement.

Take-home messages: Students are interested in learning with a modern technology. Modern technology can enhance students’ interest and skill.

Exploring 17 Year Old Students’ Knowledge and Attitudes towards Cardiopulmonary Resuscitation

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Background: 60,000 out of hospital cardiac arrests occur in the UK every year with the survival rate estimated between 2% to 12% however this can be increased to 50% if effective cardiopulmonary resuscitation (CPR) is administered. CPR is only administered by bystanders in 33% of out of hospital cardiac arrests for reasons including: lack of knowledge, fear of hurting the victim and fear of performing CPR incorrectly. However, current literature lacks comprehensive insight into these reasons.

Summary of Work: Respondents attended a focus group where they discussed how they thought they would react if they encountered a collapsed victim. Respondents were encouraged to express their concerns when confronted with different scenarios. The data was analysed using a grounded theory approach which subsequently generated themes further explored in the discussion. This study aimed to explore what factors 17 year old students think would influence their actions if they were to discover someone not breathing. It also aimed to investigate what implications these factors may have for CPR teaching.

Summary of Results: Respondents’ CPR knowledge was fragmented, frequently incorrect and they lack an understanding of when and why to start CPR. They expressed the following fears about administering CPR to an unconscious victim: 1. Hurting the victim 2. The victim attacking them. The victim recovering and thinking the helper was attacking him.

Discussion and Conclusions: The researcher suggested that respondents’ fragmented knowledge and identified fears stemmed from a lack of understanding of CPR. Further research should explore the efficacy and sustainability of teaching the theoretical principles of CPR with the intention of minimising the identified fears and ultimately increasing the likelihood of them performing CPR as a bystander.
Background: The prevalence of peripheral artery disease (PAD) increased up to 23% from 2000 to 2010 worldwide. Hence, competency in this field is indispensable for all medical graduates.

Summary of Work: To achieve this goal we established an interdisciplinary DOPS (direct observation of procedural skills) to diagnose PAD – with the FAIR principle (feedback, activity, individualization and relevance– R. Harden) as a conceptual framework. The study presents first experiences and results. 130 medical students (one semester cohort) were trained assess competency in PAD diagnosis in patients within a DOPS, subsequently. A feedback questionnaire and a summative evaluation finished the certificate of common vascular diagnostic competence.

Summary of Results: DOPS achieved high acceptance and a positive evaluation among students and even teachers. The evaluation of the questionnaire and feedback showed within the winter semester 2014/15 a mean summative result of 9.7; minimum 2 points, maximum 15 points. Female students achieved 10.4; males 9.0 while female participants twice as many as male students. Feedback revealed 12% excellent results, 36% achieved satisfactory demonstrations. 20% of the students showed high competence in communication and 24% documented their findings in a structured manner. 24% were faced with concrete ideas to develop competence: The teachers give tips to overcome technical questions (12%), 8% were supported to reflect their communication. 16% were not sufficiently prepared.

Discussion and Conclusions: Preliminary results could show that DOPS is well-accepted by teachers and students. Concrete feedback is necessary to display relevance of the skills of pulse testing, ABI measurement and communication to diagnose one of the most common diseases.

Take-home messages: The competence of diagnosing PAD is easy to learn within the undergraduate curriculum and can be taught interdisciplinary.
#10HH01 (24487)
The Jam-Packed Morning Conference: A Description of Opportunity, Efficiency, and Multi-faceted Learning

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Background: Traditional morning report has evolved at our hospital from a brief discussion of the previous night’s admissions into a structured conference emphasizing resident engagement, case discussion, and development of related clinical questions.

Summary of Work: Over a 3-year period we have taken 7 small, but steady and sustained steps to improve the resident learning experience at morning conference. The 7 steps include house staff empowerment, educational ownership, case competition, emphasis on synthesis statements and formulation of searchable clinical questions, and creation of an open repository for resident work.

Summary of Results: Per assignments, three to five residents took ownership for the educational content of each session. Friendly competition resulted in 32 winning case vignettes getting published in our program newsletter. Evaluation checklists for case presentations and clinical questions were created. Four of the six ACGME (American College of Graduate Medical Education) core competencies and 28 of the 142 Internal Medicine curricular milestones are assessed in these regular conferences. Last year, 117 cases, 91 mini-didactics, and 104 clinical questions were formally presented by 58 residents and catalogued electronically for use by all trainees.

Discussion and Conclusions: Discrete and consecutive changes to conference resulted in improved content and quality of resident presentations and enhanced efficiency in evaluating learning outcomes.

Take-home messages: A resident-driven morning conference that builds upon answering the previous session’s clinical question with a new case discussion, followed by a focused case didactic and construction of a germane question promotes educational ownership, enlightened skepticism, and life-long learning habits.

#10HH02 (28139)
Teaching in a busy district general hospital

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Background: To develop an effective teaching strategy that met the needs of doctors, particularly paediatric trainees in a busy district general hospital.

Summary of Work: We implemented the model of “microteaching”. We defined this as a teaching session that lasted 10 minutes, taking place twice weekly at 9am before morning handover when both teams would be present. A teaching rota was developed on a monthly basis, allocating specific topics. All topics were mapped to the RCPCH curriculum. The teaching could be in various formats.

Summary of Results: Microteaching encouraged sessions to become talking points. Junior doctors delivered their own teaching producing greater engagement with the programme. Curriculum mapping allowed an array of subjects to be covered and further resources were provided to help broaden knowledge.

Discussion and Conclusions: We provide an example of a fluid approach to the challenge of planning teaching in a busy district general hospital. Trainees were encouraged to be responsible for their own learning by providing them with a framework. Curriculum mapping was employed to ensure that a broad range of topics were covered. Finally we encouraged a flexible approach, with feedback leading to rapidly enacted change.

Take-home messages: We present an example of a fluid approach to managing teaching in a busy clinical environment.
Impact of a pre-interview dinner on candidate perception of a fellowship training program

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Background: Approximately half of United States residency and fellowship programs include a pre-interview dinner for candidates and current trainees as part of the interview visit. A pre-interview dinner comprises a significant portion of the direct costs of the interview day for programs and also increases travel times for visiting candidates, but it may enhance candidate ability to select a best-fit program. Despite the cost and widespread use, the impact of pre-interview dinners on recruitment has not previously been studied.

Summary of Work: A pre-interview dinner was added to our Pulmonary and Critical Care Medicine fellowship interview day. An anonymous survey was distributed to candidates in the year before and after introduction of the dinner to assess candidates’ perception of the program and perceived benefits of the dinner. Secondary endpoints included cost to implement the dinner.

Summary of Results: The survey was distributed to all candidates (n=46) who interviewed in 2013-14 (no dinner group) and 2014-15 (dinner group). Survey completion rate was 57%. Most (85%) candidates reported that a pre-interview dinner is beneficial, primarily to gain more information about a training program. Candidates in the interview dinner group demonstrated a trend towards more favorable impression of multiple program attributes compared to the no dinner group.

Discussion and Conclusions: Candidates for fellowship report that a pre-interview dinner is highly useful to gain more information about training programs. The interview dinner also enhances candidate perception of the program which may result in improved match outcomes.

Take-home messages: A pre-interview dinner is viewed favorably by fellowship candidates and may enhance candidates’ perceptions of the training program.

Postgraduate training in Austria: ready for a paradigmatic shift from apprenticeship to a training programme?

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Background: Postgraduate medical training in Austria is regulated by “physicians law” and “physicians training regulations”. Present national reforms aim to account for demands in postgraduate medical training. What is the framework that would allow a move from apprenticeship to a modern training programme?

Summary of Work: The vast majority takes place within hospitals, which will now be certified as training institutions for a limited period of time. Criteria changed from formal to content issues according to clinical scope. Further didactic prerequisites like a curriculum, an individual rotation plan for the trainee, structured feedback at defined training points and keeping a logbook are explicitly required. The postgraduate training is divided in a nine month period in general medical training (comparable to UK second foundation year), to be completed before starting a training in general medicine or a specialty. Specialty training consists of a period of comprehensive basic training followed by obligatory advanced training to be chosen from modules.

Summary of Results: As an example of how this change is possible, the introduction and application of the national training programme developed for the specialty of Plastic, Reconstructive and Aesthetic Surgery will be demonstrated.

Discussion and Conclusions: All these specifications are to support the design of various curricula applicable to all postgraduate training programmes.

Take-home messages: Implementation of postgraduate curricula needs legal regulations.
#10HH05 (26587)
Learning from other industries - Do coaches have potential to improve the quality of supervision for trainees?

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Background: The UK Department of Health recently developed the Gold Guide to outline the roles and responsibilities of both Clinical Supervisors (CS) and Educational Supervisors (ES). CS’ are required to provide constructive feedback to the ES who maintains overall responsibility for the trainee’s progress.

Summary of Work: A literature search of peer-reviewed articles indexed in PubMed and sports journals was carried out to assess currently available information on the subject matter.

Summary of Results: Evidence suggests that supervision leads to improved patient outcomes, as well as fewer clinical errors and greater confidence in trainees. However, the increasingly complex nature of modern hospitals, larger teams and reduced working hours have made it more difficult for trainees to develop beneficial relationships with their supervisors. Furthermore, the combination of pastoral and evaluative roles in a single supervisor may impede the development of a personal relationship.

Discussion and Conclusions: Formal mentorship programmes are well established in other disciplines such as law and business, however this has yet to become widespread in medicine. Developing a ‘coaching’ scheme similar to sports where a senior clinician assists in the long-term development of trainees that can help them improve their clinical skills and offer career advice. One potential source of coaches can come from the pool of semi-retired surgeons who can be trained and accredited similar to sports coaching academies, and are further incentivised to do so by financial remuneration and teaching awards.

Take-home messages: Unlike supervisors, the independent role of coaches can help foster a unique relationship that will improve trainees’ clinical competencies and fulfil their pastoral needs.

#10HH06 (27159)
Evaluating Team Based Learning (TBL) to deliver the transfusion curriculum to junior doctors

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Background: Potentially avoidable errors in transfusion medicine often involve junior medical staff in the decision making or prescribing of blood products. There is a need to identify optimal ways to effectively educate junior doctors in transfusion medicine.

Summary of Work: Transfusion education, mapped to the 2012 Foundation Programme curriculum, was delivered to a cohort of 48 junior doctors over four sessions adhering to the seven core elements of TBL. Evaluation consisted of quantitative and qualitative assessment of student reaction to TBL, objective and subjective evaluation of knowledge acquisition, plus analysis of team continuity.

Summary of Results: Junior doctors attended an average of 2.5/4 sessions resulting in an overall team continuity score (total team members attending/potential team members x 100) of 65% (40-88%). Reaction to TBL was positive scoring a mean of 83%. Knowledge acquisition through Readiness Assurance Testing (RAT) showed improved team knowledge over individual knowledge, with mean team RAT score exceeding maximum individual RAT score in >97% of cases. Subjectively students significantly increased in confidence dealing with acute transfusion reactions although their confidence prescribing fell. Amount of time spent preparing for sessions correlated with enjoyment, subjective knowledge gain and clinical confidence levels. During peer evaluation, self-reported preparation was described as ‘lacking’ in 70% versus only 15% in anonymised feedback.

Discussion and Conclusions: TBL is an enjoyable and effective way to deliver the transfusion curriculum to junior doctors, particularly in those who prepare adequately. Team continuity in this student population is poor.

Take-home messages: Lack of team continuity in the postgraduate setting needs to be factored into the design of TBL sessions.
#10HH07 (23333)
Engaging housestaff in systems-based practice and practice-based learning

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Background: Systems-based practice and practice-based learning, required by the ACGME, are difficult to teach by lecture. We asked “If medicine interns were tasked to devise & carry out an S-BP or P-BL project, what would they produce?”

Summary of Work: Since 2011-12 we oriented each intern group on planning S-BP or P-BL projects. We explained they would have protected time to plan and carry out the project with guidance from experienced faculty. They had to present their findings to a group of senior faculty and administrators at the end of their ambulatory block.

Summary of Results: Until October 2014, all interns on the ambulatory block participated in a project. Thirty-two projects were presented, representing the work of 130 interns. Two interns worked solo; eight participated in two projects. Broadly characterized, three projects dealt with access to care; twenty-one with disease management/staff knowledge; and eight with screening/health maintenance. Presentations varied, but usually included PowerPoint summaries of background, methods, results, and discussion.

Discussion and Conclusions: Supporting the interns to have the "hands-on" learning experience of planning and carrying out an S-BP or P-BL project of their own choosing led to an interesting breadth of projects. We believe the projects’ success reflected the interns’ passions. Three of the projects have been adopted into use in the practice.

Take-home messages: Medical interns can successfully create and carry out an S-BP or P-BL project (and satisfy ACGME requirements) when given a brief orientation, time, and the offer of faculty support.

#10HH08 (25907)
Cloud based management of specialty training

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Background: Many specialty colleges in Australia have moved away from traditional, single-institution style training to a network structure to:
1. Capitalize on the wide range of experience and knowledge, including diversity of patient cohort and treatment approaches.
2. Share resources and improve the quality of specialist training and,
3. Enable equitable access of training across metropolitan and regional sites

The Southern New South Wales Radiation Oncology Training Network is one of seven networks established by the Faculty of Radiation Oncology of the Royal Australian & New Zealand College of Radiologists in 2009.

Summary of Work: Since commencement, several issues have been noted:
1. A need for streamlining and increased efficiency in managing network training.
2. Equitable access to network content.
3. A record of ongoing activity and evaluation.

A novel solution is a cloud-based Customer Service Management (CSM) application which is categorised as a Software as a Service (SaaS) model. It is a central communication portal for co-ordinating training sessions and recording related activity. This involves virtual private network (VPN) access via the internet to continually update content.

Summary of Results: A cloud-based application for document management was initially trialled but found to lack the functionality required for the aforementioned issues.

A CSM application was therefore initiated and found to provide sufficient security and accessibility of a SaaS model with added flexibility for customisation. With multiple integrated calendars, access to content, recorded attendance and evaluations, it operates as a functional archive of training management.

Discussion and Conclusions: A flexible CSM application allows resolution of current training network issues with the functionality to adapt, based on ongoing evaluations.

Take-home messages: This solution fulfils and adapts to the evolving management requirements of the network.
Can Chief Residency programmes provide an alternative pathway within UK post-graduate medical education?

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Background: After completing their foundation training or ‘junior residency’, doctors in the US have the opportunity to spend a year as ‘chief resident’ before applying to a specialty programme. Chief residents perform three key roles; administrative, managerial and educational. Due to the vast skills set required, appointment to this post is highly regarded by employers.

Summary of Work: A literature search of peer-reviewed articles indexed in PubMed was carried out to assess currently available information on the subject matter both in the US and UK.

Summary of Results: The same duties carried out by a single chief resident in the US are delegated amongst various professionals within the NHS leading to greater inefficiency and reduced coordination. Chief residents in the US report higher satisfaction and have been shown to be more successful in securing places on competitive specialty programmes. Junior residents and medical students also benefit as chief residents offer mentorship and clinical supervision.

Discussion and Conclusions: In light of the UK’s recent Shape of Training review, there is a growing need for the next generation of doctors to be equipped with a range of competencies, similar to that of a chief resident. An increasing number of junior doctors in the UK are taking a year out after foundation training known as an ‘FY3’ to locum and build their portfolios with limited guidance before applying to specialty programmes.

Take-home messages: Chief residency programmes can offer a structured and accredited alternative to the informal ‘FY3’ year in the UK.

Referral of patients for Nuclear Medicine Services by Medical Interns in Surin hospital

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Background: Teaching of Nuclear Medicine varies across medical schools. Results of teaching may be reflected in the application of knowledge to patient care. This study was done to assess the results of teaching Nuclear Medicine by frequency of patient referral for Nuclear Medicine services in first year interns in Surin hospital.

Summary of Work: Thirty-two first year interns in Surin hospital were interviewed using questionnaires on gender, age, duration of practice, duration of training in Nuclear Medicine in medical school, number of patients they have referred for Nuclear Medicine consultation and their suggestions on improving teaching of Nuclear Medicine. Descriptive statistics were used to summarize results. Relationships between number of patient referrals and other factors were assessed by chi-square statistics.

Summary of Results: Response rate was 78%, 56% were male; mean age was 24.9 ± 0.3. Duration of Nuclear Medicine training was 3-4 days (76%), Lecturing was the most common method (92%), patient case discussions (32%), topic discussion (28%). Forty-four percent of interns have sent patients for therapeutic consultation and 20% for diagnostic consultation. Suggested teaching methods include lecturing (68%), patient case discussion (56%), and topic discussion (28%). Most (84%) said that availability of a complete Nuclear Medicine department would increase referrals. No correlations between teaching methods, study duration and number of referrals were found.

Discussion and Conclusions: Nuclear Medicine consultation is still low. Patient case discussion should be increased as part of teaching. Availability of a complete Nuclear Medicine service would increase referrals in 84% of responders.

Take-home messages: Patient case discussion should be increased as part of teaching in Nuclear Medicine.
**#10HH11 (25865)**
A General Assessment of a New Residency Program in China

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**Background:** The State Council of China has recently issued a document stating that all medical graduates who pursue professional practice must undergo residency training by the year 2020. To prepare for this new transition, teaching hospitals in all provinces have been expected to implement residency training programs by 2015. We describe a new internal medicine residency program at a major university medical school in central China.

**Summary of Work:** We conducted a site review in 2014 including exploratory observation of the wards, informal interviews, review of curricular documents, and a survey administered to internal medicine residents.

**Summary of Results:** Curriculum was adopted from national guidelines, which has a strong focus on process measures, rather than specific outcomes. Evaluations of attendings and residents were based on a 100-point system and combined multiple non-related assessment items together into single categories. Resident engagement on rounds was passive. Faculty reported inadequate support and time for teaching due to priorities of patient care and research.

**Discussion and Conclusions:** Basic elements of a residency training program are in place but there is much room for improvement. Priorities for further development in this residency program include 1) reforming the curriculum and evaluations to reflect outcome-based education, 2) faculty development of teaching skills, and 3) re-structuring of faculty incentives.

**Take-home messages:** 1) A general assessment of a major university-affiliated residency program shows that there is much room for improvement. 2) Similar deficiencies in other training programs in China may represent an opportunity to address a major public health issue.

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**#10HH12 (26750)**
Creating opportunities for SAS doctors and dentists in Scotland

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**Background:** In 2011 NHS Education Scotland (NES) obtained funding of £1 400 000 over 3 years to provide and enable new development opportunities for SAS doctors and dentists. The project aimed to provide funding to optimise skills and their potential to provide high quality patient care.

**Summary of Work:** The project consists of a national implementation group, local delivery by a managed network of SAS educational advisers in all boards who were lead, supported and developed within their roles by a NES team. Training needs analyses were performed at baseline and 3 years. Impact was assessed via reports from all successful applicants and their clinical directors and commissioning of an independent qualitative evaluation from the Scottish Medical Educational Research Collaborative (SMERC).

**Summary of Results:** Perceived educational needs of the SAS cohort included postgraduate qualifications, experiential learning (CESR and non CESR) and management skills. 85 applicant have received funding for experiential learning, post graduate qualifications, accredited programmes and courses. The SAS Leadership and Management Programme and Scottish SAS Rheumatology Ultrasound Programme were funded, developed and launched. The SMERC group reported "clear synergy between the aims and objectives" of the project and positive impact of new skills and knowledge for those engaged with the project.

**Discussion and Conclusions:** Implementation of this project has been successful. Project design delivers equity of access to both funding and support to enable all Scottish SAS to deliver high quality service to patients.

**Take-home messages:** The Scottish SAS Development Project is successfully providing exciting educational and development opportunities for SAS doctors and dentists.
Residents' participation in a system of educational quality management

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Background: In the Netherlands the CanMEDS was adopted. An advisory board of the government formulated outcomes and information-rich activities were identified. Quality indicators stimulated internal quality assurance of education based on: regional education (collaborating teaching/academic hospitals), educational requirements for hospitals (programme directors) and medical staff (each discipline), and quality of residents’ education.

Summary of Work: In order to meet these rules from 2010 to 2014 we developed a system for educational quality management (SEQM) in which residents could contribute to a safe learning environment (SLE) in our teaching hospital (> 230 staff, > 150 residents). The goal of SEQM is to improve patient safety and care, and provide a SLE for staff and residents by monitoring a culture of the SLE through a PDCA cycle and stimulate using this also at departmental level through active participation of staff and residents. The Programme Directors Committee, hospital board and Residents Association approved SEQM. We used the following instruments: clerkship evaluation, baseline measurement, pre-visit for accreditation, internal audit, the DRECT and SETQ (Dutch Residents Educational Climate Test and System for Evaluation of Teaching Qualities) and exit interviews.

Summary of Results: Yearly the outcome level of these reports were shared with the stakeholders.

Discussion and Conclusions: Through these years gradually become clear to staff and especially to residents that SEQM provide valuable information on their progress. In particular the role of residents during PDCA cycle in SEQM will be discussed.

Take-home messages: Involving residents in a feedback in a SEQM helps them learn early in their career about the importance of a quality system and how to improve it.

Compassionate Engagement in Medical Residents

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Background: Studies in medical residents show high engagement levels as reflected by high dedication, vitality and vigour. These high levels of engagement are associated with improved personal health and better quality of patient care, e.g. (perceived) appreciation by patients. Compassionate engagement was operationalized based on the dimensions of engagement (dedication, vitality, and absorption) and compassion (emotional and cognitive empathy, and authenticity).

Summary of Work: Engagement was assessed with the Utrecht Work Engagement Scale and the compassion-scale measured authenticity, emotional empathy and cognitive empathy (n=49; self report). The reference group consisted of 1208 health professionals (online survey).

Summary of Results: A preliminary analysis demonstrated a higher mean score on emotional empathy in medical residents (4.0 ± 0.46; n=49) as compared to the reference group (3.8 ± 0.58; n=1208). The score on cognitive empathy (4.2 ± 0.52) and authenticity (4.1 ± 0.45) equals the result in the reference group (4.1 ± 0.5 on both subscales). Engagement (3.9 ± 0.83) correlated significantly with authenticity (r=.45; p<.001). Appreciation by patients correlated moderately with the total compassion score (r=.48; p<.001).

Discussion and Conclusions: Compassionate engagement levels in medical residents appear to be average in comparison with a big reference group of health professionals. Compassion was positively correlated with appreciation by patients.

Take-home messages: As compassion can be considered as the heart of a healthy engaged doctor we advocate more research to investigate the relationship with (perceived) quality of patient care. (This study has been unrestrictedly supported by Springer Media and Carrierecentrum voor Artsen)
#10HH15 (27242)
Life of a resident in hospital

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Background: The concept of Residency program has been introduced to NUH in Singapore 5 years back and since then there has been a change in the work flow of the trainees. We wanted to study the time management of residents in the hospital.

Summary of Work: Objective: To determine the time management of residents doing various activities in the hospital
Methodology: 77 residents responded to an electronic survey which was e-mailed to all the Internal Medicine residents and senior residents in NUH.
Summary of Results: Almost 80% of the residents spent an average of 80 hours per week in hospital. 64% of the residents spent most of their time in direct care of patients. For direct care of patients, 36%, 29.5% and 13% of the residents spent most of the time in history, communicating to patients & families and physical examination respectively. For indirect care of patients, most of the residents spent most of their time in documentation but 23% of the residents spent most of their time in searching for documents and staff. 65% of the residents multitask. Only 13% spend most of their time teaching others.
Discussion and Conclusions: Most of the residents spent most of their time in direct care of patients but only 13% spend most of their time in physical examination which is concerning and needs to be further studied. They also need to be educated to avoid multitasking.
Take-home messages: The need to spend time on physical examination to avoid unnecessary investigations should be emphasized. Residents need to be trained to be teachers.

#10HH16 (24774)
Changing Poor Behaviour in Obstetrics and Gynaecology Trainees: An Experience in East Scotland

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Background: The National Training Survey (NTS) 2014 reported that obstetrics and gynaecology (O&G) has the highest incidence of bullying and undermining and the poorest supportive working environment in comparison to other specialities. This is known to have an adverse effect on doctors’ training and can result in poor patient care. Specific departmental issues have been identified in O&G in the East of Scotland Region, having received ‘red flag’ indicators in the NTS 2013 and 2014.
Summary of Work: This was further investigated using an anonymous online survey of medical staff and focus groups. Several themes were identified. A departmental action plan was developed. With support from leaders and management, compulsory training sessions regarding team working and behaviour management were introduced. Policies introduced included a framework for handovers, trainee mentorship scheme and the introduction of behaviour leads for nursing and midwifery staff.
Summary of Results: The personal experience of bullying and undermining was 15% and 30% respectively. 48% medics had witnessed undermining. The perpetrators of these behaviours were consultants (40%), midwives (40%) and nurses (20%). Rigorous on-going monitoring is planned. Data from a repeat online survey in August 2015 will be presented.
Discussion and Conclusions: To optimise training and improve patient care, it is important to recognise and appropriately manage poor workplace behaviour. Having identified key issues, a multifaceted strategy was developed to enhanced staff awareness and implement staff training.
Take-home messages: • Where a permissive culture of poor behaviour is accepted both trainees and patients are at risk • Tackling these cultural issues requires a multifaceted approach at the individual, team and organisational level
Physicians' Emotional symptoms and family function network

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Background: Physicians are vulnerable to the demands of their practice. The level of family functioning determines the quality of psychosocial support of its members. We seek to understand its functioning to support health physicians with opportunity.

Summary of Work: 42 of 70 subjects answered the Scale Efficiency in Family Functioning, E-EFF17, consisting self-administered 17-items, General Health Questionnaire and Goldberg, GHQ-28, correlating its subscales with demographic variables and stress levels and symptoms.

Summary of Results: The E-EFF17 index increased in correlation with increased academic year (mean of 43.45, 44.0, 45.50 and 47.20 for R1, R2, R3 and R4 respectively), the total mean of 45.50 (SD 3.41). Therefore identity, family stability and growth tend to increase with seniority. For the GHQ-28 no significant difference. Women had a higher presence of anxiety and insomnia, the index somatic symptoms, and general health with mean 33.91, 27.27 and 25.28 vs men with greater discomfort of somatic symptoms, overall health index and anxiety and insomnia 16.34, 15.28 and 14.41. High statistical significance was found in depression and those who reported having experienced some form of abuse with high scores on the General Health Questionnaire. The mean rate of depression was 12.58 for those who feel they have suffered some form of abuse and for not 4.33.

Discussion and Conclusions: In the last years of the residency, family functioning tends to improve for what should be noted that quality of life of the early physicians could be fragile for developing dysfunctional families and emotional states.

Take-home messages: We recommend breaking the ice on this topic in academia and research.

Team based learning (TBL) under pressure – Assessing the effectiveness of TBL as an educational tool to deliver postgraduate medical education in a time-limited setting

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Background: Team-based learning (TBL) has a well established role within medical education, however it remains relatively uncommon within the UK, especially in the postgraduate setting. Published evidence can be difficult to compare due to variation in setting and format, giving need for further writing on methods and outcomes.

Summary of Work: A stand-alone, one-hour TBL session on anticoagulation management was developed to fit with the time-pressured constraints involved in teaching junior medical staff during work hours. The session included random team allocation, individual readiness assurance testing (RAT), team RAT with immediate feedback, four S’s and an incentive structure (Haidet et al 2012). The session was delivered on multiple occasions to different student populations. Outcome was assessed in terms of numerical feedback addressing topic importance, session content and session presentation, in addition to optional free-text feedback.

Summary of Results: The session was successfully delivered on multiple occasions within the one hour timeframe. Average scores given across the three domains were higher than average feedback scores for all teaching sessions received over the previous 12 months by the same student population. Free-text feedback was universally positive, describing benefits of increased interaction, effective group working and application of knowledge to real life scenarios.

Discussion and Conclusions: Modified TBL resulted in superior feedback scores in comparison to other teaching methods. Universally positive learner feedback shows the potential of TBL methodology to successfully deliver postgraduate education in a time constrained environment.

Take-home messages: The educational principles of TBL can be successfully adapted for the time-constrained environment of postgraduate medical education, although appropriate session planning is essential.
## #10HH19 (24062)
### An innovative low cost method of auditing Radiology residents using an existing feature in RIS-PACS

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**Background:** The audit of independently reported imaging studies by Diagnostic Radiology residents is an important method of assessment and feedback. The audit requires a software system which can be integrated with existing Radiology Information System-Picture Archiving and Communication System (RIS-PACS). This may be very expensive and burden to department finances.

**Summary of Work:** In lieu of dedicated expensive software solution, there was a need to explore an innovative method to bypass its requirement. We found that the ‘conference folder’ option in our existing RIS-PACS (GE Centricity 4.2.25 and 3.2) can be customised to be used for audit purpose. The audit director in our department periodically makes a work list in a conference folder for audit of each resident. The conference folder is then assigned to an auditor to audit a particular resident.

**Summary of Results:** This system of using an existing option in our current RIS-PACS for the purpose of audit is being used successfully since 2012. The auditors find it easy to check the report, to access prior and follow up imaging studies for comparison. The residents receive feedback on major discrepancy and their error rates are tracked. One of the drawbacks of this system is additional time required to create work list.

**Discussion and Conclusions:** Audit is an important method of assessment and feedback for Diagnostic Radiology residents. The existing RIS-PACS may be used to offer a simple, cost effective solution.

**Take-home messages:** The existing RIS-PACS can be used for the purpose of auditing Radiology residents, instead of expensive dedicated software.

## #10HH20 (26531)
### What can we learn from resident exit surveys? A SWOT analysis of results

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**Background:** Understanding personal factors and impacts of the educational environment on residency experience is critical yet difficult to assess during regular interactions and routine assessments. Residents may feel uncomfortable discussing issues openly for multiple reasons, including the perception of power imbalance, difficulty initiating change and/or concern over future job opportunities.

**Summary of Work:** An annual, comprehensive, anonymous, on-line exit survey is conducted with results collated and reviewed for themes and trends. Specifically this lends itself to SWOT analysis with review of strengths, weaknesses, opportunities and threats regarding the conduct of residency education and the learning environment.

**Summary of Results:** While the overall learning environment is positive, challenges exist with balancing work and personal life and managing stress. There are opportunities to enhance preparation for clinical practice, particularly management and transition to practice. Career prospects and finding employment may be a threat; this is balanced by a strong sense of being prepared for future clinical work.

**Discussion and Conclusions:** Reviewing the rich data uncovered by consecutive years of resident surveys provides a framework for establishment of specific activities addressing deficiencies identified in the learning environment. Noted strengths are useful material for recruitment of residents, reporting to funding agencies and program review. Surveys provide opportunities for residents to highlight sensitive concerns including disruptive and/or unprofessional behaviours, promoting reflection and self-awareness by faculty.

**Take-home messages:** A carefully constructed exit survey, completed at the conclusion of residency training provides crucial information about the educational environment encouraging a focus on opportunities and mitigation of threats to safe, supportive, learning in residency and transition to future practice.
Accuracy of musculoskeletal traumatic film interpretation by interns

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Presenter: Meena Permathai

Background: Although there was no radiological course in intern clerkship, the internship could learn musculoskeletal (MSK) traumatic plain film with the orthopedists. So, we would like to assess accuracy of MSK traumatic plain film by interns.

Summary of Work: A cross-sectional descriptive study of 395 traumatic cases was performed during October 1st to December 31st, 2013. MSK films in Emergency room, initially interpreted by interns, were included in this study. Two radiologists reviewed these films on the following day.

Summary of Results: Accuracy of MSK film interpretation was 98.2% (388/395). Only 7 cases were misdiagnosed but no serious complication or harmful to the patients. 3 cases were false positive (which are nasal bone, foot and knee films) and 4 cases were false negative (which are hand, wrist, foot and lumbar spine films).

Discussion and Conclusions: Although our learning program of MSK traumatic film was performed by orthopedist directly, but intern's film interpretation was high accuracy rate. Interns can interpret plain film in non-complicated disease or condition; because imaging finding is striking and medical history and physical examination are important role to help for diagnosis. The orthopedists can help them to address MSK film correctly.

Take-home Messages: The better learning is direct patient examination by self, especially traumatic case. Films are role to confirm diagnosis.
Plenary: More than nice: primary care/rural experience is an imperative for health professions education

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Many layers of reasons justify the inclusion of learning in primary and/or rural health care, under a family medicine model, for undergraduate as well as specialty curriculum. There is a recognized need to diversify scenarios to take advantage of contextualized learning. Including primary/rural care experiences helps a clearer understanding of social determinants of health and disease, facilitates interprofessional team building for clinical practice, and acquisition of specific competences, while exposing learners to the health system delivery. This perspective brings new challenges that medical schools and faculty members have to face. Brazilian stories and international experiences will help illustrate why it is more than just nice.

Plenary: How effective are selection methods in the healthcare professions? Evidence from a systematic review

Fiona Patterson*, University of Cambridge and Director of Work Psychology Group, UK

Across the globe, selection and admissions processes continue to attract strong public interest, and often criticism regarding accuracy, fairness and widening participation. Whilst academic achievement is consistently a good predictor of subsequent performance, it cannot be assumed that those with high academic ability alone can be trained to become competent clinicians. Little research attention has focused on methods that reliably evaluate important (non-academic) personal attributes, values and motivational qualities. In exploring these issues, results of a systematic literature review are presented to examine the quality of evidence for various selection methods. Implications for policy and practice are discussed.