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SESSION 11

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Session 1: Plenary

1A Facts and fiction in global health
Hans Rosling (Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden; and Gapminder Foundation, Stockholm, Sweden)

Most people store information about the world in a mental model originating from colonial times. This mental model has two store boxes, one for industrialized countries and one for developing countries. Using the Gapminder method to convert statistical time series of health statistics the emerging moving graphics show that there are no longer two categories of countries in the world. The old division in industrialized and developing countries has been replaced by a world with a continuum of socio-economic development. Most Asian countries are presently modernizing twice as fast as West-Europe did in the past when it comes to lowering child mortality, reducing family size and growing the economy. They are clearly catching up. A new dichotomy may form: on the one hand the 4-5 billion people moving through the health transition towards longer lives with cell phones, washing machines and human rights and on the other, 1-2 billion people stuck in vicious circles of poverty and insecurity.

1B Rethinking Medical Education: Some needed, overdue reforms
Hilliard Jason (University of Colorado Denver, USA)

Beyond some admirable innovations in a subset of the world’s medical schools (and only in parts of some of those innovative schools), much of what happens too often, day to day, in many medical schools is seriously inappropriate. Our dominant activities and strategies derive from patterns that were established long before there was systematic research about human learning and well before there were journals or other vehicles for sharing and enriching teachers’ thinking about their work. As best as we can tell, most teachers in most medical schools, however well-intentioned some of them may be, are insufficiently prepared – and many are temperamentally unsuited – for their work as educators. They have read little about best practices in teaching and learning and they are largely uninformed about the accumulated findings of decades of educational research. Even fewer medical teachers know about the recent, rapidly growing body of evidence from brain research that can now guide many of our instructional, communication and relationship strategies. In this presentation I will offer my sense of some of our more serious flaws and some practical suggestions of what is needed if we take seriously our obligation to prepare the best possible physicians for the future.
Session 2

2A LARGE GROUP SESSION: New horizons in simulation
Roger Kneebone (Imperial College London, United Kingdom); Debra Nestel (Monash University, Australia)
This session will present and critique two innovative concepts, locating both within relevant literature. Patient focused simulation (the hybrid combination of Simulated Patients with inanimate simulators to create a realistic clinical context) is becoming increasingly influential for learning and assessment of clinical procedural skills. Distributed simulation (the use of lightweight inexpensive simulation environments) offers portable high-fidelity simulation without requiring the resources of a dedicated skills centre. These concepts significantly expand the potential of simulation in healthcare education.

2B SYMPOSIUM: Ethical issues in medical education research
Chairperson: Steven Kanter (University of Pittsburgh School of Medicine, USA). Panel: John Bligh (Peninsula Medical School, United Kingdom; Brian Hodges (University of Toronto, Canada); Charlotte Ringsted (Centre for Clinical Education, Copenhagen, Denmark)
It is important to treat human research participants in accordance with contemporary ethical standards. However, regulations and policies vary by country and institution. This session will explore the intellectual and moral integrity of medical education research, highlight procedures for ethical approval in selected countries, and discuss options for researchers who do not have access to a formal approval process.

2C SYMPOSIUM: Current curricular changes in Spanish Medical Schools (conducted in Spanish)
Chairperson: Joaquin Garcia-Estañ (President of Conferencia Nacional de Decanos de Facultades de Medicina Españolas, Murcia, Spain). Panel: Deans of Medical Schools
At present, Spanish Medical Schools are involved in a curricular change process in order to adapt to the Bologna Declaration. This process represents an opportunity to modernize the medical curriculum in our country. The aim of this session is to review the current situation in the different Spanish medical schools involved in the process of curricular reform.

2D RESEARCH PAPERS: Stress in students and junior doctors
2D1 Identifying students in trouble by looking at learning strategies and motivational variables
Goetz Fabry*, Marianne Giesler (Albert-Ludwigs-University, Department of Medical Psychology, Rheinstrasse 12, Freiburg 79104, Germany)
Introduction: Academic success in medical education depends heavily on establishing an efficient and effective way to learn. To achieve this, students need to use cognitive strategies to organize, elaborate and critically review the subject matter; metacognitive strategies to plan, control and evaluate their learning; resource strategies to manage internal and external variables like attention and effort or using the appropriate literature. In addition motivational variables are also important since they influence e.g. the perseverance while learning.
Research question: Can we identify unfavorable patterns of students’ learning by looking at how they use learning strategies during their first academic year?
Methods: A cohort of medical students (N=300) completed a questionnaire at three measuring times during their first academic year (longitudinal within-subject design). The Questionnaire for Measuring Learning Strategies in higher education (LIST) was used, which is a slightly modified and abridged German translation of the MSLQ. In addition we measured different aspects of study motivation (strength of motivation, intrinsic vs. extrinsic motivation, motivational regulation) and included the results of the written test in medical psychology as a measure of academic success. We used the learning strategies specified by the students at T1 to conduct a cluster analysis and compared the clusters with respect to
differences in sociodemographic and motivational variables. In addition we looked at the academic achievement at T3.

**Results**: 171 complete data sets could be used for the analysis. While either a four or a five cluster solution would have been statistically appropriate, we choose the four cluster solution with regard to our conceptual framework. By means of ANOVA and Scheffé post hoc tests we found significant differences in the use of learning strategies among each of the clusters. Three clusters, which comprise the majority of students, exhibit favorable patterns of learning strategies (e.g. frequent use of cognitive and meta-cognitive learning strategies) which result in good academic achievement. However, students in a fourth cluster (N=22) are obviously in trouble. They make less use of all important learning strategies resulting in worse test results.

**Discussion and conclusion**: We could identify a group of students that needs special attention and support, since their learning behaviour seem to be at odds with the requirements of the learning environment. A tailored intervention oriented at learning strategies might help these students to develop a more efficient learning behaviour to catch up with their peers. However, since the use of learning strategies is the result of an interaction between the individual student and the learning environment, it is important to educate all medical teachers as to how they can foster the use of favorable learning strategies (e.g. by using tasks that reward higher order thinking skills and self directed learning).

**References**:


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**2D2 Performance of a new screening tool for identifying medical students whose distress places them at risk for suicide or dropping out of school**

Dyrbye*, Szydlo, Schwartz, Downing, Sloan, Shanafelt (Mayo Clinic College of Medicine, 200 First Street SW, Rochester, MN 55905, United States)

**Introduction**: Psychological distress is common among medical students. Students with the greatest degree of distress are at highest risk for developing suicidal thoughts or seriously considering dropping out of medical school. Few students seek help of their own initiative and, for many, distress goes unrecognized and untreated. Expanding class sizes, use of multiple campuses, and the lack of practical screening tool magnify the challenge of identifying students whose degree of distress is placing them at risk for potentially serious consequences. It has been difficult to identify students whose degree of distress places them at risk for serious personal and professional consequences as existing instruments to assess distress are long, cumbersome to analyze, and typically measure only 1 domain of distress. In this study we evaluate the performance of a new screening instrument, the Mayo Well-Being Index (MWBI), developed to assess medical student distress across a variety of domains and identify medical students in severe distress.

**Methods**: The methods used to develop the MWBI have been previously reported.1 All medical students at 7 U.S. medical schools were invited to answer the MWBI items along with questions about suicidal ideation and thoughts of dropping out. Students were defined as being in severe distress if they endorsed either suicidal ideation or having serious thoughts of dropping out of medical school. This combined outcome was selected as the primary dependent variable for evaluating the MWBI as our prior research has found both these outcomes are strongly correlated with severity of medical student distress.2,3 The diagnostic efficacy of the MBWI was assessed by calculating the sensitivity, specificity, likelihood ratio, and probability.

**Results**: Of the 4287 medical students surveyed, 2248 students responded (response rate = 52.4%). 18 of the responding students failed to answer the suicidal ideation or drop out questions and were excluded, yielding 2230 students for analysis. 414 (18.6%) students had severe distress (range by medical school site 13.8% to 26.4%). Students with severe
distress were more likely to endorse each of the seven MWBI items than students not in severe distress (all \( p < 0.0001 \)). The table shows the sensitivity and specificity of the MWBI for detecting students in severe distress. Likelihood ratios for severe distress increased from 1 to 26 with more positive responses to index items.

The threshold score provides a way to estimate the risk of a group of students scoring at or above a score (e.g. score is \( \geq 2 \), \( \geq 3 \), etc.) being in severe distress. If the prevalence of severe distress is 18% (i.e. pre-test probability) then students with scores \( \geq 4 \) would have a 39% post-test probability of being in severe distress; if the prevalence of severe distress is is 14% (the lowest prevalence in our sample of schools) students with scores \( \geq 4 \) would have a 32% post-test probability of being in severe distress.

<table>
<thead>
<tr>
<th>MBWI score</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Probability of severe distress*</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \geq 0 ) points</td>
<td>100.00</td>
<td>0.00</td>
<td>18.00</td>
</tr>
<tr>
<td>( \geq 1 ) points</td>
<td>97.83</td>
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<td>22.60</td>
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<td>( \geq 2 ) points</td>
<td>90.58</td>
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<td>( \geq 3 ) points</td>
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<td>61.45</td>
<td>31.76</td>
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<td>( \geq 4 ) points</td>
<td>68.36</td>
<td>76.38</td>
<td>38.82</td>
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<td>( \geq 5 ) points</td>
<td>41.55</td>
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</tr>
<tr>
<td>( \geq 6 ) points</td>
<td>14.98</td>
<td>97.80</td>
<td>59.78</td>
</tr>
<tr>
<td>( \geq 7 ) points</td>
<td>2.90</td>
<td>99.89</td>
<td>85.28</td>
</tr>
</tbody>
</table>

** post-test probability of severe distress given the pre-test probability of 18%.

Discussion and conclusion: The MWBI when used as a screening device could help medical schools identify students whose degree of distress places them at increased risk of serious adverse consequences.

References:

2D3 The relation between medical students’ stress, self-regulation and reflection

Mirjam van Lohuizen*, Kristi Lonka, Jan Kuks, Jan Boileffs, Janke Cohen-Schotanus (University of Groningen and University Medical Center Groningen, A. Deusinglaan 1, Groningen 9713AV, Netherlands)

Introduction: Stress and burn-out are major problems in healthcare. Apart from the individual suffering from such a condition, stress and burn-out affect (lifelong) learning, professionalism and even patient safety. The root of stress and burn-out may lie as early as in undergraduate medical education. Earlier studies have shown that good self-regulation and good reflection can enhance learning. There are indications that self-regulation and reflection also affect the stress levels students experience, but so far, empirical evidence is lacking.1 We tested the hypothesis that, conceptually, stress is negatively related to self-regulation and reflection in both a Scandinavian and a Dutch study, using different instruments in each setting.

Methods: The Scandinavian students (n = 1017) filled in the MED NORD questionnaire, which contains separate scales for stress, self-regulation and reflection. The Dutch students’ (n = 144) levels of stress and reflection were assessed using the GHQ-12 and the Groningen Reflection Ability Scale (GRAS) respectively. The Surface-disorganised scale of the Approaches to Learning at Work Questionnaire (ALWQ) was applied to assess self-regulation. In both studies, stepwise multiple regression was used with stress as the dependent variable. In step 1 reflection was the independent variable and in step 2 self-regulation was added as independent variable.
Results: After checking for outliers and influential cases, 1010 students remained in the Scandinavian study and 133 students in the Dutch study. Stress was negatively related to reflection (Scandinavian $R^2=0.005$, $\beta_{reflection}=-0.07$, $t=-2.27$, $p<0.05$; Dutch $R^2=0.049$, $\beta_{reflection}=-0.22$, $t=-2.60$, $p<0.05$). Adding self-regulation in the second step significantly improved the model (Scandinavian $R^2_{change}=0.137$, $p<0.001$; Dutch $R^2_{change}=0.051$, $p<0.01$). In the step 2 model, reflection was no longer significantly related to stress while self-regulation was negatively related (Scandinavian $\beta_{reflection}=-0.01$, $t=-0.45$, $p=0.652$; $\beta_{self-regulation}=-0.375$, $t=-12.70$, $p<0.001$; Dutch $R^2=0.101$, $\beta_{reflection}=-0.11$, $t=-1.23$, $p=0.22$; $\beta_{self-regulation}=-0.251$, $t=-2.72$, $p<0.01$).

Discussion and conclusion: Stress proved to be negatively related to self-regulation and reflection even when different questionnaires are used to measure these three concepts. Literature indicated that reflection and self-regulation might influence stress in medical students.1 The similarities between our Scandinavian and Dutch findings provide some of the first empirical support for this suggestion, though the relations are not independent. These findings make it seem likely that interventions aimed at increasing self-regulation or reflection could also prevent some of the adverse effects of stress.

References:

2D4 The effects of stress on the clinical performance of residents in simulated trauma scenarios
Adrian Harvey, Glen Bandiera, Avery B Nathens, Vicki R LeBlanc* (University of Toronto / St Michael's Hospital, 200 Elizabeth Street, 1E5-565, Toronto M5G 2C4, Canada)

Introduction: The effects of stress on performance in acute clinical situations are poorly understood. The goals of this study were to 1) examine the effects of stressful scenarios on the performance of residents in simulated trauma resuscitations; and to 2) determine whether cognitive appraisals1 (subjective assessment of perceived demands and resources) are associated with stress responses and performance impairments during high acuity events.

Methods: Thirteen Emergency Medicine and General Surgery residents were evaluated in high (HS) and low (LS) stress simulated trauma resuscitation scenarios. Each scenario lasted 20 minutes and was run using a Laerdal SimMan® placed in a realistic trauma bay. A registered nurse and respiratory therapist were present to aid in the resuscitation. Scenarios were matched for difficulty. The pattern of injury in both was similar (closed head injury, rib fractures with pneumothorax, femur fracture, hypotension from splenic laceration), as were the appropriate management steps. Stressors in the HS included negative emotional content (young victim who was 15 weeks pregnant; minor discord between team members), social evaluative stress (presence of a distraught paramedic (victim’s boss) who constantly questioned the team’s performance) and noise (increased volume of monitors/alarms). Subjective (cognitive appraisals, State Trait Anxiety Inventory [STAI]) and physiological (salivary cortisol) measures of stress were collected at baseline and in response to each scenario. Performance was assessed with global ratings & checklist scores of clinical performance, and the Anaesthesia Non-Technical Skills tool (ANTS). Post scenario recall was assessed by completing a standardized trauma history form.

Results: Repeated-measures ANOVAs revealed that post scenario STAI scores, cognitive appraisals and cortisol levels were higher in the HS scenario compared to the LS scenario ($p<0.05$). Similarly, checklist scores and post-scenario recall were significantly lower in the HS scenario compared to the LS scenario ($p<0.05$). Cognitive appraisals were positively correlated with cortisol levels ($r=.59$, $p<.05$ (Pearson coefficients)), and negatively correlated with performance in global ratings ($r=-.35$, $p<.05$), checklist evaluations ($r=-.41$, $p<.05$) and post-scenario recall ($r=-.71$, $p<.05$).
Discussion and conclusion: In high acuity events, trainees' cognitive appraisals play a significant role in stress and performance responses to stress: the more a situation is perceived as a threat (perceived demands exceed perceived resources), the greater the stress responses and performance impairments. Therefore, training for acute events that extends, beyond the skills and knowledge required during such events, to include training in coping with acute stressors may further enhance performance and patient safety.

References:

2E SHORT COMMUNICATIONS: Assessment: Written

2E1 Use of an question-specific algorithm decreases variability in examiner cohorts in written assessment

Kelly E, Spooner M*, Cunningham A, Branagan P, Akasheh N, Meagher F, Gunaratnam C, McElvaney NG (Department of Medicine, Royal College of Surgeons in Ireland, Education and Research Centre, Beaumont Hospital, Beaumont Road, Dublin 9, Ireland)

Background: We evaluated a question-specific algorithm in the correction of short-note questions (SNQs) and compared variability in marking between essay type questions (EQ) and SNQs.

Summary of work: 190 students were assessed. The EQ was corrected by 2 specialists (consultants in that area) and 2 non-specialists. A model answer was provided. Each of the nine SNQs was divided between 2 examiners – 1 specialist, 1 non-specialist. A question-specific algorithm was supplied for each SNQ. Examiners rated the usefulness of the marking schemes using a 5-point Likert scale.

Summary of results: In the EQ, specialists gave a higher grade (54.3 +/- 0.9) versus non-specialists (51.5 +/- 0.7, p=0.01). There was no difference between specialists’ and non-specialists’ grades in SNQs (54.5 +/- 0.3 versus 55.8 +/- 0.3 respectively. 60% of non-specialists described the algorithm as “useful” or “excellent” versus 30% of specialists. 55% of specialists described the EQ model answer as “better” than previous years versus 68% of non-specialists).

Conclusions: We show significant differences between specialist and non-specialist examiners in the correction of EQ but no difference in SNQs, for which question-specific algorithms were provided. The difference may have been due to the contrasting attitudes and thus application of the marking schemes provided.

Take-home messages: Use of a question-specific algorithm decreases variability in grades awarded by distinct examiner cohorts.

2E2 Learning outcomes assessment through Open Book Exams

Claudio Lemamda* (Universidad Católica de la Santísima Concepción, Conde de la Conquista 264, Puerto Domínguez, Alonso de Ríbera 2850, Talcahuano 4275585, Chile)

Background: Achievement of quality standards in Medical Education is not easy to assess. Critical thinking and integration of knowledge are issues particularly difficult to evaluate. Open Book Exams (OBE) have been considered as useful tools for this purpose.

Summary of work: A 48 medical students group was divided in two halves in 2008. A written test based on questions to solve sequentially a clinical case was applied twice a year. Control group and study group performed normal test and OBE test respectively. At the end of the year marks for both were compared. An inventory designed to measure critical thinking ability was also applied (TACTT).

Summary of results: Surprisingly, a minority of students used resources or references in both OBE. Besides, no statistical significance was found on measuring critical thinking before - after test. Marks improved, but there was no clear correlation with OBE users.

Conclusions: OBE may be used to assess critical thinking and learning outcomes for PBL methodology. OBE should not be used as the only tool for integrative learning outcome assessment. It must be part of a wider set of evaluation tools.
**Take-home messages**: Wider research and larger samples must be used when designing a study like this. OBE is useful to assess learning outcomes and critical thinking, but exams must be carefully prepared and always supported by other evaluation tools.

**2E3 Using modern measurement theory to assess the quality of Extended Matching Questions (EMQs) examinations**

Matt Homer*, Godfrey Pell, Bipin Bhakta, Mike Horton, Jonathan Darling, Alan Tennant (University of Leeds, Medical Education Unit, School of Medicine, University of Leeds, Leeds LS9 2JT, United Kingdom)

**Background**: EMQs are widely used in medical education, and such high stakes tests must be both reliable and valid. Modern psychometric theory offers a comprehensive approach to evaluating these key characteristics.

**Summary of work**: Data from a 240 item EMQ exam of 267 4th year undergraduate medical students across five specialities were fitted to the Rasch measurement model. The test was examined to ensure that: all items measured the same construct and provided an appropriate range of difficulties; that distractors worked appropriately; and that there was an appropriate focus of items around the passmark (set separately by an adapted Ebel method).

**Summary of results**: Initially, there was a degree of misfit to the Rasch model but after adjusting for interdependency amongst some items, data were found to fit (Chi-square=45.4; df=36; p=0.14; reliability=0.86). The items were found to measure the same construct, have a good range of difficulty, and appropriate focus around the passmark. However, many items failed to have meaningful distractors.

**Conclusions**: The data from the EMQ exam satisfied Rasch model requirements, including unidimensionality. The exam was well targeted, but some items lacked useful distractors.

**Take-home messages**: Rasch analysis allows examiners to investigate the psychometric characteristics and targeting of their tests, and to identify potential areas for improvement.

**2E4 A Simplified MCQs interpretation guide for faculty: a Pakistani School’s experience**

Mobeen Iqbal*, Sadia Akram, Sabir Tabassum, Syed Alamdar Shah (Shifa College of Medicine, Pitrus Bukhari Road, H-8/4, Islamabad 0000, Pakistan)

**Background**: MCQs analysis is an important step in quality assurance and student learning. Most of the faculty members are not aware of the processes involved in analysis and hence unable to judge the quality of MCQs.

**Summary of work**: We introduced an interpretive report and a narrative summary based on analysis of MCQs assessments in a simplified format. These reports were subsequently discussed in formal faculty forums thus refining future assessments and improving student learning. We also conducted a survey looking at the response of the faculty members to these presentations.

**Summary of results**: Ten assessment reports have been generated so far. The reports comprised of distribution curve & spread of scores, reliability, discrimination (DI) and difficulty (P) indices. MCQs were reported as easy (P>0.70) and hard (P<0.30). MCQs with DI<0.20 were also reported with subcategories of easy and hard based. A narrative summary of these measures suggested explanations and possible remedial measures for coordinators. The faculty members appreciated the reports and thought that these will be helpful in teaching/learning of students.

**Conclusions**: The interpretation report for MCQs was considered useful and was thought to be helpful in identifying knowledge gaps and refining MCQs structure.

**Take-home messages**: MCQs analysis can be helpful in quality assurance and assisting faculty members in teaching and students’ learning.
Testing the predictive validity of the students continuous assessment form used at the Aga Khan University

Hasnain Zafar*, Shazia Sadaf, Sadaf Khan (Aga Khan University, Department of Surgery, Stadium Road, PO Box 3500, Karachi 74800, Pakistan)

Background: Students’ performance during final year clerkship at the Aga Khan University (AKU) in the disciplines of Medicine, Surgery and Family Medicine is observed and scored on the SCA against a descriptive behavioral anchor rating scale.

Summary of work: The objective of this study was to determine the predictive validity of the Students Continuous Assessment (SCA) form used in final year undergraduate clerkships at the Aga Khan University. Predictive validity was assessed by correlating SCA scores with the End of Clerkship Clinical Examination (ECCE) and the Final Certifying Written Examination (FCWE) results of all the students of the academic year 2007 – 2008 using correlation matrix and the significance of the difference between correlations was calculated using Olkins Z score.

Summary of results: Scores of 82 students were reviewed and analyzed. Analysis of the scores showed good correlation between the overall SCA marks with the ECCE and the FCWE marks. Further analysis of the SCA form showed that the scores obtained on the knowledge component of the form correlated significantly well with the FCWE scores.

Conclusions: The SCA form demonstrates considerable predictive validity in predicting an overall impression of the students’ performance at the written examination. This can be further enhanced by effective discrimination between the low and the poor performers on the SCA through the “Frame of Reference Training” for the assessors.

Evaluating the impact of distributed medical education on physicians in an underserved region

Neil Hanlon, Greg Halseth, David Snadden, Joanna Bates*, Chris Lovato (University of British Columbia, Rm 11209, Diamond Health Care Centre, 2775 Laurel St, Vancouver V5Z 1M9, Canada)

Background: Evaluations of undergraduate medical education programs in underserved areas have focused on academic outcomes and contribution to physician workforce, and have demonstrated local recruitment of program graduates. We asked: what is the impact on physicians in a medically underserved region of a medical education program prior to this anticipated recruitment?

Summary of work: We carried out the study in northern British Columbia, where an undergraduate MD program was implemented in 2004. We used purposeful sampling to recruit 25 local physicians to the study, both specialists and general practitioners. We conducted individual semi-structured interviews which were analyzed using qualitative thematic coding techniques.

Summary of results: The MD undergraduate program implementation contributed to the recruitment and the retention of physicians to the community, and led to improvements in relations with the local hospital, the health authority, and provincial government. Participants noted more opportunities for professional interaction and professional development, and changes in the physician “sense of community”.

Conclusions: Overall, involvement in the program was seen as beneficial in terms of job satisfaction, an enhanced sense of connectedness with the profession, and intellectual stimulation, but these benefits were tempered with concerns about added workload stresses.

Take-home messages: Distributed medical education programs can affect physician recruitment and retention positively early in implementation.
2F2 Implementing longitudinal community-based health education using a sustainable change model
Farmer EA*, Hudson JN, Smith BR (University of Wollongong, Graduate School of Medicine Northfields Avenue, Wollongong NSW 2522, Australia)

Background: The University of Wollongong Graduate School of Medicine provides a 4 year graduate entry medical programme aimed at producing competent graduates with a vocation to serve in rural regional and remote Australia. This innovative programme includes a longitudinal integrated clinical placement for a full academic year in the third phase of the course. All students will live, learn and work in a rural regional or remote community and engage with all health services including primary care, hospitals and extended services. This initiative aims to extend the concept of community based health education and continuity of care as a core curriculum process.

Summary of work: This paper develops a model originally described by Roberto et al. (2004) in a business context for planning lasting change in medical education. The model, describing 4 core processes and enabling conditions for sustainable change, has been applied to the context of community based medical education.

Conclusions: The model has proved useful in designing and implementing community based medical education in rural and regional Australia.

Take-home messages: Change must be sustainable. Change management models are useful in designing, implementing and sustaining innovations in medical education, and may prove useful in extending thinking.

2F3 Social accountability through Distributed Community Engaged Learning: Canada's Northern Ontario School of Medicine
Roger Strasser*, Joel Lanphear (Northern Ontario School of Medicine, 935 Ramsey Lake Road, Sudbury P3E 6J7, Canada)

Background: Recognizing that medical graduates who have grown up in rural areas are more likely to practice in the rural setting, the Government of Ontario, Canada established a new medical school with a social accountability mandate to contribute to improving the health of the people and communities of Northern Ontario.

Summary of work: The Northern Ontario School of Medicine (NOSM) actively recruits students who come from Northern Ontario or similar social and cultural backgrounds. The holistic cohesive curriculum is grounded in Northern Ontario and relies heavily on electronic communications to support Distributed Community Engaged Learning. In the classroom and in clinical settings, students explore cases from the perspective of doctors in Northern Ontario.

Summary of results: The first entering class of 56 medical students began their studies in September 2005 and graduated in May/June 2009. 80–90% of each class come from Northern Ontario, and has a mean grade point average (GPA) of approximately 3.7 on a four-point scale, comparable with other Canadian medical schools.

Conclusions: NOSM graduates are skilled physicians who may undertake postgraduate training anywhere, but have a special affinity for and comfort with pursuing their medical careers in Northern Ontario.

Take-home messages: NOSM is a successful distributed community based medical school.

2F4 Engaging new faculty in a distant community
John Steeves*, Wendy Stewart, Tim Fedak (Dalhousie University, 400 University Avenue, Saint John, New Brunswick E2L 4L2, Canada)

Background: Dalhousie University, Canada is distributing its undergraduate medical program effective September 2010. Implementing the curriculum requires an understanding of our resource pool, as faculty will be drawn from multiple academic settings, geographical sites and health professions.

Summary of work: A questionnaire was designed to identify individuals, their areas of interest in curriculum, gaps in knowledge and barriers to participation. The culture of the target
community created special challenges for survey structure. We identified communication barriers and ethical issues in information acquisition and use.

**Summary of results:** Lack of teaching skills in family physicians is a barrier to participation. Useful characteristics of our future teaching community were obtained which will guide our faculty development programming and ability to communicate.

**Conclusions:** In building teaching capacity, we need to identify, engage and develop new faculty. An effective communication structure is needed that crosses multiple professions, geographical sites and administrations. There are cost effective electronic survey methods which can be formatted to provide valuable planning information for faculty development.

**Take-home messages:** Effectively surveying potential new faculty is challenging but worth the effort for curriculum planning and faculty development in a distance program.

2F5 Using logging to facilitate rural learning and teaching
Moira AL Maley*, Kirsten Auret, Denese E Playford (University of Western Australia - Rural Clinical School (Albany), 48 Frederick St, Albany, Perth 6330, Australia)

**Background:** A “designed to fit” personal, searchable, web database resource (eLog) for case logging was used by multiple small groups of fifth year medical students embedded in rural/remote primary care settings for the entire academic year. A prescribed minimum requirement for case logging was incorporated into the assessment matrix applied to this case-based, integrated, clinical curriculum.

**Summary of work:** The learning styles and case logging profiles of two consecutive cohorts of students (n=129) in the Rural Clinical School of Western Australia were collated and compared in the context of their learning environment including teachers, previous studies and local clinical case demographics.

**Summary of results:** Although the students were diverse in their Kolb learning style attributions, convergent thinkers and divergent thinkers were predominant. Generally student logging profiles were not associated with a particular learning style or preference although the way in which their teachers used log-based discussions formatively could facilitate learning.

**Conclusions:** An appropriately designed and implemented logging tool can improve the efficiency of case based learning in a distributed clinical context.

**Take-home messages:** Using logging to improve learning outcomes in a case based learning environment requires * teacher “buy in”; * alignment of clinical context / curriculum design / teaching philosophy; * systemisation including incorporation into the assessment matrix.

2F6 Putting the caring back into healthcare: examining the impact of a civic engagement pedagogy
Margaret McGrath*, Ruth McMenamin* (National University of Ireland, Galway, Áras Moyola, University Road, Galway, Ireland)

**Background:** In 2005/2006 we adopted service learning (SL) in order to integrate a civic engagement dimension into undergraduate healthcare curricula. Preliminary evaluations of our work (Mc Grath & McMenamin 2008) indicate positive impacts consistent with previous research (Eyler & Giles 1999). However there is limited information on the impacts of SL in healthcare education. This paper describes an exploration of the impacts of SL on all stakeholders in an Irish context.

**Summary of work:** Interviews and focus groups were used to explore the impacts of SL from the perspective of key stakeholders - students (n=24), academic staff (n=8) community partners (n=10). Topic guides were based on a systematic review of the literature.

**Summary of results:** Findings indicate that SL impacted students in key areas including professional and personal skill development; linking theory to practice; increased understanding of societal attitudes towards disability. Interestingly participants described a limited impact on sense of civic responsibility. The discourse of SL and civic engagement does not appear to readily translate to an Irish context.
Conclusions: Significant cultural differences in approaches to both service and education appear to influence the impact of SL. Further research is needed in a European context.

Take-home messages: SL provides opportunities to enhance professional and personal skills; however the pedagogy is not easily transposed to an Irish context.

2G SHORT COMMUNICATIONS: Research in medical education

2G1 Small educational research grants programs increase productivity and collaboration: the Association of American Medical Colleges (AAMC) Central Group on Educational Affairs (CGEA) collaborative grants program

Nehad El-Sawi*, Larry Gruppen†‡| Kansas City University of Medicine and Biosciences, 1750 Independence Avenue, Kansas City, Missouri 64106-1453, United States; †Department of Medical Education, University of Michigan Medical School, Ann Arbor, Michigan, United States

Background: CGEA is a regional organization of 37 medical schools. The purpose of CGEA is to provide scholarly forum and facilitate communication among members. This study evaluates the impact of small educational grants program on research collaboration and productivity.

Summary of work: CGEA sponsors a small grants program for the purpose of promoting collaboration. The effectiveness of such programs has relatively little empirical evidence. We conducted interviews with applicants and compared productivity of grant awardees to those who did not receive the grants.

Summary of results: We completed structured interviews for 14 funded and unfunded applicants. The number of scholarly products for the funded group averaged 6.6 and for those of the unfunded group who implemented the project despite the lack of funding, the average was 2.7 products. The percentage of collaborative projects among multiple institutions within the region was 71% for the funded group and 16% for the unfunded group.

Conclusions: The amount of funding was less important to the success of the project than was the commitment to the collaboration that the funding entailed and legitimized.

Take-home messages: Small grants programs appear to have a beneficial effect on research productivity and the development and maintenance of research collaborations.

2G2 Getting the words right: an international code of ethics for medical education research?

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Background: The Declaration of Helsinki (DoH) is the World Medical Association’s (WMA) statement of ethical guidelines for medical research. The DoH specifically focuses on medical research not on education research. Indeed, there is no international equivalent in generic education research or specific to medical education research. The WMA’s 2006 “Statement on Medical Education” doesn’t directly mention research. National statements, generic to all education research, have been developed in some countries including the UK and USA. This raises the question of where researchers should primarily look for guidance on questions specific to medical education research; to ethical guidance on medical research, to guidance on generic education research or a mixture. Yet there is peril in simply mixing both without serious and detailed ethical analysis of the underlying principles. Preliminary discussion of these issues in a UK context indicated broad support for guidelines specific to research in medical education. Such research often involves what we term a “complex triad of vulnerabilities” between researcher/teacher, student and patient. In this paper we explore the implications of this triad further and further explore ways in which an international ethical code in medical education research could be taken forward.
**2G3** Content analysis of the Journal of Veterinary Medical Education: 1974-2004

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**Background:** A content analysis of the first 31 years of the Journal of Veterinary Medical Education was performed to discern trends in article characteristics, topics, and authorship.

**Summary of work:** A random sample of articles, stratified by year, was generated. Twenty-five percent of the journal articles published in each year were selected for review (n=168).

**Summary of results:** Ninety-six percent of the articles were submitted by authors with university affiliations, most of whom were veterinarians affiliated with US institutions. Collaborations between authors at different universities or between university and non-university affiliated authors became more common after 1990, but represented only 25% of the sample. Only three articles reported approval by an ethics board. Most, but not all, included references. There was a trend by decade toward a greater number of journal articles per year, longer articles and more authors per article, although the modal value for authors/article remained at one. Articles categorized as “program evaluation” were concentrated in the third decade. Articles dealing with professional issues such as the use of animals in teaching, gender bias, and diversity were concentrated in the second decade.

**Conclusions:** The content and form of publications in the only journal dedicated to publishing manuscripts focusing on veterinary medical education demonstrated some trends, perhaps reflecting an increased focus on the scholarship of teaching.

**Take-home messages:** The results used content analysis to provide a snapshot of articles in the only journal dedicated to publishing manuscripts focusing on veterinary medical education.

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**2G4** What can theories of adult development offer medical education?

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**Background:** To generate new perspectives and questions that could inform medical education research, curriculum development, and learner support, we explored theories in developmental psychology that predict intellectual, social, and emotional transitions during early adulthood (i.e., the time of life of the typical medical student).

**Summary of work:** We reviewed major theorists’ work in adult developmental psychology with a focus on “post-formal operational” thinking and “wisdom.” We also examined medical education articles, particularly on final-year education, which discussed concepts related to post-formal thought, e.g., tolerance for ambiguity. We synthesized this knowledge to yield new questions for medical education research and new approaches to curriculum development and learner support.

**Summary of results:** We discovered several psychological concepts with the potential to extend and deepen our understanding of how medical students mature intellectually and emotionally. Some deal with the ability to manage uncertainty, reframe difficult problems, think rigorously about paradoxes, and recognize one’s own emotions and personal choices in decision-making.

**Conclusions:** Current theory in adult development psychology offers new insight into defining intellectual and emotional achievement in medical education, and nurturing such maturation in students.

**Take-home messages:** Medical education can benefit from the richer, more predictive theories of developmental psychology of early adulthood.

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**2G5** “Lean” medical education

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**Background:** Lean thinking, also known as the Toyota Production System, has gained popularity in health care as a way to remove waste and better meet patient needs. Lean offers a philosophy, tools, and methods for how to get work done, create value, reduce waste, and
approach improvement. Medical education also faces time and resource constraints. Lean might offer guidance for medical educators and administrators as they manage change and improvement to question what adds value for students and to remove “waste” from the educational process.

Summary of work: A conceptual analysis of the application of lean thinking to medical education.

Summary of results: Just as with other knowledge intensive industries, lean thinking can offer a way to manage the complexity inherent to medical education. Some of the tools/methods can be directly applied, some not at all, and others require some creativity. Most unique is the overall focus on defining value that can differentiate lean thinking from other quality improvement methods that have been applied to medical education.

Conclusions: Given the potential benefits, it is worth testing and evaluating how lean thinking can be put into practice to improve the process of educating medical professionals.

Take-home messages: Lean thinking can help align and make clear the medical education process.

2H SHORT COMMUNICATIONS: e-Learning and postgraduate education

2H1 Computer-supported collaborative learning in research training for residents
Jakob Ousager* (University of Southern Denmark, Winslowparken 19/3, Odense DK5000, Denmark)

Background: Research training/introduction to EBM is compulsory for Danish residents. Residents must conduct a small research project and go through a course programme focusing on applied research methodology.

Summary of work: We developed an IT-supported course in research training for residents, mixing traditional face-to-face teaching with computer-supported collaborative learning. The course focuses on the ability to formulate research questions, retrieve information, and read and evaluate scientific papers. First, participants are introduced to the course and to each other online. Then they work with the course’s main topics in a one-day traditional face-to-face lecture and workshop setting. Subsequently they work online individually and in groups for a period of 9 weeks in all.

Summary of results: From January 2007 till now more than 400 residents have participated in the course. Initially, many course participants express curiosity and/or reluctancy towards the course concept. However, the vast majority of the course participants are very active in the online periods and give the course very positive evaluations.

Conclusions: The course concept seems well suited for scaffolding participants’ active acquisition of knowledge and competencies in applied research methodology.

Take-home messages: The use of computer-supported collaborative learning should be considered as an alternative and/or supplement to traditional course designs in residency training.

2H2 The knowledge, attitude and practice of e-learning by surgical staff for surgical education in Khartoum
Ahmed Hassan Fahal* (Faculty of Medicine, University of Khartoum, Khartoum 11111, Sudan)

Background: E-Learning is the delivery of a learning, training or educational program by electronic means. It involves the use of a computer or electronic device in some way to provide various training, educational and learning material.

Summary of work: This prospective study included 120 surgeons and surgeons in training. It aimed at determining knowledge, attitude & practice of e-learning by surgical staff for surgical education in Khartoum. The different components of e-learning were tested. That included the uses of the internet for literature search, teaching, training, assessment, education and in surgical practice in addition to the use of web 2.0, games and simulation for these activities. The use of e-learning for the various continuing professional development activities was determined.
Summary of results: The surgical staff less than 50 years of age has good knowledge and more frequently use the various e-learning activities when compared to staff more than 50 years old and that was statistically significant (P<.05). Some components such as web 2.0, gaming and simulation are not commonly known nor practiced.

Conclusions: The spread of e-learning culture among surgical staff, provision of facilities and training support for them are needed to improve surgical education.

Take-home messages: As the use of e-learning in surgical education increases, the need for better collaboration and communication among educators is badly needed.

2H3 EUROPED European Paediatric Online
Claude Billeaud1*, Yves Perel2, Elie Saliba2 (1European Association for Paediatrics Education (EAE/ AEEP), CHU Pellegrin; 2CHU Bordeaux France; 3CHU Tours France; Bordeaux 33000, France)

Background: Why a European e-learning platform on paediatric questions? (1) To contribute to the dissemination of common practices through Europe. (2) To offer through Continuous Medical Education (CME) quality and up to date information versus a profusion of non validated information. (3) To offer a learning opportunity to a maximum number of paediatricians and general practitioners.

Summary of work: Where are we at? We've structured editorial content and organization. We've found the first experts (Nutrition, Leukemia,…). We've set up a sustainable financial model. We've found a publishing contractor SYNERGENCE which has already proven experience in Medical e-learning. Involvement in Europed project: We've designed a first mock up of Europed and showed a real internet site (still in progress).

Summary of results: How to achieve CME requirements: A 3-year paediatric course to meet the CME needs in paediatrics - 6 topics available every 2 months. Each team of teachers will update the question every 6 months for 3 years. Each topic covered uses interactive teaching methods through clinical cases.

Conclusions: Each Pediatrician or GP will receive: An objective evaluation form by a Quiz, a certificate of the time spent in working on-line, and a number of CME credit points. Whatever the country of origin of the expert, each question will be translated and adapted into French, English, Spanish and German.

Take-home messages: It is an ambitious project to disseminate the European teaching thought in front of the American imperialist system not adequate for European CME education.

2H4 Experiences in a resident community of learners established to enhance learning in a distance education program
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Background: To determine acceptance and utility of a community of learners (CoL) in post graduate education complemented by E-learning.

Summary of work: A CoL created among 10 Radiology residents at Aga Khan University (Nairobi) met weekly face-to-face, worked through cases posted on an FTP site, used email and Google discussion board to share learning experiences between October 2007 and April 2008. WebExTM Internet conferencing enabled pilot mentor to provide a monthly two-hour interactive teaching session from USA. Content and thematic analyses of reflective logs and exit-interview transcripts were undertaken using qualitative methods. Simple quantitative means were used to interpret interactivity and technology surveys.

Summary of results: CoL sessions contributed to resident learning. Observed behaviours typical of established CoL included self –initiated non-hierarchical facilitation, lateral mentoring, voluntary injection of evidence-based literature into conversations and sharing success stories and challenges. Satisfaction with the WebEx sessions and teaching materials was expressed.
**Conclusions**: The pilot has provided the research team with a vision for the future of radiology education and particularly in support of efforts in international education.

**Take-home messages**: Residents accepted collaborative learning in community as a method of enhancing distance education and training of physicians in less developed countries.

2H5  PortalEIR: A social network approach for residents training

José Luis de la Rosa*, Alberto Bautista, Rubén Carreño ([IAVANTE Foundation, C/ Maria Curie, 16, 1º, Parque Tecnológico de Andalucía, Malaga 29590, Spain])

**Background**: Over 1000 residents start their studies in Andalusia each year. Around 1000 tutors, 200 teachers and over seventy administrative staff are involved. The effort for the management of the training is considerable and it takes time away from physicians to focus on teaching and learning.

**Summary of work**: The IAVANTE Foundation has developed a web application called PortalEIR with a social network approach to: (1) Give and manage courses in e-training format; (2) Share documentation between all involved professionals; (3) Allow residents and tutors to e-collaborate.

**Summary of results**: Over 250 courses have been given to residents, teachers and tutors with more than 9,000 students. Over 5,000 residents, 200 teachers and 600 tutors are registered in PortalEIR. Over 5,000 satisfaction surveys have been gathered. Over 20,000 mails have been sent from the application. Over 5,000 SMS have been sent from the application.

**Conclusions**: PortalEIR has become the reference tool for the training of residents, tutors and teachers in Andalusia.

**Take-home messages**: Training and its management can be supported by social network technology to allow professionals to focus on the Teaching/Learning Process.

2H6  Evaluation of a “Morning Report Blog”: Combined website metrics and trainee surveys

Isaac Bogoch*, Todd Lee, Suzanne Bridge, Wayne Gold, Danny Panisko, Rodrigo Cavalcanti* ([University of Toronto, 399 Bathurst St. Toronto M5T2S8, Canada])

**Background**: Medical students and residents attending a daily clinical service case-review round: “Internal Medicine morning report” are exposed to various clinical teaching topics. We aimed to improve this teaching experience by creating a freely accessible blog to reinforce and supplement topics. New blog posts are communicated by email to attendees.

**Summary of work**: Evaluation of this blog’s educational impact combined website visit metrics with an Internet survey of trainees’ views on the accessibility, usefulness and clinical applicability of blog content.

**Summary of results**: Forty-three blog posts received 2486 page hits over three months. Traffic evolved from predominantly local origination initially, to worldwide. Direct traffic averaged 1.95 pageviews and 3.5 minutes per visit. Survey responders (45/77) indicated excellent blog accessibility (>90%), usefulness in expanding knowledge (67%) and applicability to patient-care (60%). Forty percent of respondents provided examples of blog content applied to clinical management (Kirkpatrick level 3).

**Conclusions**: Use and accessibility of a morning report blog can be evaluated by combining web metrics and trainee surveys. Additionally, survey items evaluated trainee satisfaction and self-reported transfer of knowledge.

**Take-home messages**: Blogs can effectively complement case-based discussions in morning report. Combining web metrics with surveys aids the evaluation of a blog’s educational impact.
21 SHORT COMMUNICATIONS: Teaching and Learning: Clinical skills training

211 The skills laboratory method: an innovative strategy to facilitate clinical skills training of large student groups at the School of Nursing, University of the Western Cape, South Africa

June Jeggels* (University of the Western Cape, Private Bag X17, Modderdam Road, Bellville 7535, South Africa)

Background: The Department of Education embarked on the restructuring of all the Higher Education Institutions (HEI) during 2002. The University of the Western Cape (UWC), School of Nursing was proposed as one of the two enrolling institutions for the training of undergraduate nurses in the Western Cape. We were faced with an increase in student numbers which proved to be particularly challenging in terms of clinical skills development.

Summary of work: The School of Nursing explored various clinical teaching strategies which could be used with large student numbers. Our international HEI partners, i.e. the University of Maastricht and the Hogeschool of Nijmegen, Netherlands, facilitated the training of a core group of UWC staff members in the skills lab method. The role-out, in preparation for implementation in the undergraduate programme, started in 2006 and we presented a reflective seminar of this process at UWC in 2007. The presentation elicited the interest of our colleagues whom we are supporting to establish skills labs at their HEIs. The presentation is therefore aimed at sharing our experiences with a broader audience and to engage with participants from other countries. The skills lab method has also had a positive impact on self-directed clinical skills development in the undergraduate programme.

212 Innovation framework for the first immersive Portuguese Medical Simulation Center

Nuno Freitas*, Francisco Matos, José Martins Nunes (Coimbra Biomedical Simulation Center - Coimbra University Hospitals, Hospitais da Universidade de Coimbra, Centro de Simulação Biomédica - Blocos de Casas - Edificio Ortopedia II - R/C, Coimbra 3000-075 Coimbra, Portugal)

Background: Coimbra Biomedical Simulation Center opened on 9 December 2008 and is the first comprehensive and immersive medical simulation center in Portugal. During the 18-month period of preparation, a framework of innovative perspectives and priorities was implemented based upon international experiences and local needs assessment.

Summary of work: The most innovative features concerns the key factors - high fidelity realistic medical simulation; multidisciplinary educational and interdisciplinary research programs; ethics, critical care and team training focus; and social binding funding.

Summary of results: Funding and social contract - no public funding. Civil foundations focusing on health and science issues were asked to compromise with a community-based project and patient safety new educational measures; Educational Program – multidisciplinary approach with 10 thematic groups: obstetrics, trauma, anesthesia, crisis resource management, bioethics, intensive care, pediatrics and neonatal, medical emergencies, undergraduate and prehospital care; Research program – interdisciplinary projects for patient safety initiatives and team performance assessment; 20 undergraduate medical students and 98 medical and nursing professionals completed the Centre activities (3-months) with a high/very high satisfaction rate.

Conclusions: Innovative framework combining ethical patient-centered actions, new focus on medical continuous education and team training and external partnerships can foster healthcare best practices.

Take-home messages: Patient safety binds innovative medical education to community.

213 Basic neonatal resuscitation – training, evaluation and retention of skills

Jette Led Soerensen* (Obstetric, Neonatal and Anaesthesia Department and Juliane Marie Centre, Rigshospitalet University Hospital, Obstetric, Neonatal and Anaesthesia Department and Juliane Marie Centre, Rigshospitalet University Hospital, Rigshospitalet University Hospital, Blegdamsvej 9, Copenhagen DK-2100, Denmark)

Background: Aim was to assess learning and retention in basic neonatal resuscitation before, immediately after and 9-15 months after simulated training.
Summary of work: At the Obstetric Department, Rigshospitalet, Copenhagen, 220 staff members (midwives, auxiliary nurses, doctors and nurses) were eligible for training in neonatal resuscitation. Period 2003-2006.

Conclusions: Data confirmed that staff valued skill training and the multiprofessional approach. Management of neonatal resuscitation were considered stressful and unpleasant by the staff before training and the levels of discomfort were significantly less pronounced following training. Self-assessed scores of confidence for the trained skills improved significantly when measured 9-15 months following training. A significant association between self-assessment of confidence in neonatal resuscitation and numbers of correct answers in a written test was revealed. There was no association between many years of work experience and high numbers of correct answers in the test. The need for organisational changes in the department became visible and an algorithm and new equipment for neonatal resuscitation were implemented.

Take-home messages: Staff was capable of self-assessing their own competencies in basic neonatal resuscitation, and this skill was not learned or retained over time. This indicates that basic neonatal resuscitation needs to be currently (within 15 months) trained.

OSCE results after voluntary self-training in a simulation laboratory at Granada Medical School

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Background: By 2011, it will be mandatory to perform an OSCE-type evaluation before the beginning of the medical specialization period. Despite personal student motivations, professional competency will be assured only if the teacher and the institution provide the necessary tools for repetitive training.

Summary of work: We analyzed if self-training after programmed teaching, in a simulation laboratory specifically conditioned for that goal, has any effect on student OSCE performance and score. From a total number of 223 students who participated in the OSCE evaluation, only 180 students visited the self-training laboratory before the trials. From those, 138 students visited the lab once (76.66%) and 42 self-trained twice (23.33%).

Summary of results: The analysis of the global OSCE results showed that self-trained students obtained higher score than those that only learned in the programmed training sessions with the teacher. The average score was 58.89 and 58.80 points for those who self-trained once or twice, while the students who did not retrain themselves obtained an average score of 50.75 points. Similar results were obtained for clinical skill stations, being significantly lower in the group that did not visit the laboratory (51.26), compared with those who self-trained once (66.67) or more times (67.58).

Conclusions: The self-training of medical competencies in a simulation laboratory improves students’ average OSCE performance and score.

Increased computer-assisted ophthalmoscopy training with access to peers’ performance data

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Background: A skills lab for training of ophthalmoscopic examination utilizes internet software offering feedback on performance at each examination. Feedback could either include (comparative feedback) or exclude (simple feedback) a comparison between the student’s attempts and an empirical learning curve for examination time. The amount of training with and without such comparisons was studied.

Summary of work: Ninth semester medical students examined fellow students and received computer-based feedback after each examination. Each student could examine any number of fellow students any number of times and was asked to do so until feeling confident. Students in a control group (N=55) received simple feedback while students in an intervention group (N=59) received comparative feedback.
Summary of results: The mean number of examinations per student was 10.6 in the intervention group and 8.6 in the control group (P=0.031). The mean number of students examined by each student was 6.9 in the intervention group and 5.8 in the control group (P=0.012).

Conclusions: Feedback containing information on the individual student's performance in relation to peers' increased the amount of training without additional efforts from teachers. The method is currently employed at three of the six medical programmes in Sweden.

Take-home messages: Feedback relating individual results to group performance may increase self-directed training.

2I6 Virtual transesophageal echocardiography: An online simulation of a TEE exam
Meineri M*, Vegas A, Corin M, Tait G, Beattie WS (Toronto General Hospital, University Health network, Department of Anesthesia and Pain Management, 200 Elizabeth Street, EN3-425, Toronto M5G2C4, Canada)

Background: TEE is used as a diagnostic tool by cardiologists and is also a standard imaging tool in the intensive care unit and intra-operatively in cardiac surgery, as it gives surgeons instantaneous feedback during the procedure on the nature of the cardiac defect and the success of the repair. It is performed both by cardiologists and anesthesiologists. A significant challenge in learning TEE is to obtain the 20 standard views. Few weeks of daily practice are usually required to achieve acceptable level of confidence.

Summary of work: We created a web based module where the user can move a TEE probe in the space and change its scanning angle to display cuts of a human heart using real TEE clips.

Summary of results: Five fully trained echocardiographers (three anesthesiologists and two cardiologists) assessed the usability and face and content validity of this application by filling a questionnaire. All of them agreed that it does simulate a real TEE exam, it is user friendly and accurate.

Conclusions: An online virtual TEE tool can simulate a real examination and can potentially decrease the time needed to practice on real patients to learn the basics of TEE.

Take-home messages: On line virtual TEE may allow faster learning of TEE.

2J SHORT COMMUNICATIONS: Teaching and Learning: Providing feedback

2J1 Effect of feedback on students' mastering of communication skills
Baerheim A*, Jacobsen T (Department of Public Health and Primary Health Care, University of Bergen, Box 7800, Bergen N-5020, Norway)

Background: We have newly established a communication laboratory. Medical students in the first clinical semester do history-taking with a simulated patient (SP), and the SP gives feedback to the student. Aim: to evaluate the immediate effect of one training session.

Summary of work: We conducted an RCT: 50% of 90 students were randomized to extra training two weeks after the first one. Main outcome parameter: SPs' scores on student's achievement on 22 specific learning goals (score possibility: 1-5).

Summary of results: At the second training, students scored 10% better on the combined learning goals, compared to the other students (4,52 v. 4,09, P=0,000). Effects on single skills were: clearer transition statements, more summing up, giving room for patient’s worries, and better balancing open-ended and close-ended questions, use of pauses, and empathy (10% - 23% increase, P≤0.01).

Conclusions: The effect found immediate after one training session was substantial, but should be followed up to evaluate changes over time.

Take-home messages: Feedback from SPs may have a substantial effect on medical students’ immediate acquisition of central communication skills.
2J2  The Global Procedure Skills Evaluation (GSPE): Development of a tool to improve feedback on procedure performance in residency
Melissa Nothnagle*, Roberta Goldman, Shmuel Reis (Brown University Family Medicine Residency, 111 Brewster St, Pawtucket, RI 02860, United States)

Background: Acquisition of procedure skills requires supervised practice with feedback. Direct observation of residents’ procedure performance provides an opportunity for feedback to promote learning. However feedback provided is often of poor quality, and validated instruments to improve feedback are lacking.

Summary of work: Qualitative data from field notes, interviews, and focus groups were subjected to a modified framework analysis to develop and revise an instrument for procedure skills assessment. The development process incorporated research evidence and expert input to ensure validity of the instrument.

Summary of results: The Global Procedure Skills Evaluation (GPSE) was drafted based on field notes and literature on procedure skills training. Family medicine residents and teachers described the current state of feedback and recommended revisions of the instrument. The final GPSE includes a self-assessment prompt, five performance criteria, and a rating scale that quantifies scaffolding by the teacher.

Conclusions: The GPSE is designed to improve procedure training by improving the quality of feedback and promoting learner self-assessment and reflection. The unique rating scale may provide an objective measure of safety and readiness for independent performance.

Take-home messages: The GPSE is designed to improve feedback based on direct observation of procedure performance.

2J3  Mentoring consultation skills through a structured assessment – students’ experience and the impact it had on their learning
Marietjie van Rooyen*, Jannie Hugo, David Cameron (University of Pretoria, Department of Family Medicine, HW Snyman Building North Room 7-35, PO Box 667, Pretoria 0001, South Africa)

Background: Mastering consultation skills is one of the objectives of the District Health rotation for senior medical students at the University of Pretoria. These skills are critical in primary care where students are exposed to unselected patients in rural and urban communities. Mentoring of these skills starts as part of the orientation program of the rotation. After receiving feedback each student writes an individual educational prescription (IEP). This IEP is used throughout the rotation, encouraging reflection and a cyclical learning process. In the final assessment the IEP is used to guide the feedback discussion after a consultation with a simulated patient.

Summary of work: Correlating videos of the orientation feedback discussions and the final assessment with the IEP, informs faculty on the impact of the process. Focus group discussions with students enables faculty to understand their experience, and their perception of the impact on themselves and their future practice.

Summary of results: Study still in progress. Preliminary results show a correlation between the learning needs identified and the mastering of skills. Student consultation skills improved.

Conclusions: Structured assessment of observed consultations as part of orientation and assessment promote mentoring of these skills and enhances students self-mastery of consultation skills as they focus on anticipated learning activities.

Take-home messages: Doing structured assessment with feedback and identifying learning needs enhances learning during the block.

2J4  Students’ opinions of bedside assessment of clinical competencies in an undergraduate medical programme
Pamela Bradley*, Paul Bradley, Chris Ricketts, Lee Coombes (Peninsula College of Medicine and Dentistry, Peninsula Medical School, The Clinical Skills Resource Centre, Research Way, Plymouth PL6 8B, United Kingdom)

Background: Observation and feedback on performance of history and examination has been lacking in undergraduate medical programmes. Students need support developing
and applying these skills as they transfer from a protected educational to an authentic clinical environment.

**Summary of work:** Formative assessment of 12 such skills was introduced in Year 3 and repeated summatively in Year 4 of the 5 year programme. These are observed and marked by a clinician at the bedside. A questionnaire survey was used to collect both quantitative and qualitative data reflecting students’ opinion of these assessments. We obtained a 95% response rate from the cohort (n=169).

**Summary of results:** Learning was enhanced by feedback and students worked harder on preparation before summative assessments. Concerns about assessor variability and the quality of some outcomes were expressed. The frequency was acceptable but in Year 4 there was concern that they might interfere with other aspects of learning. Further analysis of both quantitative and qualitative data will be presented.

**Conclusions:** Bedside assessment of clinical skills with feedback is valued by students. They have some concerns about the quality of some assessments.

**Take-home messages:** Repeated observation with feedback is feasible, but assessor training and monitoring is vital.

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2J5  **Academic feedback: the students’ story**

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**Background:** Academic feedback is widely regarded as an essential part of student learning yet is consistently rated poorly in the National Student Survey across UK veterinary and medical schools. This project was designed to explore the underlying issues by analysing expectations and experiences in students on a 5 year undergraduate and 4 year graduate entry veterinary programme.

**Summary of work:** Qualitative and quantitative methodology was used to explore new students’ expectations and prior experiences of feedback. Experiences were also tracked across one academic year and through sampling the third and final year cohorts.

**Summary of results:** Both school and graduate entry first year veterinary students expect no less feedback at university than at school. Verbal feedback and specimen answers were seen as the most useful forms of feedback. Students’ experiences of the course highlighted themes of not knowing what is expected; feedback timeliness and a perceived need for more guidance. Perceptions of feedback being insufficient were also prevalent in later years.

**Conclusions:** Students entering vet school have a good understanding of the varied forms of academic feedback and clear ideas about what they expect; these expectations in general are not being met.

**Take-home messages:** This study confirms a mismatch in student expectations versus experience. Further work is exploring staff perceptions with the aim of developing mechanisms to bridge the expectations/experiences gap.

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2J6  **Is feedback after workplace-based assessment constructive?**

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**Background:** Workplace-based assessments provide opportunities to link assessment with feedback. Previous reports demonstrated tutors focussed on numerical grades at the expense of feedback.

**Summary of work:** All GP tutors of final-year medical students were trained using experiential techniques to assess and give feedback using the mini-CEX and Case-based discussion (CbD). Forms were designed to encourage written feedback Students were graded as ‘needs further attention,’ ‘competent’ or ‘excellent.’ 385 students completed each assessment. The quality of feedback was independently coded as constructive (specific suggestions for improvement), positive (positive comments but no suggestions for improvement) and negative (negative comments without suggestions for improvement).
Summary of results: No feedback was provided in 39% of mini-CEX and 44% of CbD. For students rated competent, feedback was constructive in 35% of mini-CEX and 33% of CbD. Negative feedback was rarely given. For the few candidates graded as needing further attention, feedback was constructive in 82% of both mini-CEX and CbD.

Conclusions: Despite receiving training, many tutors failed to give constructive feedback. Tutors seemed content to grade students as competent and not encourage them to aspire towards excellence.

Take-home messages: We need a better understanding of how to develop effective feedback interventions.

2K SHORT COMMUNICATIONS: Postgraduate Education: different approaches to transition

2K1 Preparing doctors for responsibility: change the person or change the place?
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Background: Doctors make multiple transitions throughout their training and careers which involve performance at new levels of responsibility. Transitions are associated with increased risk for patients, but little is known about the effects of transitions on medical performance. This research asks what happens when doctors transition to new responsibilities, and what helps or hinders those doctors' performance?

Summary of work: We undertook a collective case study involving observations, interviews (FY1 n=8, ST3-7 n=14) and supplementary interviews with healthcare professionals (n=13).

Summary of results: Drawing on all data sources, the interpretative synthesis identified the following findings: Performance is not just individual but very significantly affected by activity, practices and cultures; The environment is not neutral but is fundamental to performance; There are major differences between expectations and observations of doctors' performance; Relationships with other doctors and healthcare professionals are crucial; The more transitions a trainee has made, the less 'space' they are given in new transitions.

Conclusions: Education and training concentrate on preparing the individual doctor - filling them up with knowledge and skills so that they are 'oven ready and self basting'. Our findings demonstrate that organisational practices, activity and cultures are determinants of performance and this has implications for practice.

2K2 Refocusing introduction of newly employed junior doctors
Carsten Hering Nielsen*, Lisbeth Rune Schultz1, Claus Möger1, Peder Charles2 (1Aarhus University Hospital, Aarhus Sygehus, HR Dept.; 2Centre for Medical Education, University of Aarhus; 3Aarhus University Hospital, Aarhus Sygehus, Dept. of Orthopaedic Surgery, Aarhus DK-8000C, Denmark)

Background: For many years the introduction of junior doctors to Aarhus Hospital has been performed in the same way on the first days of their employment. Despite good preparations and a deliberate content – there were repeatedly indications that it was not effective.

Summary of work: The task was to rethink the setup. Information was gathered on different theoretical perspectives and all the annoying questions were asked: Why we do it, why it is important, what is working, information strategy, our experiences, what we know the residents need, etc. All this information was important to refocus the aims and content of the programme.

Summary of results: We actually knew about the participants' attention and conception of the introduction. The study revealed the dominant assumptions, preconditions and premises from when the present introductory programme was initially designed. This further drew our attention to the organizational variables that either hinder or facilitate use of the information given and thus their effect upon efficiency of the introduction. This knowledge was used to refocus the introduction.

Conclusions: Joint introduction of all new employees is important to understand the multidisciplinary conditions of the hospital. Application of a simple change management
framework and conclude in 12 Tips for introducing junior doctors to the department (submitted for Medical Teacher).

**Take-home messages:** Timing is crucial when introducing new doctors to the department. What is important is in the eye of the beholder. Take notice of that when planning your introduction – even if it may appear impractical or too banal to an experienced colleague.

### 2K3 Start Class: intensive introduction programme

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**Background:** Since 2007 all residents at the Medical Centre Alkmaar (MCA) start with a two-day introduction programme “Start Class” (SC). Introducing new residents to the clinic, the culture, each other and the hospital protocols rapidly provides them with the necessary tools. After the programme, residents can mainly focus on patient care. This increases patient safety and residents’ own safety and work pleasure.

**Summary of work:** Highlights of the interactive SC-programme: ‘Meet the expert’: scheduled interviews with hospital experts, in advance residents complete a case related task, BLS (+AED); Hospital Information System and Protocol Finding; Poster presentations: residents teach each on the important issues learned from the experts; workshop “Work in progress”: prevention burn-out.

**Summary of results:** In 2008 a total of 101 residents followed the programme: A complete evaluation was filled out by 77% of the participants, 64% of them was very positive, 34% was positive.

**Conclusions:** Residents mark the SC as useful. Providing every resident with the same information, procedures, rules reduces the time-investment in every single resident and forms a new network of colleagues. The SC indirectly contributes to a safer(patient) environment and to prevent burn-out.

**Take-home messages:** A Start Class is the perfect place to meet, educate and set expectations.

### 2K4 One week course helps prepare medical students for internship

Laack TA*, Newman JS, Goyal DG, Torsher LC (Mayo Clinic, 200 First Street SW, Rochester, MN 55905, United States)

**Background:** Internship Boot Camp is an innovative one-week course designed to prepare final-year medical students for the transition from medical school to internship.

**Summary of work:** 12 students participated in the course in 2007 as an elective in their final year of medical school while 28 did not. All 40 students were anonymously surveyed after graduation regarding what had best prepared them for internship. The questions were designed to be non-leading and the participants were blinded to any affiliation of the survey with the Internship Boot Camp.

**Summary of results:** The overall response rate for the survey was 80%. Of those responding to the open-ended question regarding aspects of medical school training that best prepared them for internship, 89% (8/9) of course participants listed “Internship Boot Camp.” The next highest response (“subinternship”) was given by 45% (9/20) of non-participants and 33% (3/9) of participants in the Internship Boot Camp.

**Conclusions:** Internship Boot Camp helps with the difficult transition from medical student to resident physician.

**Take-home messages:** Internship Boot Camp is a unique learning environment that is recalled by new residents as the most helpful of all components of medical school education in preparation for internship.
**2K5**  **Labyrinth and the liminal student**  
Jennifer Wilder*, Michael Begg*, David Dewhurst (University of Edinburgh, Learning Technology Section, College of Medicine and Veterinary Medicine, 15 George Square, Edinburgh EH8 9XD, United Kingdom)

**Background:** The transition period from undergraduate training to postgraduate “foundation” practice is brief – often only a matter of a few days - but its impact is profound. What was previously a well supported, structured learning environment is suddenly a strange and potentially frightening place where critical decision-making skills, authority and professionalism seem suddenly more relevant than all of the knowledge amassed in undergraduate training. Foundation doctors indicate that the undergraduate experience does little to prepare them for the shock of actual practice.

**Summary of work:** An emerging initiative within the University of Edinburgh’s College of Medicine and Veterinary Medicine is to adopt the easy-to-use authoring tools and principals associated with Game Informed Learning to afford collaborative groups of later year undergraduates and foundation doctors the scope to create learning objects for undergraduates.

**Conclusions:** Using in-house developed instruments such as the branching scenario authoring tool “Labyrinth”, these groups draw on their recent experience of this transition period to create learning objects that not only directly address perceived gaps in the range of learning support activities available to undergraduates but also, using the principals of game-informed learning to situate the activities within realistic contexts, and plausible scenarios which offer an indication of what practice will feel like.

**Take-home messages:** Learning tools to ease the transition between medical student and doctor.

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**2L**  **SHORT COMMUNICATIONS: Themes: Patient safety**

**2L1**  **Barriers to incident reporting by residents**  
Martowirono K*, Jansma JD, Wagner C, Bijnen AB (Forrest Medical School, Medical Centre Alkmaar, Wilhelminalaan 12, room 054, Alkmaar 1815 JD, Netherlands)

**Background:** Incident reporting can contribute to a safer health care. Since the rate of reporting by residents is low, it is useful to investigate which barriers exist and what the role of medical education could be at overcoming these barriers.

**Summary of work:** This study explored the barriers that residents experience to incident reporting and how these can be solved. Three focus groups were organized. In each group 6-8 residents participated. After three focus groups information saturation had been reached.

**Summary of results:** Twenty-two residents attended the focus groups. Two of the factors hindering adequate incident reporting are not knowing what and how to report. The barriers that influence the intention to report can be divided into factors related to attitude, subjective norm and perceived behavioural control. The solutions that were mentioned aimed mostly at improving the information supply about what and how to report and at improving the reporting system.

**Conclusions:** Several factors prevent residents from reporting incidents. It is recommended to integrate the subject of incident reporting in residents’ education and to adjust the reporting system to the users’ needs.

**Take-home messages:** Incident reporting should be part of residents’ education.

**2L2**  **Improving knowledge about patient safety through the implementation of E-Learning**  
Alien W Riedstra*, Hanny J Maarleveld, Peterhans J van den Broek (Leiden University Medical Center, PO Box 9600, Leiden 2300 RC, Netherlands)

**Background:** Patient safety has emerged as a hot issue in healthcare worldwide. Quick-scans in the Leiden University Medical Center revealed that behavior regarding basic hygiene falls short of expectations. It was felt important to teach students as well as hospital employees about precautions that must be taken to avoid healthcare-associated infections.
Summary of work: Eight E-Learning modules have been developed on topics like hand hygiene, personal hygiene, accidental blood contact, cleaning & disinfection, personal protective equipment and isolation measures. These lessons have been incorporated in the second year of the medical school curriculum. During a large hospital campaign, also all employees that work with patients or patient materials were encouraged to take these lessons.

Summary of results: About 60% of the target group actually took the E-learning lessons. Knowledge about precautions that should be taken has increased and students as well as employees know their way to the important protocols on patient safety better than before. The participants felt that E-learning was an efficient way to study this topic. The effect on behavior is followed up by repeated quick scans.

Conclusions: E-learning modules can provide proper training, but practice has to be maintained within the departments.

Factors influencing the safe use of a Computerised Physician medication Order Entry (CPOE) system in the outpatient clinic: opportunities for tailored educational interventions

Feikje van Stiphout*, Edith ter Brack (University Medical Centre Utrecht, Heidelbergaan 100, Huispost G02.228, Utrecht 3584 CX, Netherlands)

Background: Patient safety is the main reason for implementing Computerised Physician medication Order Entry (CPOE) systems. However, the claim of improving safety only holds with appropriate use. We investigated how physicians actually worked with the CPOE aiming to build a construct of factors that influence its safe use.

Summary of work: Setting: university hospital based outpatient clinic of internal medicine. Subjects: five residents, six specialists. Data gathering: semi-structured interviews. Analysis: qualitative, structuring the data on the basis of literature and extending the model.

Summary of results: Data support that physicians had gaps in knowledge and skills of functionalities and sometimes made wrong assumptions. Information about anticipated advantages, mutual agreements and available assistance were not always present. We identified three predominant types of users with varying attitudes, related to different levels of awareness of potential slips and errors: (1) enthusiasts (positive attitude, limited awareness), (2) reasoners (critical with positive attitude, demonstrating awareness) and (3) stragglers (negative attitude, not aware).

Conclusions: Most factors that influence the safe use of a CPOE system are remediable by education and deliberate practice.

Take-home messages: Differences in attitudes and awareness of safety issues call for tailored educational strategies when implementing a CPOE in clinical practice.

Interprofessional education in patient safety (II): Controlled trial between interprofessional students groups and medical students groups

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Background: Interprofessional education was recently proposed, however, its effectiveness in patient safety education was not well scrutinized.

Summary of work: We conducted controlled trial of interprofessional education in patient safety and evaluated its effectiveness by using questionnaires conducted before and after the class. We assigned 42 medical students to the pharmaceutical mix groups (interprofessional groups), and 56 medical students to medical only groups (medical students groups). The questionnaires consisted of the knowledge and attitude to patient safety as well as benefit of discussion.

Summary of results: The medical students who were assigned to the interprofessional groups considered group discussions were more active (P=0.0071) and beneficial (P=0.0001) than the medical students groups. The knowledge about patient safety and recognitions of its importance were significantly improved after class (P<0.0001), however, there
was no difference between the groups. Furthermore, the students' free comments in the questionnaire showed group discussion with other health professional students provided the medical students with good opportunities to understand the importance of teamwork in patient safety and to obtain new points of view from other students.

Conclusions: This class seemed to provide the students with opportunities to learn the importance of communication with other health professionals and to recognize their own professional roles in patient safety.

Take-home messages: Interprofessional learning is one of the effective ways for health professional students to learn patient safety.

2M SHORT COMMUNICATIONS: The Teacher: Evaluation of the teacher

2M1 Teachers and Courses evaluation by attending students in Genoa (Italy) Medical School

Fioccio R, Bonioli E, Bove M, Lotfi A, Maganza C, Frascio M* (University of Genoa, Iargo R. Benzi 8, Genoa 16132, Italy)

Background: Teachers and Courses evaluation by attending students is a key feature of education system assessment in Genoa Medical School.

Summary of work: Here we report the procedures of online web based anonymous questionnaires that have been completed by students at the end of the courses since 2004. Items of the questionnaire are: a) planning, implementation and strategies of the courses; b) education facilities; c) teacher performance; d) teacher and course perceived quality. Results of personal evaluation are reserved for teachers and are used and taken into account for academic career. Results of course evaluation are discussed with teachers, academic coordinators and the student's representatives to make aware every level of educational system. The vice dean for education discusses individually with each group of teachers leading an integrated course. All the results are used to monitor and improve the quality of medical education.

Summary of results: Since 2004 until now we have analysed 26,520 courses and 103,079 teachers’ questionnaires. Statistical evaluation of these data shows a consistent improvement of the overall quality of medical education.

Conclusions: Teachers' and courses' evaluation by students is a key feature to improve the quality of medical education mainly if the results are discussed together with Faculty and students.

Take-home messages: Offering a feedback of evaluation results to teachers and students achieves a better participation of students and a better performance of teachers.

2M2 Are clinical teachers’ self-assessment and student feedback effective in improving clinical teaching?

Renee E Stalmeijer*, Diana HJM Dolmans, Ineke HAP Wolfhagen, Lieve van Coppenolle, Wim G Peters, Albert JJA Scherpbier (Maastricht University, Faculty of Health, Medicine and Life Sciences, Department of Educational Development and Research, PO Box 616, Maastricht 6200 MD, Netherlands)

Background: Many instruments have been developed to provide feedback to clinical teachers about their teaching performance in the workplace. Research indicates that written feedback alone is not sufficient for teachers to change their teaching. Combined with self-assessment, written student feedback is assumed to stimulate clinical teachers to improve their teaching.

Summary of work: We investigated whether combining written feedback (student ratings) and self-assessment (clinicians’ self-ratings) stimulated clinical teachers to incorporate the feedback into their teaching. Thirty clinicians completed a self-assessment, received student feedback and filled out a questionnaire (5-point Likert scale). Twelve clinicians were purposively selected for a semi-structured interview.

Summary of results: 25 clinicians returned the questionnaire (76%). Self-assessment and student feedback were perceived as useful (3.7, SD 1.0), but the latter was considered more
effective. The interviews showed that self-assessment mostly provided a sufficient incentive to improve teaching when combined with student ratings, especially when self-assessment and feedback showed discrepancies.

**Conclusions:** Combined with student feedback, self-assessment is perceived as a powerful tool to stimulate improvement of clinical teaching. Further research should examine whether these combined tools can actually improve clinical teaching in practice.

**Take-home messages:** Self-assessment is a useful tool to augment the effectiveness of feedback for clinical teachers.

### 2M3 Walking the talk: How do clinical teachers' teaching behaviours relate to their knowledge and beliefs about teaching?

Peter Cantillon* (Department of General Practice, Clinical Sciences Institute, Costello Road, NUI Galway, Galway 00001, Ireland)

**Background:** Clinical education is often described as being of variable quality and inefficient in its use of teaching opportunities. Much of the variance evident in clinical education is likely to be due to differences between clinical teachers. Differences between teachers’ pedagogical knowledge and beliefs may explain much of the variance between clinical teachers’ behaviours and the quality of the learning environments that they create.

**Summary of work:** A small pilot study was carried out in Canada and Ireland to examine the relationship between clinical teachers’ knowledge and beliefs about pedagogy and their teaching behaviours. Hospital based attending/consultant teachers were observed teaching in ambulatory and bedside settings in Montreal and Galway. Field note data was used to inform topic guides for follow up semi structured interviews which explored teachers’ beliefs and knowledge of teaching, learning, learners and the clinical learning environment.

**Summary of results:** Teachers had well developed implicit theories about learning, teaching and learners that were largely congruent with their teaching behaviours.

**Conclusions:** Teachers’ knowledge and beliefs about learning and teaching are important predictors of clinical teaching behaviour. Attention to teachers’ prior pedagogical knowledge and beliefs are likely to be essential elements in future successful models of faculty development.

**Take-home messages:** Faculty developers need to pay heed to clinical teachers’ well developed but tacit knowledge and beliefs about teaching and learning.

### 2M4 The twelve roles of a teacher – a valuable framework for teachers’ pedagogical training

Eeva Pyörälä*, Matti Aarnio, Juha Nieminen (Research & Development Unit for Medical Education, P.O. Box 63, Haarlanmäentie 8, Helsinki 00014 University of Helsinki, Finland)

**Background:** Harden and Crosby (2000) identified twelve roles for a medical teacher in the changing world of medical education. This role model framework was used in teachers’ pedagogical training at the University of Helsinki.

**Summary of work:** The framework was presented in a 10 ECTS credit course of university pedagogy for medical teachers. The participating teachers (N=22) assessed the importance of the 12 roles, their current personal commitment to each role, and their preferred future commitments.

**Summary of results:** Teachers scored all the roles relatively high when assessing their importance to the teaching program. Preferences were clear in the teachers’ current personal commitment. Role model in the teaching setting (M=3.77) and teacher in clinical or practical setting (M=3.68) scored highest and curriculum planner lowest (M=1.27). When assessing their preferred personal future roles there was a considerable rise in the roles of a mentor and a learning facilitator.

**Conclusions:** The role model framework motivated the teachers to picture their role profiles as medical teachers and enabled them to identify the roles requiring further development. Their planning and assessment activities definitively require support and training.
Take-home messages: Teacher’s role model framework and profile are valuable tools in teachers’ pedagogical training.

2M5  Keeping tutors motivation in clinical clerkship: factors leading to satisfaction and dissatisfaction
Masanago Yamawaki*, Kazuki Takada, Atsushi Okawa, Yujiro Tanaka (Tokyo Medical & Dental University, 1-5-45, Yushima, Bunkyo-ku, Tokyo 113-8519, Japan)
Background: Clerkship tutors participate in service, training and medical education in their clinical settings. This study researches clerkship tutors’ attitude with reference to where they place activities along the service/training/education continuum, and factors that lead them to motivate educational activities in the way they do.
Summary of work: Seventy-nine tutors (fellows and senior residents) in our hospital completed a questionnaire probing areas relating clinical clerkship in 2007 to 2008 in Tokyo Medical & Dental University. The questionnaire included demographics, satisfaction levels, stress experienced, and time spent on educational activities. Statistical analysis were performed by Spearman correlation coefficient.
Summary of results: Overall satisfaction for clinical clerkship was significantly correlated with opportunities for tutors’ self-learning, enthusiasm for education, support from supervisors (p < 0.001), activity of students and tutors’ attending to educational FD (p < 0.05). Workload for tutors was correlated with self-learning, support from supervisors, students’ participation to physical examination and presentation (p < 0.001), activities of students and attending for educational FD (p < 0.05). Factors on students’ participation to round (discussion and presentation during rounds) and tutors’ enthusiasm for education were correlated with quality of patient care (p < 0.05).
Conclusions: Our findings indicate that support of supervisors for tutors and student activity appears to serve as an opportunity for maintaining tutors’ motivation.
Take-home messages: Steps should be taken to decrease burden in tutors, including policies that promote physician well being as integral to successful clerkship.

2M6  Systematic evaluation of teaching qualities of medical faculty: development and validation of a system combining self- and residents’ assessment
Lombarts MJMH*, Arah OA (Academic Medical center, Amsterdam, The Netherlands / University of California, Los Angeles, United States, P.O.Box 22700, Amsterdam 1100 DE, Amsterdam, Netherlands)
Background: Feedback and self-reflection are known to be helpful in improving teaching qualities of clinician-educators. We examined if a valid, reliable and feasible system for the specialty-specific evaluation of teaching qualities of medical faculty could be developed for use in academic medical centers.
Summary of work: We developed a specialty-specific system for the evaluation of teaching qualities (SETQ) of faculty, consisting of (i) web-based questionnaire for residents’ assessment of faculty, (ii) web-based self-evaluation for faculty (iii) individualized faculty feedback, and (iv) individualized faculty follow-up support. Both questionnaires were based on the validated SFDP26 instrument. In total, 157 faculty and 152 residents from four specialties were invited to participate.
Summary of results: The response rates were 82% and 78% for faculty and residents respectively. Residents completed 1389 assessments for 152 faculty. Explorative factor analysis identified 5 teaching domains. The internal consistency was high. For reliable feedback to faculty, at least 4 to 9 assessments per faculty were required. Residents were generally positive about faculty’s teaching qualities. Self and residents’ assessment showed low correlations. Faculty feedback reports were well-received.
Conclusions: The SetQ system appears reliable, valid and feasible for the evaluation of teaching qualities of faculty.
Take-home messages: Effective faculty development includes high quality feedback as well as individual improvement tracks.
2N SHORT COMMUNICATIONS: The Teacher: Peer assisted learning and assessment

2N1 Peer-assisted learning by medical students improves musculoskeletal system examination skills when integrated into the curriculum

Perry ME*, Burke JM, Friel L, Field M (The University of Glasgow, Dept Medical Education, Wollson Medical School, University Avenue, Glasgow G12, United Kingdom)

Background: This study determined whether PAL can be successfully incorporated into a standard curriculum to improve musculoskeletal system (MSS) examination skill using Gait, Arms, Legs, Spine (GALS).

Summary of work: Over 2 years, 50 year-5 students were trained in use of GALS for examining the MSS during a standard clinical attachment at one Glasgow Hospital. These trainers supervised final year trainees also based at that hospital in use of GALS (n=159). Students were evaluated with pre/post confidence questionnaires, course experience questionnaires (CEQ) and OSCE scores. Results were compared with 230 students undertaking routine curriculum training.

Summary of results: Confidence in use of all parts of GALS increased after PAL (p<0.005). CEQs showed that PAL trainers benefitted from improved teamwork and teaching skills. 84% of students in the standard curriculum passed the MSS OSCE station. By comparison, 87% of PAL trainees and 100% of trainers passed. More trainers passed the OSCE than trainees (p= 0.008) and standard curriculum students (p=0.002). There were no differences between trainees and standard curriculum students (p=0.33).

Conclusions: Incorporating PAL into a standard curriculum improves clinical examination skills, generic skills and OSCE exam performance. PAL is a useful additional learning technique.

Take-home messages: PAL can be successfully integrated into medical curriculum.

2N2 Senior students compared to faculty members as facilitators in PBL

Ane-Kristine Finbråten*, Are Hølen (The Faculty of Medicine, the Norwegian University of Science and Technology (NTNU), Olav Kyrres g. 9, Medisinsk teknisk forskningsenter (MTFS), Trondheim 7489, Norway)

Background: In the winter of 2008, half of the PBL groups of the second year had two senior student facilitators; the rest had one faculty member and one senior student alternating. The aim was to compare the two strategies.

Summary of work: A focus group of eight students generated 23 items for the survey. Each item addressed facilitation as carried out by student facilitators or by faculty members. There were 240 students in the first two classes; 181 (75 %) surveys were completed.

Summary of results: The overall findings indicated that student facilitators were more appreciated than faculty members. Students were more knowledgeable in conducting evaluations, and they added more to the learning outcome. Student facilitators were also perceived as more skilled in group process.

Conclusions: Students should be regarded as a major resource towards successful group facilitation. They foster both learning and group process.

Take-home messages: The student facilitation in general is regarded as more superior.

2N3 The impact of the ‘Harvey’ peer-tutor training scheme

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Background: Fourth year medical undergraduates at Edinburgh University can use ‘Harvey’, the cardiac patient simulator, to give extra-curricular tutorials to third year students providing they complete the requisite training. Here, we evaluate this training scheme.

Summary of work: Pre-training, twelve fourth year undergraduates completed a questionnaire assessing clinical examination, knowledge and teaching skills and undertook a cardiovascular OSCE using ‘Harvey’. Training consisted of ‘Harvey’ sessions, focusing on teaching methods, overseen by a Consultant Cardiologist, lasting 1 hour/week for 8
weeks. Post-training, tutors undertook another 'Harvey' OSCE and completed another questionnaire.

**Summary of results:** Significant improvements in OSCE scores were noted post-training (97.3+/−0.7% Vs 62.1+/−3.5%, P<0.0001), with significant improvements within every mark-scheme domain. Tutors rated their knowledge (7.8+/−0.2 Vs 6.1+/−0.4, P=0.0013), examination skills (8.0+/−0.3 Vs 6.8+/−0.4, P=0.0092) and teaching ability (7.6+/−0.2 Vs 5.8+/−0.3, P=0.0001), out of 10, significantly higher post-training. All tutors agreed that learning teaching methods is important, yet only 42% felt they had received such teaching prior to this scheme.

**Conclusions:** Our peer-tutor training scheme provides significant objective and subjective academic benefits.

**Take-home messages:** Peer-tutor training schemes offer training in teaching methods, which is not traditionally covered at medical school but an integral part of practicing medicine.

### 2N4 Self and peer assessment in Medical Biology Education – students’ learning experiences

Charlotte Silén*, Anders Ljungman* (Karolinska Institutet, Dept. Learning, Informatics, Management and Ethics, Berzelii väg 3, Department of Clinical and Experimental Medicine, Faculty of Health Sciences, Linköping University, Stockholm 171 77, Sweden)

**Background:** Self- and peer assessment was implemented in a Medical Biology program as “means of learning” towards becoming lifelong learners and reflective professionals. Students made judgments about their own work and their peers and were required to reflect on their own learning.

**Summary of work:** As an integral part of course work students wrote an essay concerning a molecular technique (PCR) and used negotiated criteria to assess themselves and their peers. Students reflected on the assessment procedure and their own learning. Faculty assessed and gave feedback on the essays and the students’ self- and peer assessments.

**Summary of results:** Students (210 students over three years) improved their understanding of PCR-technique and got insights into the difficulties of assessing and giving constructive feedback. They found that the interpretation of grades and criteria differ between themselves, peers and faculty. The experiences increased their understanding of their own performance, the qualities of an essay and acceptance of more than one way to write a good essay.

**Conclusions:** Integrated self- and peer assessment exercises are well accepted by students to improve subject matter knowledge and promote lifelong learner skills such as reflection.

**Take-home messages:** Involving students in assessment procedures, including requirements of students reflections on their learning stimulate them to learn beyond the specific content.

### 2N5 Peer assessment with pairwise scaling

N Bilge Uzun*, Selahattin Gelbali*, Orhan Odabasi*, Melih Elcin* (Hacettepe University Faculty of Medicine Department of Medical Education and Informatics, Sihhiye, Ankara 06100, Turkey)

**Background:** There are very few studies in the area of the pairwise scaling and peer assessment in our country. The main purpose of this study was to measure and compare medical student’s performances in various behaviors using pairwise scaling and peer assessment.

**Summary of work:** In this study, peer assessment was studied using pairwise scaling technique. This research was conducted among 20 of first-year medical students. Students were asked to complete five different scales. In each item students were asked to compare student pairs, marking the better one. Each scale has 45 pairs of the comparison. The contents of Scales are: 1. To actively participate in the study and discussion; 2. To help group members to learn; 3. To establish effective communication with friends; 4. To respect contributions of friends; 5. To strive for the solution of problems; After some statistical processes values were obtained for all scales. At the end of the process, the scaling value of each student was represented as a point on the number line.
Summary of results: According to the results of scaling study by pair-wise comparison, it was determined that the best student was “Ulvan” according to peer judgment. Her total scale points was 7.85 (max:10).

Conclusions: Providing data by using peer judgment, students can practice evaluating themselves and improve the ability of criticizing. Using pair wise scaling allows us to obtain more objective evaluations.

Take-home messages: Such kind of studies seem very effective in developing alternative assessment methods and using peer assessment in the classroom.

2O WORKSHOP
Teaching or Assessment? Adapting standardized patient cases for either use
Colette L Scott*, Ann Jobe* (NBME & ECFMG, Clinical Skills Evaluation Collaboration, 3750 Market Street, Philadelphia 19104, United States)

Background: This workshop is part of a series of four workshops (quality assurance, patient note assessment, scoring), presented by the Clinical Skills Evaluation Collaboration (CSEC). The four workshops outline important aspects to be considered when developing assessments of clinical skills using standardized patients. Standardized patient educators are challenged to develop high quality case materials for the teaching and evaluation of clinical skills using standardized patients. By varying outcome measures a single case can be used for multiple purposes.

Intended outcomes: This workshop will train participants in the key elements of SP test development including case format, principles of good checklist and post encounter note development.

Structure: After an introduction to the process of case development participants will be divided into two groups; one group will develop a case for assessment and the other group will develop a case for teaching. The groups will reconvene to discuss approaches to providing feedback for each purpose. An exercise in developing a post encounter note will conclude the workshop.

Intended Audience: This workshop is intended for medical school SP educators who design or would like to learn how to design standardized patient material for teaching and assessment purposes.

Level of workshop: Intermediate

2P WORKSHOP
Evidence-based teaching workshop: articles that will change your teaching practice
Sally A Santen*, John Shatzer, Elza Mylona, Robin R Hemphill (Emory School of Medicine, 1648 Pierce Drive, Suite 452, Medical Education and Student Affairs, Atlanta, GA 30322, United States)

Background: Medicine is has embraced the need for evidence-based practice. And as the field of education research is rapidly growing, medical educators should know the evidence from research on and incorporate it into their teaching practice. The format of this workshop will be to present the data and evidence from selected articles on teaching, learning, and assessment. Articles will include the evidence on expert/novice differences, recognizing prior knowledge, active learning, medical decision making using clinical reasoning and pattern recognition, self-assessment and learning in context.

Intended outcomes: The participants will understand the key concepts of each article and develop a plan how they will incorporate the evidence into their teaching practice.

Structure: The evidence will be briefly presented, then, in small groups the participants will plan learning or assessment exercises using scenarios or their own setting. The workshop will be highly interactive, requiring participants to use both the evidence and apply it to their teaching, learning and assessment practices.

Intended Audience: Educators designing teaching, learning or assessment exercises.

Level of workshop: All
2Q WORKSHOP
Finding a route through an enquiry based Medical curriculum
Tim Cappelli*, Hilary Dexter* (University of Manchester, 186 Waterloo Place, Oxford Road, Manchester M13 9PL, United Kingdom)

Background: This workshop will explore the issues of curriculum administration and development of a complex enquiry-based curriculum. Enquiry or Problem based curricular are typified by the complexity of the interrelationships between the component parts of the programme. Such curricula typically consist of problem-based scenarios, underlying knowledge, skillsets, learning activities, assessments, intended learning outcomes (ILOs) and various other elements which need to be coordinated, connected and maintained in order for the programme to function. This workshop draws on the experience gained by the presenters in developing a curriculum mapping knowledgebase for the undergraduate medical programme at the University of Manchester. This knowledgebase will allow tutors, students and administrators to find individual elements of the curriculum and plot their connections to other related elements. This will allow users to easily update PBL cases, review ILOs or identify gaps in the assessments.

Intended outcomes: An understanding of the problems inherent in navigating and maintaining an enquiry based curriculum and an insight into how a curriculum knowledgebase provides a potential solution.


Intended Audience: Curriculum managers, Quality Assurance managers, curriculum development staff, teacher-practitioners, students

Level of workshop: All

2R WORKSHOP
How to teach students and residents to say “I'm sorry”
Leo Aukes*, Janke Cohen-Schotanus*, Jan Borleffs* (Center for Research and Innovation Medical Education, Antonius Deusinglaan 1, Groningen 9713 EV, Netherlands)

Background: A 'professional' physician should be willing and prepared to express regret. Apologizing usually has a positive effect on doctor-patient and other working relationships. However, often physicians experience great difficulty in saying "I'm sorry" to their patients or colleagues regarding mistakes they made or unprofessional behaviour. The same applies to medical teachers or supervisors in relation to their students or residents. Generally, in medical education little attention is paid to train students how to apologize.

Intended outcomes: This workshop provides the participants with an opportunity to experience what it means for themselves, and for the other person, to apologize in difficult situations, and to learn what the possibilities for training in apologizing are.

Structure: Introduction to the theme, guided personal activities in small groups. Plenary exchange and analysis of experiences. Personal commitment of the participants is vital.

Intended Audience: All faculty involved in medical education and medical care.

Level of workshop: All

2S WORKSHOP
Medicine’s social contract with society – an international perspective
Sylvia R Cruess*, Richard L. Cruess*, Yvonne Steinert* (Center for Medical Education, McGill University, 1110 Pine Avenue West, Montreal, QC H3A 1A3 Canada)

Background: Professionalism, which is fundamental to medical practice, must be taught explicitly. It is the basis of medicine's relationship to society, which most observers call a "social contract" which serves as the basis for society's expectations of medicine and medicine's of society. It therefore directly influences professionalism. The role of the healer is universal, but how professionalism is expressed will differ between countries and cultures because of differences in their social contracts.
When professionalism is taught, it should be related to the national social contract. An example: the social contract in the United States, which does not have universal health care, is very different from that of its neighbor, Canada, which does.

**Intended outcomes:** Participants should understand the concept of the social contract and its relationship to professionalism. Each will be asked to outline the societal and medical expectations for their country.

**Structure:** A brief presentation will be given on the nature of the social contract and its relationship to contemporary professionalism. Attendees will then be asked to work with workshop participants from their own country in outlining their national social contract and how it can best be taught and report their findings to the larger group. Because of the many countries represented at AMEE, a large group discussion should be instructive and perhaps productive of new information.

**Intended Audience:** Deans and Associate Deans, Directors of Undergraduate and Post Graduate Programs, and medical educators.

**Level of workshop:** All

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### WORKSHOP

**The use of Gapminder World in medical education**

Hans Rosling (Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden; and Gapminder Foundation, Stockholm, Sweden)

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### WORKSHOP

**In your Face(book): Professional conduct and boundaries in the age of Social Networking Services. How do we advise students?**

Joanna MacDonald*, Stephen Sohn, Peter Ellis (University of Otago, Wellington, PO Box 7343, Wellington South, Wellington 6242, New Zealand)

**Background:** Medical regulations and ethical guidelines largely predate the extensive use of Social Networking Services (SNSs), which are changing the accepted concepts of private and public. Only one previous study has examined this issue for the medical profession. Our recent research showed that young doctors are active users of Facebook, with a considerable number not utilizing privacy options. Some of their material revealed unprofessional attitudes or behaviours, and considerable personal information. Legislators and educators need to consider how to respond to the burgeoning use of SNSs, and its implications for accepted concepts of professional behaviour and boundaries.

The aim of this workshop is to provide attendees with an opportunity to consider the implications of the extensive use of SNSs by young professionals; and how to educate students and young doctors so that their use of SNSs is not damaging to the profession or patients.

**Intended outcomes:** Participants will have increased awareness of the issue and its relevance for medical education and legislation; and begin to formulate educational and legislative responses appropriate to their own setting.

**Structure:** An initial introduction presenting our recent research, followed by small group work exploring the issues and arriving at recommendations or personal action plans.

**Intended Audience:** Students, teachers, legislators.

**Level of workshop:** All

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### WORKSHOP

**CanMEDS-Family Medicine: A new competency framework for family medicine education and practice in Canada**

Elizabeth Shaw*, Danielle Saucier*, on behalf of the College of Family Physicians of Canada Working Group on Postgraduate Curriculum (College of Family Physicians of Canada, 2630 Skymark Ave, Mississauga, L4W 5A4 Canada)

**Background:** As competency-based education gains prominence, the College of Family Physicians of Canada has embarked on a project to articulate the competencies required upon completion of residency training in family medicine. CanMEDS-Family Medicine (CanMEDS-FM) is an adaptation
of the Royal College of Physician and Surgeons of Canada’s CanMEDS 2005 Physician Competency Framework. The initial phase of this work is nearing completion and it will be important to engage with educators internationally who are working to translate competency-based frameworks into curriculum in medical education.

Intended outcomes: Participants will: 1. Understand the design, and rationale of the CanMEDS-FM framework as a description of the competencies required in the comprehensive practice of family medicine in Canada; 2. Offer input on this and competency frameworks in medicine internationally; 3. Discuss the impact of a competency based approach on: a) designing training programs; b) setting curriculum goals and developing learning objectives for educational experiences; c) Trainee evaluation.

Structure: Primarily interactive discussion. A short presentation will introduce the framework and compare it with others internationally. Large group input on the framework and competency-based residency education will be followed by small group discussion and problem-solving to address the implications for postgraduate training.

Intended Audience: Residency/Postgraduate Program directors, curriculum designers and educators.

Level of workshop: All

2W WORKSHOP
Redirecting unprofessional behaviors: a practical approach
Emily Chai*, Audrey Chun*, Sara Bradley*, Helen Fernandez*, Reena Karani*, Nisha Rughwani*, Rainier Soriano*, David Thomas* (Mount Sinai Hospital/Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1070, New York 10029, United States)

Background: Professionalism is a focus of medical education around the world. One goal of any comprehensive program in this area must be to provide feedback to those with identified deficiencies in professional behaviors. However, giving effective feedback in the area of professionalism remains a significant challenge for educators.

Intended outcomes: By the end of the session, participants will 1) identify elements of feedback techniques shown to be effective from the literature, 2) practice giving professionalism feedback to colleagues and learners using real life cases, 3) reflect upon their own experiences and develop practical skills to approach challenging cases, and 4) share strategies for providing feedback across different disciplines and professional levels.

Structure: During this workshop, we will use a variety of instructional methods including large group presentation, small group practice, and facilitated discussions.

Intended Audience: This interactive workshop is designed for an audience of educators interested in developing their feedback skills on professionalism. It is intended for educators at all levels and no prior experience is required.

Level of workshop: All

2X POSTERS
Problem-based learning: Case studies and evaluation

2X1 Comparisons between students’ and tutors’ perceptions of problem-based learning tutorials
Sun Ju Im*, So Jung Yune, Sang Yeoup Lee, Sun Yong Baek (Pusan National University School of Medicine, Beomeo-ri, Mulgeum-eup, Yangsan-si, Gyeongsangnam-do, 626-770 Republic of South Korea)

2X2 On the relationship between students’ participation in tutorial groups and study success
Matti Aarnio*, Juha Nieminen, Eeva Pyörälä (Research and Development Unit for Medical Education, University of Helsinki, P.O. Box 63 (Haartmaninkatu 8), Helsinki FI-00014, Finland)

2X3 Problem based learning – a new access for medical students
Moritz Scholten*, Marco Roos, Katja Götz, Joachim Szeceiny (Department of General Practice and Health Services Research, University of Heidelberg, Voßstr. 2, Geb. 37, Heidelberg 69115, Germany)
2X4  Health problems of population as a guide for developing problem based learning (PBL) modules
José Lúcio Martins Machado*, Valeria Menezes Peixeiro Machado, Joaquim Edson Vieira (Universidade Cidade de São Paulo - UNICID, Rua Crescendo Galeno 448, Tatuapé, São Paulo 03071-000, Brazil)

2X5  Problem based learning of immunology in medicine and veterinary degrees
J. García Casado, R. Solana*, R. Tarazona (University of Extremadura and University of Cordoba, Av Menendez Pidal s/n, Cordoba 14004, Spain)

2X6  Teaching radiology using problem based learning
Peter Corr* (United Arab Emirates University, PO Box 17666, Al Ain 0000, United Arab Emirates)

2X7  Experiences of clinical practice in a problem-based learning medical curriculum and subsequent clinical environments
Sarasvathie Reddy* (Nelson R Mandela School of Medicine, 719 Umbilo Road, Congella, Durban 4037, South Africa)

2X8  Implementation of problem based learning curriculum in undergraduate medical curriculum: the Indian scenario
Maloy B Mandal*, Shipad B Deshpande (Institute of Medical Sciences, Banaras Hindu University, Department of Physiology, Varanasi 221005, India)

2X9  Systematic review and meta-analysis of PBL vs. traditional teaching in regards to students' acquisition of knowledge
Richard Partington*, Kirti Jasani, Zaher Tourni (Manchester Royal Infirmary, Oxford Road, Manchester M13 9WL, United Kingdom)

2X10  Smile and style: The student experience and epistemology in a problem-based curriculum
Gillian Maudsley* (Division of Public Health, The University of Liverpool, Whelan Building, Quadrangle, Liverpool L69 3GB, United Kingdom)

2X11  Problems of the problem-based learning: 6th years' contemplation of curriculum reform
Mutsuhiro Ikuma* (Hamamatsu University School of Medicine, 1-20-1 Handayama, Hamamatsu 431-3192, Japan)

2X12  Progress in basic science and clinical knowledge during 10 semesters in a PBL versus classical curriculum: a randomized controlled trial
Thorsten Schäfer*, Bert Huenges, Andreas Burger, Hebert H. Rusche (Büro für Studienreform Medizin, Ruhr-Universität Bochum, MA 0/47, Bochum D-44780, Germany)

2X13  Problem reformulation based on students' feedback is viable in dynamic PBL medical curriculum
El-Barbary M.*, Al-Haqal L., Al-Rukban M., Khalil M.A. (Faculty of Medicine, King Fahad Medical City, Riyadh 11252, Saudi Arabia)

2X14  Is a PBL curriculum a better nutrient medium for student-generated learning objectives than a PBL island?
Kirsten Geihna*, Alexandra Wüller, Hile Lieverscheidt, Martin R. Fischer, Thorsten Schäfer (University Witten/Herdecke, Alfred-Herthausen-Str. 50, Witten 58448, Germany)

2X15  The effects of PBL sessions introduction to more traditional core curriculum: 12 years after
Jaroslav Mařes*, Marcela Klabanová, Eduard Kocarek, Zdenek Sediacek (Charles University, Institute of Biology and Medical Genetics, 2nd Medical School, V Uvalu 84, Praha 5 150 06, Czech Republic)
2X16 A hybrid PBL model in human biology and medicine degrees through an interdisciplinary subject
Carrió M*, Baños, JE, Berrendero F, Bigorra J, Cardona L, Centeno N, Comas D, Miralles R, Moyano E, Pastor M, Samsó E, Senti M, Solsona JF, Pérez J. (Faculty of Health and Life Sciences, University Pompeu Fabra, Dr. Alguader 88, Barcelona 08003, Spain)

2X17 Medical students’ attitudes to problem-based learning at Hacettepe University
Sevgi Turan*, Ozcan Demrel (Department of Medical Education and Informatics, Hacettepe University, Faculty of Medicine, Sihhiye, Ankara 06100, Turkey)

2X18 Analysis of students’ and tutors’ verbal interactions in Problem-Based Learning
Sun-A Oh*, Eun-Kyung Chung, Young-Jong Woo, Jung-Ae Rhee, Hyun-Cheol Lee, Chang-Soo Park, Sam-Yong Lee, Jong-Hee Nam, Young-II Koh, Jung-Chul Kim (Dept. of Medical Education, Chonnam National University Medical School, 5 Hak-Dong, Dong-gu, Gwangju, Korea)

2X19 Assessing student performance in problem-based learning in the first two years of medical school
Chan LC*, Yip ALM (The University of Hong Kong, Li Ka Shing Faculty of Medicine, Sassoon Road, Pokfulam, Hong Kong 0000, Hong Kong)

2X20 Successful PBL tutoring – know your students. Professional development for PBL tutors in the Bond MBBS program
Christine Tom (Bond University, 2059 The Vistas, Emerald Lakes, 4211 Australia)

2Y POSTERS: Attitudes, ethics and cultural diversity

2Y1 Implementation of biomedical ethics and humanities in medical education: a case study in the Faculty of Medicine, Diponegoro University, Semarang, Indonesia
Ani Margawati*, Hertanto W Subago*, Soejoto*, Arikwan Soejopnoes (Diponegoro University, Faculty of Medicine, Semarang, Indonesia)

2Y2 In praise of systematic diversity: a new model for medical ethics education
MJ de Bree*, MA Verkerk (University Medical Center Groningen, Expertise Center Ethics in Care, Po Box 196, FA 14, Groningen 9700 AD, Netherlands)

2Y3 Islam and the professional ethic in medicine
Seyed Alireza Moniri*, Ahmad Sadat Kalati, Seyede Sara Moniri* (Shiraz University Of Medical Sciences, Namazi Hospital, Cardiovascular Office, Shiraz 09987176934433, Iran)

2Y4 The association between empathy and specialty interest among medical students
Archchana Radhakrishnan*, Andy Flett (Bart’s and The London School of Medicine and Dentistry Centre for Medical Education, Old Medical College Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)

2Y5 There should be something more than advice: a scenario named “who is right?” for empathy teaching
Nazan Karooglu*, Muzaffer Seker (Tip Egitimi ve Bilisimi Anabilim Dali, Selcuk Universitesi Meram Tip Fakultesi, Akyokus, Meram, Konya, Turkey; Medical Education and Informatics Department, Selcuk University Meram Medical Faculty, Konya 42080, Turkey)

2Y6 Empathy in medical students: relationships with social anxiety and communication behaviour
Anita Laidlaw* (University of St Andrews, Bute Medical School, Westburn Lane, St Andrews KY16 9TS, United Kingdom)

2Y7 A multiprofessional assessment of empathy and attitudes toward the underserved
Donald L. Gabard*, Stephen Davis, Sonia Crandall* (Chapman University, One University Drive, Orange, California 92866, United States)
2Y8 Web based ethics education in occupational health care
Anne Heikkinen*, Timo Leino; Susanna Pitkänen; Gustav Wickström (Finnish Institute of Occupational Health, Topeliuksenkatu 41 A, 00250 Helsinki; Finnish Institute of Occupational Health, Topeliuksenkatu 41 A, 00250 Helsinki; University of Helsinki, Topeliuksenkatu 41 A, 00250 Helsinki, University of Turku, Department of Occupational Health, 20014 Turun Yliopisto, Finland)

2Y9 Problem analysis of cultural competence course design from teachers’ survey
Jer-Chia Tsai*, Peih-Ying Lu, Chun-Sheng Lai (College of Medicine, Kaohsiung Medical University, 110 Shih-Chuan first Road, Kaohsiung 807, Taiwan)

2Y10 Medical Ethics OSCE and workplace performance of rural doctor
Kanokwan Sriruksa* (Khon Kaen Hospital, Sirian Road, Tambol Naimuang, Muang District, Khon Kaen 40000, Thailand)

2Y11 ‘The Moral Tale Shows’ lead medical students to learning in conceptual age
Nitipat Bussabarati* (Buddhachinnarat Hospital, School of Medicine, 90 Srithammatripidok, Amphur Meung, Phitsanuloke 65000, Thailand)

2Z POSTERS: Peer assisted learning

2Z1 Teaching at the end of the peer
Juliette King, Vicky Lewis* (Division of Medical Education, Cardiff University, University Hospital of Wales, Heath Campus, Cardiff CF14 4XN, United Kingdom)

2Z2 How do tutors and tutees benefit from peer-tutoring schemes?
Katharine Augustine*, Clare Phillibotts (Southmead Hospital, Bristol North Academy, North Bristol NHS Trust, Monks Park Avenue, Bristol BS9 4DE, United Kingdom)

2Z3 Students teaching students. Role of teaching assistants in early phases of integrated medical curriculum at Mayo Medical School
Wojciech Pawlina*, Nitsha Lachman, Jerry W. Swanson, Joseph P. Grande, Thomas R. Viggiano (Department of Anatomy, College of Medicine, Mayo Clinic, Mayo Medical School, 200 First Street SW, Rochester, MN 55905, United States)

2Z4 Case-based learning to improve clinical reasoning – is peer-teaching as effective as expert teaching?
Stefanie Balzereit*, Diethard Tauschel, Katja Buker, Anja Roeder (Universität Witten/Herdecke, Alfred-Herrhausen-Str. 50, Witten D-58448, Germany)

2Z5 Can peer assisted learning (PAL) be used to reinforce acquired theoretical knowledge in the medical course?
Burke J*, Hart R, Teo UL, Chen SS, Connolly M, Field M (Medical Education Unit, Faculty of Medicine, Wolfson Medical School Building, University Avenue, Glasgow G64 4HJ, United Kingdom)

2Z6 Cross-year medical student tutoring for teaching clinical examination skills on the ward
Rupert Scott* (John Radcliffe Hospital, Oxford University Medical School, Headington, Oxford, OX3 9DU, United Kingdom)

2Z7 Influence of peer-to-peer education in undergraduate education in emergency medicine
Ruesseler M*, Heringer F, Siter M, Marzi I, Walcher F (Department of Trauma Surgery, Goethe University, Theodor Stern Kai 7, Frankfurt 60590, Germany)

2Z8 Can peer-lead case-based conferences improve clinical skills?
Diethard Tauschel*, Katja Buker, Christopher Schmickl, Stephanie Balzereit, Anja Roeder (University of Witten/Herdecke, Integrated Curriculum for Anthroposophic Medicine, Alfred-Herrhausen-Str. 50, Witten 58448, Germany)
229 Peer-assisted Learning (PAL): the trainer experience.  
Field M*, Graham K, Mackenzie J, Caplan R, Burke J (Wolfson Medical School Building, Department of Medical Education, University of Glasgow, University Avenue, Glasgow G12 8BQ, United Kingdom)

2210 Student-Managed Peer-Assisted Learning (SM-PAL)  
James Giles* (Mayo Building, Undergraduate Department, Salford Royal NHS Foundation Trust, Stott Lane, Salford M6 8HD, United Kingdom)

2211 Faculty development for peer tutors: what do we want, and how do we want it?  
Jayasinghe GS*, Evans DE*, Horton D (St George's University of London, Cranmer Terrace, London SW17 0RE, United Kingdom)

2AA POSTERS: Teaching and learning clinical skills and procedures

2AA1 Creating a Community of Practice of clinical skills trainers in South Africa  
George Draper* (Clinical Skills Centre, Faculty of Health Sciences, University of Cape Town, Anzio Road, Observatory, Cape Town 7925, South Africa)

2AA2 A qualitative descriptive study on the evaluation of the clinical skills centre work flow in King Abdulaziz University, Saudi Arabia  
AbduAziz Boker,* Orayma Hamed (Department of Medical Education, Faculty of Medicine, King AbdulAziz University, Jeddah 80205, Saudi Arabia)

2AA3 Factors underlying student extra-curricular involvement: a study in a Clinical Skills Centre  
Salgueira AP*, Sousa N, Costa MJ (School of Health Sciences - University of Minho, Campus de Guimarães, 4710-057 Braga, Portugal)

2AA4 Gynaecological emergency skills drills: a cognitive development tool  
Davida Lyons*, Susan Clark, Jenny Higham (Academic Department of Obstetrics & Gynaecology, Imperial College Healthcare NHS Trust, St. Mary’s Campus, North Wharf Road, St. Mary’s Hospital, London W2 1NY, United Kingdom)

2AA5 A kinesthetic approach to teaching about cerebrospinal fluid  
Jennifer Breckler* (UC Berkeley - UCSF Joint Medical Program and San Francisco State University, 570 University Hall, Berkeley, California 94720, United States)

2AA6 Development of a new radiography clinical skills facility  
England A, Ward A*, Ball B*, Burgess K (Medical Imaging & Radiotherapy, University of Liverpool, Johnston Building, School of Health Sciences, Quadrangle, Brownlow Hill, Liverpool L69 3GB, United Kingdom)

2AA7 Knowledge and skill retention after the advanced cardiac life support workshop – a study in nursing practitioners at the Udonthani Hospital, Thailand  
Bussaba Prasanatkorn* (Udonthani Medical Education Center, Udonthani Hospital, 33 Potniyom Road, Meung 4000, Thailand)

2AA8 Development of clinical skills in medical students: a comparative study  
Leonor-Campos-Aragon* (Universidad Nacional Autónoma de México, Calzada de Guadalupe 120 Mod.23-601 Col. Ex-Hda Coapa, Ciudad de México 14310, Mexico)

2AA9 Efficacy of the educational programme in basic and advanced life support for medical professionals in Croatia  
Sliva Hunyadi-Anticevic, Gordana Pavlekovic*, Davor Milicic (Croatian Resuscitation Council, Croatian Medical Association, Subiceva 9, Zagreb 10 000, Croatia)

2AA10 Teaching basic suturing skills to 1st year medical students – introducing clinical skills earlier in the curriculum  
Hedda Dyer* (Ross University School of Medicine, P.O. Box 266, Picard, Portsmouth, Roseau, Dominica)
2AA11 Pediatric resuscitation training – a mandatory component of the medical school curriculum?
Farhan Bhanji*, Ronald Gottesman, Willem de Grave, Yvonne Steinert, Laura Winer (Rm T-124 Montreal Children’s Hospital, 2300 Tupper St, Montreal, Canada H3H 1P3; Centre for Medical Education, McGill University and Montreal Children’s Hospital; Maastricht University, Centre for Medical Education)

2AA12 Phlebotomy training for patient attendants at Queen Elizabeth Central Hospital (QECH), Blantyre, Malawi
Victoria Walker*, Samantha Lissauer, Elizabeth Molyneux, Armanda Goldstein (Birmingham Children’s Hospital, Steelhouse Lane, Birmingham B4 6NH, United Kingdom)

Bussaya Sujitranoooch* (Chonburi Medical Education Center, Chonburi Hospital, Chonburi 20000, Thailand)

2AA14 Using a mid-term clinical skills examination in the first year of medical school to assess physical examination skill development
Krista Bowers*, Diane M. Ferguson (University of Texas Health Science Center at San Antonio, 7703 Floyd Culi Drive, Mail Code 7879, San Antonio, TX 78229, United States)

2AA15 Plasticast: The next generation of clinical skills videos
Emma Esquillant*, Tim Raffay, Paul Gazzani, Anne-Marie Feeley, Birgit Fruhstorfer, Jamie Roebuck, Lizma Satti, Steven Brydges, Gregory Smith, Peter Abrahams (Warwick Medical School, Warwick University, Gibbet Hill Road, Coventry CV4 7AL, United Kingdom)

2AA16 Experiences of Implementation of “Healthcare Matrix-KMU Edition” in Clinical Medical Education
Su-Shin Lee, Meng-Churn Chen, Ling-Sui Chen, Pei-Ling Hsu, Chung-Sheng La* (Kaohsiung Medical University, #100, TzYou First Road, San-Min District, Kaohsiung 80708, Taiwan)

2BB POSTERS: The student in difficulty

2BB1 Self-development groups reduce medical school stress: a controlled intervention study
Mari Holm†, Reidar Tyssen‡*, Kirsten Irene Stordal‡, Brit Haver† (Dept Behav Sci Med, Institute of Basic Medical Sciences, Faculty of Medicine, University of Oslo, PO Box 1111, †Department of Clinical Medicine, Section Psychiatry, University of Bergen, ‡Institute of Basic Medical Sciences, Faculty of Medicine, University of Oslo, Division of Psychiatry, Helse Bergen HF, Oslo NO-0317, Norway)

2BB2 Stress in Pakistan: working towards student well being
Afshan Shahid*, Zareen Zaidi, Mahmood Ahmed. (Defence Housing Authority - DHA Phase 1, Foundation University Medical Colleges, Jinnah Avenue, Islamabad 44000, Pakistan)

2BB3 Development and validation of a questionnaire of quality of life of medical students
Patricia Tempski, Bruno Perotta, Regina A Possi, Patriccia L Bellodi, Joaquim E Vieira, Lilia B Schraiber, Milton A Martins* (School of Medicine of the University of Sao Paulo, Av. Dr. Arnaldo 455 sala 1210, Sao Paulo - SP 01246-903, Brazil)

2BB4 An analysis of the types of stress and stress coping strategy of Korean medical students
Bo-Hyun Kim*, Sook-hee Ryue (Department of Medical Education, Yonsei University, 250 Sungsan-Ro, Seodaemun-Gu, Seoul 120-752, Republic of South Korea)

2BB5 Study of exam anxiety of nursing and allied health students
Ahadi F*, Ashadi F, Abedsadi J, Ghorbani R, Tabatabal M (Semnan University of Medical Sciences and Health Services, 5th Kilometer of Damghan Road, Seminar 35131-38111, Iran)
2BB6 Screening for depression among medical students at the Pontificia Universidad Católica de Chile

Maria Inés Romero*, Jaime Santander, Mario Hitzchfeld (Santiago, School of Medicine, Marqueta 434; Pontificia Universidad Católica de Chile, Santiago 8330073, Chile)

2BB7 A study of pre-clinical students’ stress levels at Udonthani Hospital, Thailand

Kobchai Uengpoltikphant* (Udonthani Medical Education Center, Udonthani Hospital, 33 Pothiyrom Rd., Mueng 41000, Thailand)

2BB8 Stress coping strategies among medical students of a Federal University from southern Brazil

Greice Suellen Batista, Antônio Mazzei Santana, Suely Grosseman*, Laura Betton Eidt, Fernando César Wehrmeister, Valdes Bollela (Campus Universitario sem número, Centro de Ciências da Saúde/ Departamento de Pediatria, Trindade, Florianópolis, Santa Catarina, Brazil; Universidade Federal de Santa Catarina, Florianópolis 88040-900, Brazil)

2BB9 Improving remedial medical students’ performance in Clinical Skills Assessment

KS Murthy*, Ged Byrne*, P O’Neill (Medical Education Office, Education and Resources Centre, University Hospitals of South Manchester, Wythenshawe Hospital, 1 Floor, ATR4, Southmoor Road, Manchester M23 9LT, United Kingdom)

2BB10 Delayed progression in medicine

JVM Chow*, K Anderson* (St George’s, University of London, Cranmer Terrace, London SW8 1BH, United Kingdom)

2BB11 Voluntary clinical workshops in the skills lab – do we reach the poorly performing students?

Niemi-Murola Leila*, Kuusi Timo (Development and Research Unit for Medical Education, University of Helsinki, P.O. Box 63, Haartmaninkatu 4, Helsinki FIN-00014 HY, Finland)

2BB12 Impact of a student support initiative for medical students in their clinical years

Mariette de Villiers, Martie van Heusden, Ben van Heerden* (University of Stellenbosch, Faculty of Health Sciences, PO Box 19063, Tygerberg 7505, South Africa)

2BB13 Who needs a mentoring program among medical students?

Seung-Min Oh* (Yonsei University Medical Center, 134, Shinchon dong, Seodaemun gu, Seoul, Korea., Department of Medical Education, Yonsei University College of Medicine, Seoul 134, Republic of South Korea)

2BB14 A tutorial program for first year medical students in the School of Medicine of Malaga

Santos I*, Lara JP, Barbancho MA, Villalobos A, Villena A, Pena JM, González-Barón S (School of Medicine of Malaga, Boulevard Louis Pasteur, 32, Malaga 29071, Spain)

2BB15 Counseling medical students: students’ evaluation of an experience at the fourth year of the career

Jaime Labarca*, Katherine Droppelmann, Constanza Godoy, Carolina Grau, Maria Inés Romero (Lira 63, Pontificia Universidad Católica de Chile, PO Box 114-D, Santiago RM, Chile)

2CC POSTERS: Continuing medical education/continuing professional development

2CC1 Using interactive webinars to deliver continuing professional development to dental professionals

Madeline Campbell*, Bryan Burford (Northern Deanery, 10-12 Framlington Place, Newcastle-upon-Tyne NE2 4AB, United Kingdom)

2CC2 Comparison of UpToDate and DynaMed regarding methodological type and publication year of their retrieved references: an analytical cross sectional study

Ladan Sayyahensarian, Masoomeh Faghankhani*, Anna Javanbakht, Hamide Reza Baradaran (Medical Education and Development Center, Iran University of Medical Sciences, Next to Milad tower, Hemmat Highway (west to east), Tehran 14156-5983, Iran)
2CC3 Syllabus for on-going training, in relation to the professional profiles of the recipients and the healthcare environment in which they carry out their activity
Calzada M*, Campos-Garcia T, Yera T, Cortes-Martinez C (Andalusian Regional Ministry of Health, Avenida De La Innovacion S/N, Edificio Arena 1, Sevilla 41071, Spain)

2CC4 What a public health service can and should expect in the 21st Century, in light of the on-going training concept
Calzada M, Yera T*, Campos-Garcia T (Andalusian Regional Ministry of Health, Edificio Arena 1, Avenida De La Innovacion S/N, Sevilla 41071, Spain)

2CC5 Learning needs assessment of general practitioners in Rawalpindi and Islamabad
Saima Ibhal*, Kashaf Aziz, Nida Latif, Akhtar Ali Qureshi (Shifa College of Medicine, Sector H-8/4, Pitrar Bukhari Road, Islamabad 7500, Pakistan)

2CC6 Effectiveness of an educational intervention on frequent attendance in primary care
Ramos A*, Dolado R, Cobos A, Joanquet X, Ancochea L (Colegio Oficial de Médicos de Barcelona, Paseo de la Bonanova, 47, Barcelona 08017, Spain)

2CC7 Initiating tools for a national CPD framework in Finland
Topi Litiminen*, Kristiina Patjä* (Pro Medico, PO Box 49, Helsinki FI-00501, Finland)

2CC8 Continuing professional development of dentists in rural areas of Thailand – what did they do?
Supranee Eamrucksa* (Undornthani Medical Education Center, Undornthani hospital, 33 Potniyom rd., Meung 41000, Thailand)

2CC9 CPD needs analysis of a pharmacy population
Hall M, Adair CG*, Murray S (The Queen’s University of Belfast, NI Centre for Pharmacy Learning and Development, 97 Lisburn Road, Belfast BT9 7BL, United Kingdom)

2CC10 Believing in ongoing training
Jose Manuel Rodriguez Montes* (Servicio Andaluz De Salud (Public Andalusian Health Service), Av. Jerez, S/N, Sevilla 41013, Spain)

2CC11 FMOQ – Self-Managed Continuing Professional Development Plan (SCPDP) – The results two years after implementation
Claude Guimond*, Pierre Raiche (FMOQ (Federation of General Practitioners of Québec), 1000, 1440 Sainte-Catherine Ouest, Montréal H4H 2S2, Canada)

2CC12 The construction of a tailor-made questionnaire to predict burnout and work engagement in Dutch veterinarians
Nicole JLM Mastenbroek*, Evangelia Demerouti, Debbie ADC, Jaasma, Peter van Beukelen (Faculty of Veterinary Medicine, Utrecht University, P.O. Box 80163, Utrecht 3508TD, Netherlands)

2CC13 Medical education changes in Tyumen, Russia
Zhmurov Vladimir, Bredneva Nadezhda, Petrushina Antonina, Khvesko Tamara*, Masterskikh Svetlana (Tyumen Medical Academy, Odesskaya Street, 54, Tyumen 625023, Russia)

2CC14 Heart to Heart: A continuing professional development course teaching communication skills essential to palliative care
Anita Singh*, Dori Seccareccia, Kenny Knickle (Temmy Latner Center for Palliative Care, University of Toronto, 60 Murray Street, fourth floor, Toronto M5T 3L9, Canada)

2CC15 Continuing training as a tool for change in caring for people at the end of their lives
Ruiz-Barbosa C, Rabadan A* (Servicio Andaluz De Salud, Avenida De La Constitucion S/N, Sevilla 41071, Spain)
2DD POSTERS: Medical education: Education research, management and leadership training

2DD1 A new model for narrative inquiry research in medical education
HJ Scott* (Kent, Surrey and Sussex Deanery, The School of Surgery, 9 Bermondsey St, London SE1 2DD, United Kingdom)

2DD2 On the quest for patients: The model curriculum at Hannover Medical School (MHH)
Volker Fischer* (Medizinische Hochschule Hannover, Presidents office, OE 9103, Carl-Neuberg-Str. 1, Hannover D-30623, Germany)

2DD3 Students’ satisfaction of a nation-wide web-based course registration system in Hamadan Medical University in Iran
Aileen Kazemi*, Saeid Bashitton, Johan Ellenius, Leila Masoomi, Uno G Fos (Medical Informatics Group, Karolinska Institutet, Department of Learning, Informatics, Management, and Ethics (LIME), Solna Campus, Berzelius vag 3, Stockholm SE-17177, Sweden)

2DD4 The tuition fees debate: impact of higher fees on medical education
Nooorje Boedoo*, Adam Hafez, David Byrne, Helen Graham (Division of Medical Education, King’s College London School of Medicine, Sherman Education Centre, Guy’s Campus, London SE 1 9RT, United Kingdom)

2DD5 How can future capacity for medical and nurse training in General Practices in Wales be ensured?
Phil Matthews* (Wales Deanery, Cardiff University, 8th Floor, Heath Park, Neuadd Mertonydd, Cardiff CF14 4YS, United Kingdom)

2DD6 Roles of class teacher system for medical students: a national survey in Japan
Kazunobu Ishikawa*, Gen Kobayashi, Tetsuhiro Fukushima, Kenneth Nollet, Koji Ohtani, Hitoshi Ohto, Tatsuo Suzuki, Teizo Fujita (Center for Medical Education and Career Development, Fukushima Medical University, 1 Hikarigaoka, Fukushima 960-1295, Japan)

2DD7 Evaluation of exchange system between Spanish Universities: our experience at Faculty of Medicine, University of Malaga
Villena A, Bermúdez R, Aguirre JA, Ruíz-Cruces R, Caballero M, Blanes A* (School of Medicine of Malaga, Boulevard Louis Pasteur 32, Malaga 29071, Spain)

2DD8 Developing leaders in healthcare education: supporting the professional development of senior clinical educators in Hospital Trusts
Lesley Young*, Ed Peile, Neil Johnson, Jane Kidd (University of Warwick, Warwick Medical School, Gibbet Hill Road, Coventry CV47AL, United Kingdom)

2DD9 Developing successful leaders: a model for graduate medical education
Wilhelmine Wiese-Rometsch*, Ingrid Guerra-Lopez, Heidi Kromrei* (Department of Graduate Medical Education, Wayne State University School of Medicine, 540 E. Canfield, Detroit, Michigan 48201, United States)

2DD10 Turning up the volume: developing the voice of doctors-in-training
Susan Kennedy*, Symon Goy* (Kent & Canterbury Hospital, East Kent Hospitals University NHS Trust, Ethelbert Road, Canterbury, Kent CT1 4AN, United Kingdom)

2DD11 The role of communication in medical leadership and possibilities for its promotion
Michael Henninger, Christina Barth* (Pädagogische Hochschule Weingarten, Kirchplatz 2, Weingarten 88250, Germany)

2DD12 What are the internal barriers in research activities at universities?
Zahra Karimian*, Zahra Sabbaghian, Bahram Saleh Sedghpour (Shiraz University of Medical Sciences – Shiraz, Iran; Education Development Center, Shiraz, Iran)

2DD13 Net-Value Measurement: enhancing the understanding of satisfaction studies
Glenna J Ewing* (Des Moines University, 3200 Grand Avenue, Des Moines, Iowa 50312, United States)
2EE SECRETS OF SUCCESS (1)

2EE1 The effectiveness of web-based anatomy instruction in radiation oncology
Joanne Alfieri*, Yvonne Steinert, Peter McLeod, Lorraine Portelance (McGill University, Centre for Medical Education, Lady Meredith House, 1110 Pine Avenue West, Montreal, Quebec H3A 1A3, Canada)

Short description of innovation: Knowledge of pertinent anatomy for treatment planning is key for success as a Radiation Oncologist. Paradoxically, there is a serious lack of educational resources of this nature for radiation oncology residents. Multidisciplinary experts collaborated to develop an interactive, web-based learning module on radiological anatomy. The objective was to evaluate the effectiveness of this learning module at improving residents’ knowledge and application of key anatomy and treatment planning concepts.

What will be demonstrated: We conducted a randomized controlled study to test the learning module’s effectiveness. Thirty-seven radiation oncology residents participated; 20 were granted access to the module while 17 control trainees had no access. Pre- and post-tests and a demographic survey were administered to all participants. Courseware evaluation and retrospective performance surveys were administered to the intervention group.

What is particularly interesting about the innovation: The pre- and post-test mean scores were 35% and 52%, and 37% and 42%, for the intervention group and the control group respectively. The mean improvement in test scores was 16% (p<0.05) for the intervention group and 5% (p=NS) for the control group. Survey data revealed that the majority of residents are enthusiastic about web-based learning. They found the module to be relevant, interactive, easy to navigate, and effective for learning. Retrospective performance surveys showed a statistically significant change in all measured objectives.

How could it be implemented: The web-based learning module is an effective learning tool for radiation oncology residents.

Why participants should come to the demonstration: Web-based learning is an effective way to enhance radiation oncology residents’ knowledge in anatomy and treatment planning.

2EE2 Enhancing Anatomy teaching via e-learning
Maria Toro-Troconis*, Adam W. M. Mitchell, Anthony Firth, Julie Edwards, Michael Barrett, Jenny Higham (Imperial College London, Sir Alexander Fleming building, South Kensington campus, Room 161, London SW7 2AZ, United Kingdom)

Short description of innovation: A series of e-learning materials focused on imaging and living anatomy were developed to support the delivery of Anatomy in the Graduate Entry Programme at Imperial College London.

What will be demonstrated: A large bank of living anatomy still images and video-clips were designed as an interactive e-module. The functionality offered by the Picture Archiving and Communications System (PACS) was also replicated in four different interactive imaging modules covering (thorax, knee, shoulder and abdomen). Each module offered three views: Explore, Interact, and Test. The explore view allows student to use the zoom facility. The Interact view offers a series of video clips in which the lecturers explain the images displayed within the 3 different planes. The test view offers self-assessment questions.

What is particularly interesting about the innovation: The students’ evaluation (n=25) showed more than 96% of responders found the Anatomy course a positive e-learning experience. The living anatomy e-module was ranked as the best e-learning material (28%) followed by the thorax imaging tool (12%). The Living Anatomy e-module was reviewed by the responders between 1-5 times by 76% of the responders. On the other hand, the imaging e-modules had a lower uptake, reviewed by the responders between 1-5 times: shoulder (12%), knee (8%), abdomen (52%), and thorax (56%).

How could it be implemented: The delivery of the Anatomy e-learning materials has proved to be an effective engaging learning experience. However, it is worth pointing out the importance of embedding the use of e-learning materials. This may be the reason why the living anatomy e-module had a higher uptake than the imaging ones.
**2EE3**  Evaluation of a new interactive online teaching aid for transesophageal echocardiography (TEE)

Gordon Tait*, Annette Vegas, Massimiliano Meineri, Michael Corin, Jo Carroll, Candice Silversides, Christopher Feindel (Toronto General Hospital, Department of Anesthesia and Pain Management, Eaton North, 3-427, 200 Elizabeth Street, Toronto, Ontario M5G 2C4, Canada)

**Short description of innovation:** Transesophageal echocardiography (TEE) is a standard imaging tool used intraoperatively in cardiac surgery and in cardiology. Trainees in anesthesia, cardiac surgery and cardiology have difficulty learning to translate the 2D echocardiography images into the 3D anatomy of the heart. Traditionally, this skill is taught using patients. We have developed an online application that allows trainees to view the 20 standard TEE diagnostic views in conjunction with an interactive 3D heart model showing the position of the TEE probe and the echo plane. The model can be rotated and sectioned along the echo plane to show the internal structures represented in the TEE image.

**What will be demonstrated:** We evaluated the face and content validity, usability and construct validity of the application. Multiple choice tests were administered before and after 3 days of access to the Standard Views application.

**What is particularly interesting about the innovation:** 10 subjects (4 anesthesia, 3 cardiology and 3 cardiac surgery Fellows) had a 31% improvement in scores from 51% to 81% (p< 0.001).

**How could It be implemented:** This application produced significant learning and was highly rated as an important, useful and easy to use resource.

**Why participants should come to the demonstration:** This application is now freely available on the Web (http://pie.med.utoronto.ca/tee) and is being translated into Chinese, Japanese, Russian, German, French, Italian, and Polish.

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**2EE4**  Interactive three-dimensional Virtual Brain Model as a companion to Neuroscience Education

Wieslaw L. Nowinski*1, Wojciech Pawlina*2 (*Biomedical Imaging Lab, Singapore Bioimaging Consortium, Agency for Science, Technology and Research, Singapore; 2Department of Anatomy, Mayo Medical School, College of Medicine Mayo Clinic, Rochester, MN, United States)

**Short description of innovation:** The implementation of student-centered education and outcomes-based curricula in the last decade has profoundly changed the paradigm for teaching and learning in medical schools. Basic science courses were redesigned to be more attractive and effective to medical students possessing a variety of learning styles. While the medical education environment undergoes continuous changes on many fronts, the demand for technological innovations in education remains constant and intense. To facilitate learning and teaching of brain structures, an interactive 3D model derived from multiple 3 and 7 Tesla magnetic resonance imaging (MRI and MRA) scans of brain was created and displayed in digital media environment. The virtual 3D cerebral model contains detailed rendering of brain surface, internal structures, cerebral vasculature and ventricular system. The vascular anatomy comprises the labeled cerebral arteries with their branches and cerebral veins including dural sinuses with their tributaries. All structures are interactive and designed for intelligent exploration of this organ. The entire 3D model of the brain or any region is able to be rotated, zoomed, and panned in real time. The brain can be virtually sectioned in any of the three planes with anatomical landmarks of clinical importance displayed and labeled on each section. Vasculature may be extracted from the tissue, as well superimposed on the anatomical structures. In addition, the program generates automatically objective learner’s evaluation in varying difficulty settings, individualized self-learning assignment, and evaluation of outcomes.

This application is suitable for self-directed modules, classroom presentations, preparing of teaching materials, and student self-assessment.
Session 3

3A LARGE GROUP SESSION: An introduction to medical education
Chairperson: Larry Gruppen (University of Michigan, United States); Athol Kent (University of Cape Town, South Africa)

In this session, recognised international authorities will introduce some key topics in medical education. The session will be of particular value to those relatively new to the subject and will include questions from the audience and discussion with the panel.

3B SYMPOSIUM: Can medical education contribute to world peace?
Chairperson: Matthew CE Gwee (National University of Singapore). Panelists: Steven L. Kanter (Editor, Academic Medicine, and University of Pittsburg School of Medicine, US); Colin Green (Northwick Park Institute for Medical Research, UK)

“It was the best of times, it was the worst of times” (Charles Dickens). We all now live in a globalised knowledge-based economy in a flat world of the 21st century, but we also live in a world filled with conflict, turmoil and strife bringing along destruction, despair and even death in many nations. Race, religion, politics and economics, and every conceivable difference in our perceptions of right and wrong and good and evil, continue to plague us and continue to be the great divides of nations across the globe, although we all belong to the same human race. A divided world in which nations zealously defend national interests out of a serious lack of understanding and intolerance of one another pose serious threats to and compromise world peace. Medical education in the 21st century strongly advocates the teaching of medical professionalism, a significant aim of which is to inculcate and nurture in medical students the noble qualities of humanism including compassion, empathy, integrity and respect for patients. Internalization of such important humanistic attributes can help medical students develop, not only better insights and understanding of the doctor-patient relationship, but also insights which go beyond just patient-care. Internalization of such humane attributes also has the potential of nurturing in students a more caring, more sensitive, more tolerant and a more trusting attitude toward their fellowmen, irrespective of colour and creed. Furthermore, medical education conferences like AMEE also provide excellent forums and opportunities for medical educators from across the globe to readily share and learn together with and from each other free from the prejudices which divide the world. Thus medical education, by its very nature, also nurtures in medical students and medical educators the need to have a strong sense of social responsibility.

Can medical education therefore take on educational leadership to contribute to world peace?

3C FRINGE (1)

3C1 Assessment drives the curriculum (crazy) – cart before horse and other fallacies
Antonia Pelz*, Stefan Reinisch, Moritz Gebauer, Jaqueline Pinnow, Hartmut Riehn, Peter Kube, Jörg Pelz (Rhein-Universität Bochum, Medizinische Fakultät, Modellstudiengang, Universitätstraße 150, Bochum 44801, Germany)

Why do we assess? – In the best case scenario to give fair and constructive feedback to students about their progress, in the worst case scenario to put grades on students (e.g. ‘troll’ – cf Harry Potter and the Half-Blood Prince). We heard so often, that “assessment drives the curriculum”, “drives learning” that many have come to assimilate this as the natural order of things – a classical case of “cart before horse”. We read that “the days of the well meaning amateurs in assessment are over” (cf Lancet 362 – *exclusion bias* and *wishful thinking bias*) – assessment “demands careful attention to detail by individuals with expertise in the art” – (art! --- not science!? *language bias* in combination with *friend control bias*). This AMEE conference as well as the forerunners has quite a lot of papers and presentations focussing on assessment – a collective undertaking of “how to square the circle”. We conducted a cross-sectional study with sufferers of this faculty driven enterprise – our fellow students – to analyse and understand the results of fostering assessment over the years. Share with us their experience with “the art of assessment” – faculty’s hobbyhorse, ridden not exclusively by compassionate teachers with attitude, but sometimes by
warriors. On demand are committed students and faculty – leave the rest to the individuals with “expertise in the art”: since all methods of assessment have strengths and inherent weaknesses there remains “much ado about nothing” (cf Shakespeare).

3C2 **Flex and Ply: Does my S2 look big in this?**
Karen Fleming*, John McLachlan*, Gabrielle Finn, Aoife Ludlow (University of Ulster, School of Art & Design, York Street, Belfast BT15 1ED, United Kingdom)

The Universities of Ulster and Durham are engaged on a Wellcome Trust funded project exploring material metaphors for knowledge and understanding of anatomy. This presentation will use imagery, garments and live models to illustrate various aspects of the project. These will include the popular and well travelled Incisions Gown [http://news.bbc.co.uk/2/hi/health/7213757.stm](http://news.bbc.co.uk/2/hi/health/7213757.stm) and jeans representing various dermatome maps of the lower limbs. (Dermatomes are areas of skin supplied by a nerve). These jeans illustrate unexpected variation between such maps, and unanticipated problems which arise in moving from two-dimensional illustrations to three-dimensional representations as required in clinical practice. Mapping from the texts exposed anomalies in the diagrams and implied that the body had a mismatched side seam. We will show how such approaches can be implemented in teaching, but also how they evoke complex, profound and sometimes moving narratives from members of the public, which in turn can be used to enhance learning. We will also discuss and illustrate other hidden maps of the body such as Langer and Blaschko lines, as we move back and forward between medical, aesthetic and personal identity discourses of the body. (For non anatomists, S2 is the dermatome which covers the derriere…)

3C3 **Politics meets medicine: electronic magic board revolutionizes healthcare education!**
Bradley Niblett*, James Robertson*, Paul Gamble*, Jason Verbovszky, Karim Bandali* (The Michener Institute for Applied Health Sciences, 222 St.Patrick St, Toronto M5T 1V4, Canada)

Viewers from around the world were captivated with the recent coverage of the historical Presidential election. A political analyst, with a slight touch of a computer screen amazed audiences by dividing election predictions and results into states and counties, comparing, contrasting and highlighting voting trends at lightening speed. Witnessing this new emerging technology come to life challenged our education team to consider how we could best leverage this new touch-screen technology to advance medical educational opportunities and experiences with the electronic health record. Together, the large touch-screen and advanced software provide a new way of accessing, analyzing, and sharing information in a manner that is ideal for students and healthcare professionals working in groups. Instead of using a keyboard to call up information on a small monitor, students and healthcare professionals can use their fingers to launch images and move them around on the 60" screen. Several diagnostic images can be displayed at once including CT slices, digital pathology and PET images. Once displayed, images can be magnified or moved by ‘pulling’ on them or can be merged (and potentially analyzed) by stacking them on top of each other. The real value of the touch-screen EHR is that the patient record becomes a fluid source of information which can be delivered, assessed and developed in an inter-professional experience, with the possibility of sharing this live data to remote locations for secondary consideration (diagnosis or for education).

3C4 **This meeting has 22 minutes**
David Topps*, Maureen Topps* (Northern Ontario School of Medicine, 935 Ramsey Lake Rd, Sudbury P3E2C6, Canada)

To paraphrase Milton Berle, meetings are where we take minutes but waste hours. This seems to be especially true in videoconferencing. In Northern Ontario, we have a distributed medical education program that spans an area the size of France and Germany combined. We spend a lot of time in online meetings. Our teachers and learners spend a lot of time in online small group work. Based on our sometimes painful experiences, we will present a short, multimedia enhanced, “rant” about effective meetings and group work online. There will be active audience participation, along with summarised action items… in true meeting
style. We also intend to augment the session with live audience feedback and real-time live “commentary”, in a style first advanced by Stephen Downes. Above all, some irreverence will be injected into a formely dry topic.

3C5  Mickey Mouse Medicine  
Cathy Newman*, Jamie Newman* (Mayo Clinic College of Medicine, 200 1st St SW, Rochester, Minnesota 55905, United States)

There are many ways to stimulate discussion about medical topics from patent medicine to animal experimentation. We have used cartoons to initiate discussion. In this interactive and “Fringey” session we will show clips and a full cartoon and with audience participation demonstrate how to conduct such a discussion; in this case using cartoons from the 1930s.

3C6  The fundamental thing apply...
Brian Bailey* (Edinburgh Napier University, School of Health and Social Sciences, Edinburgh EH2 4LD, United Kingdom)

A health science lecturer reflects on the important role that music has played in his teaching and he recalls in particular his participation in recent years in the AMEE Fringe. He will argue that, in the over-rationalistic, technology-dominated world of HE, where the risk of death-by-powerpoint is ever present for students at any level, the Fringe provides an essential forum for experimentation. For his part the author appreciates the opportunity to ‘perform’ at AMEE. These experiences have helped in developing the confidence to practise ‘back home’; one of the consequences of which has been to transform large group lectures into more moving and well evaluated theatre events. The author will provide examples of the use of music at those events including music: as soundtrack, as case history, as metaphor, and as scenario-design template.

3D  RESEARCH PAPERS: Feedback

3D1  Providing influential feedback: How feedback is delivered and students’ self-assessments matter more than the severity of your concerns
Kevin W Eva*, Juan Munoz, Mark D Hanson, Allyn Walsh, Jacqueline Wakefield (McMaster University, MDCL 3522, Hamilton, Ontario L8P 4G3, Canada)

Introduction: A paradox is developing in medical education pertaining to the use of self-assessments for guiding the development and maintenance of competence. Considerable evidence suggests that self-judgments often provide invalid indications of ability, thereby emphasizing the importance of external feedback. However, it must also be recognized that external feedback cannot be delivered in a vacuum (i.e., it will always be interpreted in the context of one’s impressions of one’s own ability, regardless of the trustworthiness of those impressions). This paper will present the first study in a line of research aimed at better understanding the relationship between self-judgments and the uptake of external feedback.

Methods: 41 medical students participated in a 10-station OSCE. At two intervals students were asked to evaluate their performance on each preceding station and to rate the quality of the feedback provided by the faculty observer. After completing the OSCE, students were asked to write down any learning goals they had generated during the OSCE, to indicate what activities they would engage to fulfill those goals, and to indicate which station(s) led them to generate each goal/learning activity. Regression analyses were used to determine which of the following variables predicted the generation of learning goals/activities: (a) difficulty of the station, (b) faculty observer’s opinion of the student’s performance, (c) student’s opinion of his/her performance, (d) student’s opinion of the faculty observer’s feedback, and (e) students’ progression through the OSCE (i.e., early versus late stations).

Results: A consistent pattern was found when analyzing the likelihood of generating learning goals and specifying learning activities. The student’s actual performance, as judged by the faculty observer, had no influence on the generation of learning goals or activities. While no variable accounted for a large portion of the variance, the students’ self-assessment and their
perception of the quality of the feedback received were the only two variables statistically predictive of the outcomes of interest.

Discussion and conclusion: These findings provide evidence that, while self-assessments may not themselves validly indicate ability, it is still critical to determine how students perceive their own ability as their opinion drives their learning goals to a greater extent than the feedback they receive from their evaluators. That said, the finding that perceived quality of feedback was also influential leads us to believe that there is much to be gained from better understanding what constitutes good (i.e., productive) feedback in situations where self-judgments and performance are misaligned.

3D2 Who wants feedback? An investigation of the variables influencing residents' feedback-seeking behavior

Pim Teunissen*, Diederik Stapel, Cees van der Vleuten, Albert Scherpbier, Klarke Boor, Fedde Scheele (Maastricht University, FHML, Department of Educational Research & Development, Maastricht P.O. Box 616, 6200 MD, Netherlands)

Introduction: The literature on feedback in clinical medical education mostly concerns the information provided by, and the intentions of, the feedback-giver (1). Trainees are treated as passive recipients. In contrast with this, organizational and social psychologists argue that people actively seek information about their own performance (2). In different contexts, different factors may contribute to an individual's decision to look for feedback. We re-conceptualised residents as active seekers of feedback. Our research question was: what individual and situational variables influence residents' feedback-seeking behaviour in relation to night shifts. During night shifts residents work independently and it is up to them to seek feedback.

Methods: Based on social and organizational psychology literature on feedback-seeking behaviour, we developed a hypothetical model of residents’ feedback-seeking behaviour. It consisted of eleven hypothesis linking four predictor variables (trainees’ learning and performance goal orientation, and instrumental and supportive leadership provided by clinical supervisors), two mediator variables (perceived value of feedback and possible downsides of feedback seeking), and two outcome variables (trainees’ frequency of feedback inquiry and monitoring). Using validated multi-item scales for each variable, we conducted a cross-sectional survey among obstetric-gynaecologic residents not-in-training and residents in their first two years of training in the Netherlands. We used structural equation modelling software to test the hypothesized relationships between variables.

Results: Of the 217 questionnaires, 166 were returned (response rate 76.5%). Results showed that residents with a learning goal orientation perceive more feedback value and less downside (e.g. self-presentation costs). Residents with a performance goal orientation perceive more downside of feedback seeking. Supportive physicians lead residents to perceive more feedback value and less downside. Residents who perceive more feedback value report a higher frequency of feedback inquiry and monitoring. More perceived downside of feedback is only associated with more feedback monitoring. Overall, nine of the hypothesised eleven relationships were confirmed.

Discussion and conclusion: We conducted a nationwide study based on the premise that residents are not just passive recipients, but also active seekers of feedback. The feedback-seeking behaviour of obstetric-gynaecologic residents in relation to night shifts partly depends on residents’ goal orientations and attending physicians’ supervisory style. Further research on other variables and in other contexts is necessary. Our results show that clinical supervisors should realize that residents might have self-improvement but also self-enhancement or self-verification motives to be interested in feedback and that supportive supervisors who are clear about goals and expectations lead residents to actively seek feedback.

References:
Introduction: 360-degree feedback is widely used in revalidation programmes. However, little has been done to systematically identify the variables that influence whether or not performance improvement after such an assessment is actually achieved. This study aims to explore which factors are incentives, or disincentives, for consultants to implement suggestions for improvement from 360-degree feedback.

Methods: In 2007, 109 consultants in the Netherlands were assessed using 360-degree feedback and a portfolio. We conducted semi-structured interviews with 23 consultants, purposively sampled based on gender, specialty and views as expressed in a previous questionnaire. The interviews took place more than one year after the initial assessments to maximise the chance that the consultants had initiated changes to improve their practice. All interviews were tape-recorded and transcribed literally with the consultants’ permission. The analysis was based on the principles of grounded theory. Two researchers coded all the interviews independently. The two researchers independently assigned the levels of improvement reported by the participants to four categories based on a model of behavioural change in health care. The levels are: awareness of a need for improvement (level 1); acceptance of a need for improvement (level 2); actual change (level 3); and maintenance of change (level 4).

Results: The participants were fourteen male and nine female consultants from eight hospitals and thirteen specialties. Of the 23 consultants, eleven reported concrete steps towards performance improvement (Levels 3 and 4). The other participants had not taken concrete steps (Levels 1 or 2). All the consultants mentioned factors that promoted or impeded change. We identified four groups of factors that can influence consultants’ practice improvement after 360-degree feedback: 1) individual factors, such as self-efficacy and motivation, 2) factors related to content of the feedback and the quality of the feedback, 3) characteristics of the assessment system, such as facilitators and portfolio that stimulate reflection, concrete improvement goals, and annual follow-up interviews; and 4) contextual factors related to: workload, lack of openness and social support, lack of commitment from hospital management, free-market principles and public distrust. Contextual factors were consistently characterised as impediments to change. This was surprising in light of the improvements reported by eleven participants. This issue was explored in the interviews. Consultants who mentioned the skills of facilitators in relation to encouragement of reflection or goal setting, or who emphasised concrete and achievable goals attained higher levels of improvement than those who made no mention of these aspects. The analysis of consultants’ narratives suggested that specific skills of facilitators (encouraging reflection and specificity of goals) and concrete goal setting might overcome negative contextual factors and are key to performance improvement.

Discussion and conclusion: Our study demonstrates that, despite negative effects from contextual factors, such as high workload, lack of openness and social support, and the financing and organisation of health care, 360-degree feedback can be a positive force for practice improvement provided certain conditions are met. Feedback quality, concrete goals for change, follow-up interviews and a portfolio and a facilitator that both promoted reflection advanced the use of feedback for improvement. However, our study also reveals that most consultants experience barriers to improvement mostly due to the failure of hospitals to create a climate that is conducive to collegial support and lifelong reflective learning. This study underscores that hospitals and consultant groups should be aware of the existing lack of openness and constructive feedback. Consultants indicated that sharing personal reflections with colleagues could improve the quality of collegial relationships and heighten the chance of real performance improvement.
3D4 Effects of feedback by feedback providers with high or low credibility: a randomized controlled trial

Monica van de Ridder*, Ciska Berk, Karel Stokking, Ole ten Cate (Leerhuis Albert Schweitzer ziekenhuis, Postbus 444, Dordrecht 3300 AK, Netherlands)

Introduction: Feedback in the clinical setting is provided by a variety of persons: medical specialists, residents, nurses and also patients provide feedback. They differ in many aspects from each other, for example in age, sex, experience, professional background, knowledge, attitude, and skills.

For the acceptance of a feedback message by the feedback recipient, his or her perception of the credibility of the feedback provider could play an important role. Aspects of a person's credibility are: expertise, reliability and his or her intention (1). Feedback provided by a highly credible feedback provider, is perceived as more accurate and feedback recipients are more motivated to improve (2). Outcomes in research on credibility are often reported on the perception level and not on performance level. The research question for this study is: what is the effect of feedback by feedback providers with high or low credibility on student's satisfaction, self-efficacy, clinical skills performance and transfer?

Methods: Students (n=67) performed a clinical skill and received feedback by either a high-credible (training lay actor, older man, acting as a medical specialist and professor with, white coat, verbally referring to his experience) or a low-credible (female student-assistant, informal clothing, only slightly older then the students) feedback provider. Directly after receiving the feedback, students performed the clinical skill again, and repeated it after three weeks. Dependent variables were questionnaire-based satisfaction (α=.83), self-efficacy measured with visual analogue scales, video recordings of a repeated performance analyzed by two raters (Pearson's r=.94), and the solving of diagnostic problems on standardized patients. Results were statistically analyzed using T-test and ANCOVA. Results are only reported on the group with a complete data set (n=51).

Results: No statistical difference was observed for satisfaction, self-efficacy, performance measured directly after the intervention, and transfer. A statistically significant difference was observed (p < .02) for the performance measured after three weeks. Students who received feedback from the highly credible feedback provider performed better. However, the effect size was small: partial eta2=.11.

Discussion and conclusion: These results suggest that for student's satisfaction, self-efficacy, and performance credibility of the provider does not make an immediate difference. On the longer term feedback provided by a highly credible feedback provider seems to have more impact on the performance of the clinical skill. Suggestions for further research are to use a medical specialist instead of a training actor, and to further explore student's perception of feedback provider's credibility.

References:
2. Roberson QM, Stewart MM. Understanding the motivational effects of procedural and informational justice in feedback processes. The British Psychological Society; 97: 281-98.

3E SHORT COMMUNICATIONS: Assessment: The OSCE

3E1 Stability of OSCEs conducted at the Alberta International Medical Graduate Program: Results of a latent trait analysis over three years

Baig L*, Violato C, Hofmeister M (Alberta International Medical Graduate Program, G212, Health Sciences Centre, 3330 Hospital Drive N.W., The University of Calgary, Calgary T2N 4N1, Canada)

Background: Several high-stakes objective structured clinical exams (OSCEs) have been employed over three years to assess International Medical Graduates (IMGs). The purpose of the present study was to assess the stability of these OSCEs and adduce evidence for identifying an expiry date for the IMG assessments.

Summary of work: Forty-nine IMGs in 2006, 186 in 2007 and 236 in 2008 participated in 10-station OSCEs and 4 of the same stations were used in each year. Internal consistency reliability, and generalizability analyses (Ep2) were conducted. Employing latent trait
analyses, item characteristic curves (ICC) were derived for each of the 4 stations. The ICCs were compared across three years.

**Summary of results:** The Cronbach's alpha reliabilities of the OSCEs exceeded .90 and the Ep2 > .70. Standardized theta's were equivalent for each station across the three year period indicating equivalent ICCs for a 2 parameter model.

**Conclusions:** The 4 OSCE stations used by the AIMG program over three years have adequate internal consistency reliability, stable generalizability (Ep2) and equivalent item characteristics. The process of assessment employed for IMG's is valid and stable OSCE stations may be used several times over without compromising psychometric properties.

**Take-home messages:** With careful security, high-stakes OSCEs may use the same stations repeatedly as the psychometric properties are stable over several years with different samples of IMGs.

### 3E2 Creating a communication skills OSCE examiner training DVD

Belinda Yamagishi*, Carol Gray*, Helen Shore, Susan Gregory (Royal Veterinary College, Royal College Street, London NW1 0TU, United Kingdom)

**Background:** The use of Objective Structured Clinical Examinations (OSCEs) to assess communication skills has become the accepted method at several veterinary schools in the UK. However, a common problem encountered at schools was the training of examiners for these stations.

**Summary of work:** A project grant enabled the development of a training DVD for the veterinary schools to access. The DVD consists of four scripted OSCE stations, each played out in four different ways to varying levels of skill, with associated feedback sessions. Educational role-players play the client roles and final year students learned the scripted scenarios for the four versions of each station.

**Summary of results:** After filming and editing the DVD, the marking checklist was scrutinised and adapted for exam authenticity. A viewing session was arranged for a group of experienced examiners.

**Conclusions:** Feedback from the group highlighted the examiners' anxiety about variability and the need for clearer aims for each station. This resulted in the checklists needing further analysis and adaptation.

**Take-home messages:** Before releasing the DVD for examiner training nationally, a small research project to test reliability will be undertaken as, although the DVD resource looks professional, the accompanying training package needs to be as robust as the OSCE itself.

### 3E3 Peer examiner evaluation and feedback during an OSCE: are students comparable to faculty?

Geneviève Moineau*, Barbara Power, Anne-Marie J Pion, Timothy J. Wood, Susan Humphrey-Murto (University of Ottawa Faculty of Medicine, 2038-451 Smyth Road, Ottawa, ON K1H 8M5, Canada)

**Background:** Medical students have been used as raters in objective structured clinical examinations (OSCE). No data exists on their ability to provide feedback. This study compares student examiner (SE) and faculty examiner (FE) evaluation and feedback during an OSCE.

**Summary of work:** Year 2 students (candidates, n=66) participated in a 9 station formative OSCE. Year 4 students acted as SEs. In each station, SEs and FEs independently scored the candidates. SEs provided feedback to candidates after each encounter. FEs evaluated SEs on the feedback provided using a standardized rating scale (1 = strongly disagree and 5 = strongly agree) for several categories; balanced, specific, accurate, appropriate, professional, as well as similar to feedback FE would have provided. All participants completed questionnaires.

**Summary of results:** Exam reliability was comparable for SE and FE (cronbach alpha = 0.45 and 0.46 respectively). Examination checklist scores demonstrated a high correlation (r = 0.81, sig .00). Correlations on the global rating for each station ranged from 0.24 to 0.78. For pass/fail decisions, 95% of candidates were classified identically. FEs rated the SE feedback highly with mean scores ranging from 4.02 to 4.44 for all categories.
Conclusions: SEs appear to be a viable alternative to FEs in a formative OSCE including their ability of giving feedback.

Take-home messages: Medical students can function as examiners for formative OSCE and may be a solution for this resource intensive activity.

3E4 The use of the objective structured clinical examination to differentiate physician assistant students and recently graduated physicians
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Background: The OSCE is widely known for evaluation of clinical abilities of medical students and residents. The purpose of this study was to investigate whether a (standard) OSCE would differentiate physician assistant students (PA students) from recently graduated physicians.

Summary of work: We conducted an OSCE in which we evaluated end second-year PA students (N=31). All went through five clinical assessment stations. The students were rated at each station by a trained standardized patient evaluator using a checklist for performance in history taking, physical examination, communication skills and professional behaviour. After each station the examinees made a report containing relevant findings from history-taking and physical examination, a differential diagnosis and plan for further examination or treatment. This report was scored by experienced physicians. All the scores were compared with the scores of recently graduated physicians who took the same stations.

Summary of results: Overall mean performance scores were 68% for PA students and 69% for recently graduated physicians (n.s.). PA students scored slightly higher on history taking (n.s.) and communication skills (n.s.). The physicians scored significantly higher on the differential diagnosis (72% vs. 63%) and plan for further examination or treatment (72% vs. 65%). In physical examination and professional behaviour the scores of both groups were equal.

Conclusions: The similarities and differences among both groups reflect the levels of education and experience.

3E5 Effects of a OSCE in the Medical School
Ferrer M*, Iriarte J, Alegre M, Fernández S (University of Navarra Medical School, Pío XII, Pamplona 31080, Spain)

Background: In the last five years we introduced an OSCE in the 5th and 6th year of Medical School. We investigated among students and professors how this exam changed the learning outcomes.

Summary of work: After the exam we conducted survey to the students including questions about the exam, the tutoring and the learning in hospital setting.

Summary of results: With very rare exceptions and in spite of the nervousness before and during the exam, the students were very happy with the OSCE. They think that the different stations included essential matters that should be learnt within medical school, and therefore they should be asked about them. The surgical stations were considered more difficult. Students and tutors agreed that the consideration of the exam modified the objectives of the tutoring and increase its meaning and content.

Conclusions: The OSCE has had a good acceptance among students and professors. It has been useful to improve tutoring and rotations in the hospitals.

Take-home messages: An OSCE exam is well accepted by students and changes positively the practical skills teaching in the medical school.

3E6 Is sequential testing worth the effort?
Chris Harrison*, Val Wass (University of Manchester, Rusholme Academic Unit, Manchester Medical School, Walmer Street, Manchester M1 4 SN, United Kingdom)

Background: OSCEs are resource-intensive. One possible solution to minimise costs and improve reliability is to extend the test for borderline candidates using sequential testing.

Summary of work: 97 candidates (applicants to join the UK Foundation Programme) took a primary assessment (16 stations over two days). Candidates within 1.5 Standard Errors of
Measurement above or below the pass mark took a further 8 stations on the third day. These marks were added to the initial 16 to form an extended assessment.

**Summary of results:** The reliability (Cronbach's alpha) of the 16-station OSCE was 0.84. The reliability of the 24-station OSCE was incalculable because of negative average covariance between these borderline candidates. After the primary assessment, 52 (54%) had clearly passed and 8 (8%) had clearly failed. Of the 25 candidates who passed the extended assessment, 19 (76%) were above the original pass mark in the primary assessment.

**Conclusions:** Sequential testing was stressful for candidates and added relatively little to the original pass-fail decision. Extending the assessment failed to add to the reliability, probably because of the borderline nature of the group.

**Take-home messages:** Retesting borderline candidates using sequential testing has more disadvantages than advantages.

**3F SHORT COMMUNICATIONS: Curriculum: Curriculum development (1)**

**3F1 Is there a role for vertical integration of basic sciences with clinical medicine in medical education at 3rd year undergraduate level?**
Patel A S*, Soobrah R, Jethwa A, Pitkin J (Northwick Park & St Mark's Hospital, NW London Hospitals NHS Trust, Watford Road, Harrow, Middlesex HA1 3UJ, United Kingdom)

**Background:** ‘Tomorrow’s Doctor’ states the importance of integrating clinical studies with basic sciences to facilitate a smooth transition from academic to clinician. We aim to highlight the importance of bringing pathology to life by hearing the patient’s story and then understanding it by applying basic science theory.

**Summary of work:** A new teaching forum, chaired by and taught by Consultants from different specialties, was set-up. Each 45 minute session was structured as follows: 15 minute student presentation, patient attending; 15 minute each for discussion of relevant anatomy and physiology, and management discussion. Following 4 sessions, a questionnaire was distributed to the students.

**Summary of results:** 56% of students found sessions useful, although only 30% supported patient attendance. Only 23% preferred this format over lectures, whilst 72% requested both. 60% preferred a Teaching Fellow to both act as Chair and teach basic sciences; 56% requested Consultant involvement with management discussions.

**Conclusions:** Our results highlight the importance of integrating pre-clinical and clinical teaching. However, students felt that Consultant-led discussions often extended beyond the scope of their curriculum with too complex issues.

**Take-home messages:** Integration of pre-clinical and clinical studies is a useful way of learning but it is important for seniors to largely remain within the boundaries of the curriculum.

**3F2 Influence of Early Experience on final year students’ perceptions of their Personal and Professional Development**
Carroll J*, Hart J, Boggis C and Braidman I (The University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom)

**Background:** Early Experience (EE) was introduced in 2004 to Manchester Medical School, which raises issues of personal and professional development (PPD) earlier than previously. It is still unclear, however, how EE influences students’ perceptions of their own PPD.

**Summary of work:** Focus groups comprised of final year students, comparing students who had EE and those who had not (n=2 respectively). Nominal Group Technique identified the most popular descriptors of a good newly qualified doctor for each group which were then placed in rank order. Individual group members then rated themselves against these characteristics. This was then used to structure discussions which explored the influence of EE and the rest of the curriculum on students’ perceptions of their PPD.

**Summary of results:** The most popular PPD characteristics from all participants regardless of education (EE vs non EE) were Communication (78%), Teamwork (48%), Competency (39%),
Professional (35%) and Knowledge (26%). Both EE groups ranked Communication as the most important whereas for both non-EE groups, this was Competence and Caring. From the discussions, however, students perceived other aspects of learning equally influential as EE on PPD.

**Conclusions:** As communication is important in EE, the results imply that this feature of students' learning experience influences their view of PPD. Students believe, however, that EE had no particular influence on their professional development.

**Take-home messages:** Aspects of EE are important in shaping students' PPD.

### 3F3 Riphah Academy of Research and Education: Fostering research and education

*Umar Ali Khan*, Ayeshra Rauf, Rohila Yasmeen, Aafaq Ahmad (Riphah International University, 274-Peshawar Road, Rawalpindi 63000, Pakistan)

**Background:** Islamic International Medical College, Rawalpindi-Pakistan was established in 1996. At the time of conception it was determined that we will use the most modern methods of training our students. In 2002 Riphah International University was chartered by Federal Government. The Riphah Academy of Research and education (RARE) was established in 2005. It was formed at a critical moment in the country. As Pakistan Medical & Dental Council along with most of the medical colleges were critically reviewing the traditional medical curriculum and were talking about changing to integrated curriculum. Changing traditional teaching learning methods to problem based learning. This was the time which called for new models for the education of the next generation of physicians. The mission of RARE is that "The RARE shall be dedicated to conduct and dissemination of research, production of ideas, grooming of researchers and educationists with a holistic and integrated vision of life. It will also be responsible for quality assurance in research & education in line with the global perspective." RARE designed a road map for this change process. We will put forth the RARE's organizational setup, performance, institutional impact, and strategy for long-term appraisal, and point towards future challenges.

### 3F4 Emory University School of Medicine – a new curriculum

*J Alan Otsuki*, J William Eley, Gordon C Churchward, Elica D Brownfield, Sally A Santen (Emory University School of Medicine, Suite 375, 1648 Pierce Drive, Atlanta, Georgia 30322, United States)

**Background:** After a long history of a successful, but traditional medical curriculum, Emory School of Medicine recently developed an innovative new curriculum.

**Summary of work:** The development of the curriculum required the Dean’s active support and faculty collaboration on a large scale. The initial 17 month “Foundations Phase” begins with the big picture, emphasizing the environment, society, and normal human function before delving into an integrated, clinically relevant approach to the basic sciences. Student “societies” form the basis of small student groups, each led by a single faculty advisor throughout the curriculum. Clinical training follows and includes a continuous 3-month ambulatory experience. A “Discovery Phase”, 5 to 17 months of an in-depth research experience occurs after a year of required clinical training.

**Summary of results:** Student and faculty satisfaction with the new curriculum is high. The overall pass rate on USMLE Step 1 remains stable.

**Conclusions:** Active learning, clinical relevance, small group interactions and student scholarship can form the basis of a successful curriculum.

**Take-home messages:** Curricular change can effectively incorporate integrated medical sciences and role modeling in small groups to better reflect the changing practice of medicine.

### 3F5 DREEM analysis of a new medical course: What students think

Carole Steketee* (The University of Notre Dame, Mount Street, Fremantle 6959, Australia)

**Background:** As a new course and one that is based on student-centred principles of learning, it is essential that the School of Medicine Fremantle evaluate the effectiveness of its 4 year MBBS course. Program developers are accountable to the students, the School's
accrediting body and the community at large in ensuring that students are well prepared for internship.

Summary of work: As such, the Dundee Ready Education Environment Measure (DREEM) was administered to students in each year level at the end of 2008. Findings in the literature suggest that students’ perceptions of their learning environment actually influence learning outcomes. The global DREEM score was calculated for all four years as well as the global score for each of the five subscales.

Summary of results: The global score was 118 out of a possible 200 (59%) suggesting that the students are relatively satisfied with their learning environment. This is also evident in the students’ perceptions of learning (62%), atmosphere (62%), social life (65%) and academic self-perceptions (63%). However, they were not as satisfied with the teaching environment (47%).

Conclusions: These findings suggest that as a new medical school, Notre Dame is progressing relatively well.

Take-home messages: Nevertheless, DREEM has identified areas that need to be improved, namely students’ perceptions of teaching.

3F6 Learning in the Community: A follow-up study comparing first-year students’ perceptions to their views when they are already practising doctors
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Background: The undergraduate medical education has changed dramatically including opportunities for students to learn in the community.

Summary of Work: For the last 14 years, the Institute of Introduction to Medicine has been sending to the community more than 300 first-year students per year, namely to health centres, institutions for handicapped people, prisons, geriatric homes, etc. The process aiming at a more “Humanised Medical Practice” was positively evaluated every year by the students. A follow-up evaluation was undertaken to compare students’ initial perceptions (n=235) to their views six years later (n=66).

Summary of Results: Doctors’ perceptions regarding the importance of “Learning in the community” seem consistent with first evaluation of the visits to the institutions but their impact in terms of personal and professional gains as well as the value of practice in health centres was perceived as less favourable. The main messages they got (i.e. importance of humanisation of medical practice, value of doctor-patient relationship etc.) in both occasions will be reported.

Conclusions: The results highlight how “Community Learning” during the first year of medical course is still meaningful when students become doctors. Simultaneously they indicate that a single first-year experience may not be sufficient enough, suggesting a need for revisiting “Learning in the Community” along the course.

Take home message: The perception of the importance of “Community Learning” remains during pre-graduation but there is a need for reintroducing this area throughout the curricula.

3G SHORT COMMUNICATIONS: Curriculum: Outcome based education (1)
3G1 Can a structured logbook help students to maximise their learning in an outcomes based curriculum?
J. Dent*, S. Schofield, M. Davis (Centre for Medical Education, University of Dundee, Tay Park House, 484 Perth Road, Dundee DD2 1LR, United Kingdom)

Background: The Dundee curriculum is built around 12 learning outcomes. These are difficult to memorise and apply in the clinical situation.

Summary of work: The acronym EPITOMISE (Enquiry/Ethics, Physical examination, Investigations, Technical procedures, Options of diagnosis, Management / Multidisciplinary approach, Information handling, Sciences – basic/clinical, Education - patient/self) was
used to design a structured logbook to help students relate patient encounters to learning outcomes and reflect on their learning needs. The logbook was used by fourth year students during clinical placements to record observations and learning objectives and also by second year students during patient presentations in whole class settings.

**Summary of results:** Senior students suggested the logbook should be introduced earlier in the programme as they found the format constraining for their style of learning. Junior students were more likely to find the approach directed them to thinking about the learning outcomes.

Of those expressing a view, 72% of second years and 66% of fourth years felt the logbook helped them identify new learning needs; 88% of second years and 67% of fourth years felt it helped them learn more about observed clinical problems.

**Conclusions:** This structured logbook appears to help students, especially junior, to maximise their learning and to reflect on and identify additional learning needs.

### 3G2 Introduction of 12 clinical competencies into a medical curriculum
Jonathan Purday* (Peninsula College of Medicine and Dentistry, Royal Devon & Exeter Foundation Trust, Barrack Road, Exeter EX2 5DW, United Kingdom)

**Background:** Students' basic clinical history and examination skills were only formally assessed at the end of year clinical exams in year 4. Clinicians complained that students examination skills were poor.

**Summary of work:** Therefore 12 clinical competencies were introduced into years 3 and 4. In year 3 these were assessed formatively and assessed summatively in year 4. Written feedback was obtained annually from students and staff.

**Summary of results:** 96% of students found the competencies beneficial. Feedback from students and staff was very positive. Students found the end of year 4 clinical examinations less stressful.

**Conclusions:** The introduction of the competencies were viewed positively by students and staff.

**Take-home messages:** Introducing clinical competencies into the curriculum was popular with students and staff.

### 3G3 Developing medical curriculum based on learning-outcomes at Medical School, Zagreb University, Croatia
Nada Cikes*, Gordana Pavlekovic, Mladenka Vticic Keglicevic, Zelimir Bradamante (Medical School, University of Zagreb, Salata 3b, Zagreb 10000, Croatia)

**Background:** During the implementation of Bologna process, all medical schools in Croatia harmonised the core curricula. However, Zagreb Medical School, as a leading medical school in Croatia, recognized the need to go beyond traditional teacher-based and knowledge-based curriculum and move towards learning-outcomes delivery.

**Summary of work:** The first step in development learning-based curriculum was to form Zagreb Task Force Group. The members are well experienced teachers, students and administration representatives. The first task was to analyse and compare the well known European documents, with expected competencies for so called «The Croatian Doctor».

In the second phase, Task Force Group defined the essential domains for national doctors. Communication skills, Practical and clinical skills and Skills in emergency were subdivided into detailed learning outcomes, description of learning methods and appropriate assessment. The next step is to include the stakeholders and prepare a document to be accepted by other medical schools in Croatia.

**Take-home messages:** Delivering medical curriculum based on learning-outcomes is challenging process with many advantages for all involved, but it is not an easy task.

Learning-outcomes are not just a tool in medical curriculum (re)design. It is also an important approach in development of national qualification framework («The Croatian Doctor»).
3G4 **CME: aligning the undergraduate and postgraduate curriculum**

Vivienne O’Connor* (Faculty of Health Sciences and Medicine, Bond University, Gold Coast 4222, Australia)

**Background:** The Australian Curriculum Framework for Junior Doctors Project for the Confederation of Postgraduate Medical Education Councils developed a curriculum framework structure to guide training in the first two postgraduate years.

**Summary of work:** The Bond University Medical Program is a new undergraduate course. The program for the clinical years has been arranged to align with the AJHDC.

**Summary of results:** The AJHDC comprises three major AREAS (clinical management, communication and professionalism). Each area is subdivided into CATEGORIES, and each category is further subdivided into TOPICS, each with a set of three CAPABILITIES describing knowledge, skills or behaviours; The AJHDC was reviewed and items not appropriate for undergraduate medical education removed; AJHDC topics were allocated to the four Bond University Medical program themes; The learning outcomes of each theme were reviewed to check for omissions and duplication; The final curriculum document was developed to reflect the spiral learning in the clinical years and align with the AJHDC.

**Conclusions:** The curriculum reflects the exit outcomes for knowledge, skills, attitude and behaviour expected for internship as a foundation for CME. Further research as the cohorts graduate will evaluate if this has been successful.

**Take-home messages:** Aligning the undergraduate medical curriculum with the curriculum for the intern year can provide a foundation for CME and life-long learning.

3G5 **The Blue Print Project – validation of graduate education competencies in community health sciences**

Marilynne A. Hebert*, Mone Palacios, Antony Porcino (University of Calgary, Department of Community Health Sciences, HM 32 - 3330 Hospital Drive NW, Calgary T2N 2N1, Canada)

**Background:** This project is a 3-year initiative at University of Calgary. It has three phases: establish graduate competencies; validate these competencies in practice; and implement an on-line portal to track progress in competency development and program completion. Survey validation of competencies is highlighted in this presentation.

**Summary of work:** Surveys were sent electronically to 100 graduate students, 64 alumni and 130 full and part-time Faculty in the Department of Community Health Sciences. Only alumni and faculty estimated how often they used the competencies. All 3 groups estimated how important the competencies were. Data analyses were conducted using SPSS® and Cronbach’s Alpha was calculated to assess internal consistency reliability of the instruments.

**Summary of results:** A total of 46 students (46%), 20 alumni (31%) and 37 Faculty members (28%) completed the survey for an overall response rate of 35%. The sub-scales used to assess the importance of the competencies had generally good internal consistency reliability.

**Conclusions:** The high correlation between use and importance as rated by faculty members and alumni provided evidence to support the validity of competencies and roles identified.

**Take-home messages:** While proposed changes in graduate education can be developed through stakeholder consensus, it is important to empirically validate them in order to support successful implementation.

3G6 **The development of medical competency as indicated by personal identification with the Three Circle outcomes**


**Background:** We have shown previously that recently qualified physicians (RQPs) obtained significantly higher scores than medical students in a 170 item survey exploring 70% of the outcomes included in the Scottish Doctors webpage. We hypothesized that this reflected the progression in medical competency.
**Summary of work:** To test this hypothesis, we applied the same survey to students in 1st year (1, n=90), 4th year (4, n=44) and 6th year (6, n=79) of our Medical School, to RQP, and to 24 internal medicine specialists (IM). Mean Scores (% of Max) were compared for each level for the clinical (CC) and non clinical (NCC) components of the explored outcomes.

**Summary of results:** CC scores increased continually from 1st year to internists (64.94 + 4.28 –SD; 67.78 + 5.13; 73.47 + 5.83; 75.94 + 6.16; 77.63 + 4.89). Differences were significant (p<0.05) at all levels except RQP vs I. NCC scores increased continually from 1st to 6th year (71.66 + 5.14; 76.32 + 5.86; 80.76 + 4.72) but further change was not significant (78.89 + 5.99; 82.04 + 4.88).

**Conclusions:** Progression of medical competency can be shown by a survey based on predefined outcomes.

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**3G7 Validating Indonesian standards of competences for medical doctors**

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**Background:** In November 2006, Indonesian Medical Council launched an Indonesian Standards of Competence for Medical Doctors. This document comprises of list of abilities, list of health problems encountered in the general practice setting, list of diseases with level of abilities to manage the diseases and list of clinical skills with level of abilities to perform the skills.

**Summary of work:** The abovementioned standards of competences were validated through observing what the medical doctors were actually doing when they were practicing medicine in community health centres and district hospitals in Mataram, Jayapura, Makasar, Ambon, and Jakarta. Details of cases handled were also recorded.

**Summary of results:** In real practice setting, the number of health problems, diseases, and clinical skills performed are much less than the ones written in the Standards of Competences for Medical Doctors. If these standards are used as the guidelines for curriculum development, a lot of content will be redundant.

**Conclusions:** Formulation of standards of competence needs to be done through empirical studies to match with the real needs of society to medical doctors and to avoid redundancy in curriculum content.

**Take-home messages:** Competences of medical professional as the basis for curriculum planning should be based on empirical data.

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**3H SHORT COMMUNICATIONS: e-Learning: e-learning and undergraduate education (1)**

**3H1 Three years of lessons learned with an integrated, electronic undergraduate medical curriculum**

Robert M. Klein*, Giulia A. Bonaminio, Glendon G. Cox, Michael Kari, Anthony Paolino, Heidi Chumley, James L. Fishback (University of Kansas, School of Medicine, Departments of Anatomy & Cell Biology, Pathology & Laboratory Medicine, Family Medicine, and the Office of Medical Education, Mailstop #3038, 3901 Rainbow Blvd, Kansas City, Kansas 66160, United States)

**Background:** Technology allows enhancements in medical education including self-directed learning, student collaboration, and improved access to materials. When the University of Kansas, School of Medicine (KUSOM) introduced a new basic science curriculum in 2006, we used technology in multiple ways.

**Summary of work:** The technology components included a required tablet PC for students, lecture podcasts, web-based access to curriculum materials, virtual microscopy, electronic faculty and course evaluation, and electronic examination. The tablet PC is the centerpiece of the curriculum and is used to integrate technology components and provide 24/7 access to all curricular material, including lecture podcasts. We reduced lectures by 40% and replaced material with small group sessions and web-based learning.
Summary of results: The implementation curriculum was successful. We encountered few technical problems, and student and faculty satisfaction has been high. Podcasting was extensively used both instead of and in addition to attending lectures. Virtual microscopy has been a welcome change from microscopes, though creating an active learning laboratory environment has been a challenge. E-textbooks were not used effectively by students or faculty. We found that a technology-intensive curriculum requires extensive time and resources. Some NBME Subject Exam scores have improved while others have declined. Initial results on Step I of the USMLE are no different than the previous year.

Conclusions: Ultimately, we hope to improve students’ knowledge, problem solving abilities, clinical skills, and USMLE Step One scores.

Take-home messages: Our electronic curriculum was implemented successfully. Refinements of the curriculum continue as it evolves to include fewer lectures and more interactive learning experiences.

3H2 Engaging veterinary students in e-learning development
Nick Short* (Royal Veterinary College, Royal College Street, London NW1 0TU, United Kingdom)

Background: Whilst most students are now confident users of on-line technologies, many academics are not as competent. As a result, there can be a gap between students’ expectations of how they want to learn on-line and the lecturer’s ability to support this need.

Summary of work: The Royal Veterinary College (RVC) is using a simple pedagogical model to facilitate the introduction of new e-learning approaches based on a step by step approach. This is designed to engage the learners in identifying new opportunities provided by e-learning.

Summary of results: Student focus groups in each year group have been involved in planning and implementing new projects. In the last year this has included creating flash cards, producing academic biographies, photographing specimens, authoring WikiVet and developing electronic content maps.

Conclusions: Students have shown that they have a good understanding of the kind of e-learning resources they would like to use. This awareness has translated into an enthusiasm to assist in their development and a sense of ownership in the work. This helped produce high quality teaching resources and provided a rich learning experience for students.

Take-home messages: Students can play a valuable role in planning and implementing e-learning development.

3H3 WikiLectures – a brand new tool for pre-clinical education
Vejražka M*, Štuka Č, Štípek S (Charles University in Prague, 1st Faculty of Medicine, Katerinská 32, Prague 2 CZ-121 08, Czech Republic)

Background: University teaching shifts to more interactive, learning-centred models. Wiki is a technology facilitating cooperation and allowing even students to participate on creation of educational materials.

Summary of work: WikiLectures, a web site for pre-graduate medical educational materials, was created both in English and Czech mutations. It should facilitate writing texts similar to textbooks. A board of editors including senior students was established. Teachers are stimulated to post texts that would be printed e.g. as hand-outs. Students can post their seminar/semester works, notices made when preparing for exams etc. Contributions may be peer-reviewed and marked as quality articles.

Summary of results: WikiLectures started in 2008. Now, about 50 articles per month are entered in the Czech version. About 30% of articles are on medical biochemistry, another 25% on laboratory diagnostics, 20% on physiology and 15% on genetics and cell biology.

Conclusions: Wiki brings advantage of broad cooperation and easy updating to writing the educational texts.

Take-home messages: Wiki can speed up and increase quality of texts.
3H4  Tutor for virtual building of tissues, apparatus and systems of the human body
Cubero MA*, Fernández-Segura E, Arebola F, Robles MA, Cañizares FJ. (Department of Histology, Faculty of Medicine, University of Granada, Granada 18012, Spain)

Background: As a result of the convergence of the Spanish Universities within the framework of the European Higher Education Area (EHEA) a new educational model, where teaching is focused on the learner more than on the teacher, needs to be implemented.

Summary of work: To be adapted to the coming restructuring of degrees a redesign of educational strategies used to teach Histology, we designed and developed a computer program for virtual building of tissues, apparatus and systems of the human body to tutor the auto-self learning of the students.

Summary of results: The tutor for virtual building of tissues designed and developed is a useful tool to the students to learn the morphostructural clues of the different cells and extracellular components to build tissues of the human body. The computer program consists in a virtual desk of building, where students can inserts the components of different tissues. The system indicates if the option selected by the students is correct or wrong and gives to the students a report and an evaluation of their work.

Conclusions: We conclude that the Tutor for virtual building of tissues, apparatus and systems of the human body is a useful tool to develop autonomously the knowledge and skills of our students.

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3H5  A Reproductive Health (RH) online module for large enrollment classes – an Egyptian pilot project experience
Rehab Abdel Hai*, Sahar Yassin1, M. Fouad Ahmad2, and Uno GH Fors3 (Department of Public Health, Faculty of Medicine, Cairo University, Department of Public Health, Faculty of Medicine, Cairo University, National Tempus Office – Egypt, Virtual Patients Lab, Department LI ME, Karolinska Institutet, Stockholm, Sweden, Cairo 11511, Egypt)

Background: The Medical College of Cairo University, Egypt, is facing a problem with large enrolment courses (1,500 students). This limits the time for face-to-face interaction and much of the curriculum is based on lectures and individual reading of textbooks.

Summary of work: To enhance students’ learning, a pilot project was initiated where an e-Learning system covering the whole RH material was created as part of the 8 weeks public health course. Students were divided into 4 rounds with 300-400 students each. The e-learning module included the same material as the text book, but with additional visual illustrations and animations, quizzes, and forums for communication with peers and teachers. The use of the e-learning system was on a voluntary basis. The utilization and learning outcomes of the system were evaluated by means of on-line questionnaires, interviews and an on-line exam.

Summary of results: Preliminary data from the first 3 rounds are encouraging. Most students are very positive to its use. Most beneficial were illustrations, animations and the interaction with the teachers and peers.

Conclusions: Students using the module showed significantly better learning results than those that did not.

Take-home messages: Our results indicate that large enrolment courses can efficiently be enhanced by on-line interactions with content, teachers and peers.
3H6  **RARITY – a new e-learning tool integrating radiology and anatomy for medical students**

Tim Rattay*, Birgit Fruhstorfer, Paul Gazzani, Jamie Roebuck, Anne-Marie Feeley, Emma C. Esquilant, Uzma M. Satti, Anil Vohrah, Richard M. Wellings, Stephen Brydges**, Peter H. Abrahams (Institute of Clinical Education, University of Warwick Medical School, Gibbet Hill, Coventry CV4 7AL, United Kingdom)

**Background:** For its new anatomy course, Warwick Medical School has replaced cadaveric dissection with the use of plastinated prosections and axial slices. Students rotate through sessions with prosections and weekly radiological-anatomy tutorials.

**Summary of work:** To complement the radiological-anatomy component of the course, we have created a new web-based interactive tutorial. RARITY places 120 normal radiological images alongside correlating images of plastinated prosections and slices. Up to twelve key structures are highlighted. Students are invited to undertake two interactive tasks: ‘name the highlighted structure’ and ‘locate the highlighted structure’. The students do ten images each week corresponding to the weekly anatomy session. Student participation is recorded and exposed on a high score table. Preliminary evaluation was performed using satisfaction questionnaires.

**Summary of results:** Student participation and satisfaction are high. Constructive feedback will be incorporated into the further development of the software which will be presented. Correlation of high scores and end-of-year exam results will be presented.

**Conclusions:** Our data suggests that RARITY is a popular e-learning tool and that its integrated nature has improved student learning of radiological anatomy.

**Take-home messages:** RARITY is a unique e-learning resource to supplement the weekly anatomy course and facilitates the early integration of radiology and anatomy in the medical curriculum.

3I  **SHORT COMMUNICATIONS: Teaching and Learning: Reorganisation and delivery of clinical teaching**

3I1  **An overview of clinical teaching in Canada**

David Cook*, Nick Busing, Dwight Harley, Catherine Peirce, Sandra Woodhead Lyons (University of Alberta and Association of Faculties of Medicine of Canada, 2-76 ZLC, University of Alberta, Edmonton, Alberta T6G 2X8, Canada)

**Background:** In 2008, the Association of Faculties of Medicine of Canada initiated a project to review clinical teaching in the seventeen Canadian Medical Schools.

**Summary of work:** The study involved a visit to each Faculty with meetings with residents, undergraduate students, clinical instructors and administrators. An online survey of clinical teachers in Canada was also conducted.

**Summary of results:** The following major themes emerged from the interview process: overall governance, communication within the academic community, increases in undergraduate enrollment, assessment and accountability, faculty development, alternative funding plans, recognition of clinical teachers, and residents as teachers. Some 1200 responses to the survey were received, that largely reinforced the concerns mentioned in the interviews. For each of these areas some general recommendations were developed.

**Conclusions:** There was considerable variation between Universities in the perception of the issues, but problems arising from increased numbers of students and the recruitment and recognition of part-time clinical teachers were the most important. Learners were generally very pleased with their clinical training; so-far it has been possible to insulate the learners from problems of the administration of the clinical teaching programs.

**Take-home messages:** Sharing information between Universities about clinical teaching issues helps us to develop more effective solutions.
312  **Student case-related reasoning skills: the added value of clinical context**  
Andrea Rudaz, Anne Gut, Martine Louis-Simonet, Arnaud Perrier, Vu Vu, Mathieu R Nendaz*  
(University of Geneva Faculty of Medicine and Geneva University Hospitals, Service of General Internal Medicine, Geneva 1211, Switzerland)  

**Background:** Because of diminished patient availability some educators tend to rely on tutorial activities to train students for clinical reasoning skills. In this prospective, controlled study, we aimed at comparing the clinical performance of students exposed, respectively, to live and written patient cases.  

**Summary of work:** All medical students in our internal medicine service work on different cases during clinical reasoning tutorials. For some of these cases, they are exposed to real patients during their clerkship in one internal medicine specialty unit. For a set of 10 cases, we identified students exposed to tutorials only (T) or to an additional, contextual experience on the ward (W) and we compared their performance during an end-of-clerkship, standardized patient-based assessment.  

**Summary of results:** Forty-one students (30 T and 11 W) participated. The W students collected more relevant clinical information (checklist scores 55% vs 69%, p=0.005) and demonstrated better clinical reasoning and patient management skills (scores 39% vs 47%, p=0.05), specifically regarding differential diagnosis (scores 38% vs 59%, p=0.05).  

**Conclusions:** Exposure to cases in a real clinical environment brings stronger clinical reasoning skills than tutorial exposure only.  

**Take-home messages:** Ensure students’ exposure to contextual clinical experiences despite diminished patient availability.

313  **Organizing clerkships**  
Charlotte Soejnaes*, Mie Bonde, Ann-Helen Henriksen, Charlotte Ringsted (Centre for Clinical Education, Copenhagen University Hospital, Rigshospitalet, Blegdamsvej 9, Copenhagen 2100, Denmark)  

**Background:** Students’ satisfaction with clerkships vary across clinical departments irrespective of specialty, hospital etc. The key question is: What characterizes the educational organization in highly rated departments?  

**Summary of work:** Semi-structured interviews were conducted with 15 clinical supervisors from the highest and lowest scoring departments. Both medical and surgical departments were purposely sampled. Interviews were recorded, transcribed and coded on three organizational levels: strategic, tactical and operational.  

**Summary of results:** Characteristics on strategic level are that the educational task is prioritised as one of the departments’ main tasks and that the attitudes towards the students are positive. Characteristics on tactical level are that the recruitment to manage the task is focused and that the responsible clinical supervisors are present in the period of the clerkships and that the students are being supported with fulfilment of objectives. Characteristics on operational level are that the students feel welcome and that they are allowed to participate. The organizational levels and major themes will be presented.  

**Conclusions:** The three organizational levels are dynamically interrelated and affect each other in both a vertical and in a circular way.  

**Take-home messages:** Succeeding in organizing clerkships isn’t just depended on different techniques but should be combined with a positive view of human nature.

314  **Predicting clinical skills development**  
D. Michael Elnicki*, Amanda Cooper, John Mahoney (University of Pittsburgh, UPMC Shadyside, 5230 Centre Avenue, Pittsburgh 15232, United States)  

**Background:** Medical educators increasingly rely on logs to document medical student learning experiences. We queried which elements of student-patient encounters and student-preceptor interactions are associated with students’ acquiring clinical skills.  

**Summary of work:** We collected log data from 10/07-9/08 from our ambulatory internal medicine-pediatrics clerkship. For each patient encounter, medical students recorded
the principal diagnosis, patient demographics, how they performed history and physical examination (H&P) and teaching from preceptors. These variables were correlated with objective structured clinical exam (OSCE) scores using Spearman's rho and clinical evaluations (honors/high pass v. pass/lower) were compared using Wilcoxon rank sums. A stepwise linear regression was done with OSCE.

Summary of results: Our sample was 139. The mean of diagnoses per student was 154 (SD 83). Range 7-422. Significant correlations with OSCE (rho .18-.31, p< .05) were number of diagnoses, teaching about diseases, and independently performing H&P. Independently performing physical examination remained significant in multivariate analysis (p< .001, R2=.097). Higher internal medicine evaluations (p< .05) were associated with teaching patient management, and independent H&P. Pediatrics evaluations (p< .01) were associated with more diagnoses, teaching management, independent H&P.

Conclusions: Students' number of patient encounters predicted higher clinical skills attainment. However, the type of teaching and performing an H&P independently appear equally important.

Take-home messages: Student autonomy and precepting style are as important in developing clinical skill as numbers of patients seen.

315 An electronic case recording system for students on clinics
C Trace*, S Baillie, N Short (Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield AL9 7TA, United Kingdom)

Background: Students at the Royal Veterinary College undergo twelve months on clinics before finals. They are taught how to approach clinical cases in a logical manner. However the transition from theory to practise is often daunting. Therefore an electronic case recording system has been developed to help students 'work-up' cases and produce clinical records.

Summary of work: A comprehensive literature review was undertaken to identify models of best practice for case based learning. This research informed the development of a novel case recording system based on simple technology and collaborative approaches to learning. This was piloted with students and staff on the Equine rotations.

Summary of results: Over 100 students have used the system to date and feedback from staff and students has been encouraging; students felt their understanding of the case improved and they received clearer feedback and assessment from staff.

Conclusions: The case recording system aims to embed the principles of problem-based learning, and ensure students apply this method of learning in practise. The cases are stored and shared online and these will be extended and enhanced to provide a useful teaching and learning resource throughout the curriculum.

Take-home messages: A simple but effective case recording system has great potential in veterinary education.

316 Practitioner-centred narratives: an educational needs analysis
Darren A Kilroy* (Manchester Metropolitan University, Stockport NHS Foundation Trust, Stockport, United Kingdom)

Background: Reflective practice is an embedded aspect of professional development in medical learning and teaching. Relatively little attention has been paid to the use of observed and critiqued group narratives within a defined cohort of practitioners to determine how the interplay of discourses enables or restricts group members in their own professional development and thereby affects the health of the educational environment in which they work.

Summary of work: Conversations within a small group of clinical teachers in the setting of a UK Emergency Department were observed and recorded and analysed, using the principles of 'local noticing' described by Mason (1), to determine themes which exemplified tensions in the clinical educational environment. An educational 'needs analysis' was constructed. This was then used as a springboard for new interventions in order to refresh the educational activities within that environment.
Summary of results: The supporting data, having been firmly rooted within the study group, demonstrated extremely high validity and reliability. Upon this basis, the impact factor of bringing the needs analysis back to the group for further reflection was significant. As a result of the needs analysis, new projects were established to facilitate better quality educational provision within that clinical environment.

Conclusions: Analysed group discourses can yield rich data with which to inform change within an educationally-active environment. Undertaking such an analysis demands significant sacrifices of time but is of immense value in carefully targeted environments.

Take-home messages: The principles of reflective practice can be translated into a higher-level group narrative inquiry amongst clinical teachers. The effort required to do this pays dividends in terms of outcomes.

3I7 Longitudinal patient contact for students on surgical rotation
Donald Bramwell* (Department of Orthopaedic Surgery, Flinders University, GPO Box 2100, Adelaide SA 5000, Australia)

Background: Experience in clinical activity is a crucial element of medical education. One model is for students to rotate through placements in hospital medical and surgical units. The disadvantages of fragmented rotations have been addressed through long-term continuity programs. Such models require comprehensive change to the planning of clinical placements.

Summary of work: Inspired by year-long continuity models, we designed a program to explore whether some longitudinal patient contact within a short rotation might offer educational benefits. Final year medical students on a 6-week term in orthopaedic surgery tracked patients from pre-admission clinic, through surgery, to discharge and follow-up outpatient's clinics. This program was evaluated through feedback from students, clinical staff and medical educators.

Summary of results: Students, clinicians and related team members have valued the increased clarity of role and purpose provided by the program. The extra administrative tasks associated with implementing the program are easily managed.

Conclusions: Longitudinal patient tracking, during a 6-week rotation, does enable some of the disadvantages of piecemeal rotations to be overcome.

Take-home messages: Within fragmented clinical placements it is possible to achieve some of the benefits provided by continuity in medical students' contact with patients.

3J SHORT COMMUNICATIONS: Education management: Quality assurance
3J1 Aligning hospital clinical resources to curriculum needs
C Colquhoun, M R Hafeez, K Heath, R B Hays* (School of Medicine, Keele University, Newcastle-under-Lyme ST5 5BG, United Kingdom)

Background: Medical education relies on large numbers of inpatients to provide clinical learning. However, medical education is expanding and health care service configuration is shifting towards smaller hospital and ambulatory settings. We report the relevance to undergraduate student learning of clinical case mix in two acute NHS Trusts in the UK.

Summary of work: Over a two day period of average activity, ward staff in three hospitals listed patients who were available for learning that day. Four weeks later the hospital information system provided de-identified data on the clinical problems of the available patients. These problems were coded to ICD-10 and compared to curriculum learning objectives.

Summary of results: All three hospitals showed similar proportions, mean ages and gender ratios of patients available for learning. The larger hospital offered a narrower, more specialised, range of patient problems, while the smaller hospitals provided a broader range of common problems. Opportunities to participate in practical clinical skills were limited in all three hospitals.
Conclusions: None of the hospitals alone appeared to provide sufficient clinical material to meet all curriculum learning objectives.

Take-home messages: Medical schools may have to be quite deliberate in their utilisation of hospitals and primary care facilities, matching student allocations carefully to sources of relevant patient-based learning opportunities.

3J2 Institutional cultural change: Can it be done?
John George*, Stephen Laird* (Kirksville College of Osteopathic Medicine, United States, 800 W Jefferson St, Kirksville 63501, United States)

Background: The funding of an NIH R25 Cam Project allowed Kirksville College of Osteopathic Medicine to design and implement Evidence Based Medicine (EBM) into an already full curriculum. Obtaining faculty support for the project was essential for the integration to be successful.

Summary of work: Utilizing a bottom-up diffusion theory model, we designed a series of faculty development workshops to establish faculty consensus for the project and to elicit opportunities for inserting key curricular elements into existing courses.

Summary of results: Adoption led to more students being trained and more opportunities implemented faster than anticipated. Attitudes of faculty evolved from a pre-survey showing only 65% preferred to infuse EBM content into existing courses to a post survey of 94% agreeing to find ways to enhance the curriculum with EBM. Through this process, the Fundamentals of EBM originated to train 796 students. The number of faculty teaching and classes incorporating EBM skills increased from five to fifteen and four to ten, respectively.

Conclusions: The evidence demonstrates how a faculty development model emphasizing faculty engagement is productive in helping achieve curricular change without adding additional contact hours.

Take-home messages: Results have shown that utilizing a consensus-building model provides faculty the opportunity to participate in and take ownership in a curricular change process.

3J3 A social network for innovators

Background: The large size of the Andalusian Public Health System requires a new approach towards the diffusion of innovations that are developed within it, so that worthy projects and practices can be replicated elsewhere.

Summary of work: We have developed a platform (www.saludinnova.com) that allows health professionals to share innovative projects and proposals with the wider healthcare community. In addition to that, they can freely establish networks of people with common interests or activities. We have also established a network of health innovation agents that help professionals in any healthcare center in using the collaborative tools and information that Salud Innova provides. Twice a year, we hold innovative ideas contests among our members.

Summary of results: As of March ’09 more than 1,500 health professionals have enrolled in Salud Innova. Together, they have published more than a hundred innovative projects and more than four hundred development proposals in the domains of patient relations, organizative innovations and professional performance improvement through ICT.

Conclusions: We conclude that widespread experience sharing an collaborative co-creation are essential instruments to increase the efficiency and impact of the innovative process within knowledge-based large organizations.

Take-home messages: Open Innovation is the way forward in the healthcare field.
3J4  Clerkship directors' meetings within medical schools
Paul A. Hemmer*, Klara Papp, Steven Durning (Uniformed Services University of the Health Sciences, USUHS-EDP, 4301 Jones Bridge Road, Bethesda 20814, United States)

Background: To characterize meetings among clerkship directors within medical schools.

Summary of work: In 2007, the Clerkship Directors in Internal Medicine surveyed its members. Respondents were asked: the frequency of meetings; topics discussed; could they discuss students in academic difficulty; and list the benefits and drawbacks of discussing student performance. Analysis included descriptive statistics and qualitative analysis.

Summary of results: The survey response rate was 71% (81/114). The most common meeting frequency was monthly (77%) or quarterly (15%). Topics discussed included Dean's policies (91%), recommendations to the Dean (86%), accreditation site visit preparation (84%), curricular input (82%), discussion of students [academic difficulty (49%), student progress (48%)], and planning for at risk preclinical students (22%). Some (16%) respondents were explicitly prevented from discussing student performance, for reasons of possible student harm (85%), fear teachers will be told (77%), student confidentiality (31%), and litigation (15%). Most (94%) respondents agreed there were benefits to discussing student performance: longitudinal tracking of concerns, designing remediation, tailoring teacher assignments, and societal obligations. Some (28%) respondents expressed drawbacks: potential bias, and need for confidentiality.

Conclusions: Clerkship directors meet frequently to discuss curriculum, policy, and student performance. Most believe discussing student performance helps design educational interventions that balance societal obligations with student confidentiality.

Take-home messages: Clerkship directors need constructive avenues to discuss student performance and design educational experiences.

3J5  Sharing a common office – faculty development through inter-specialty interaction
Pant M*, Nesargikar PN, Cocker DM, Parupalli S, Parkinson KA (Keele School of Medicine, Keele University, Keele ST5 5BG, United Kingdom)

Background: There is limited evidence in literature regarding benefits of inter-specialty interaction amongst clinical teachers. Clinical teaching fellows (CTF) at Keele School of Medicine have been sharing an open office since 2008 with the aim to improve inter-specialty interaction and learning.

Summary of work: The aim of the study was to explore the CTFs' views and experiences of inter-specialty interaction. 5 CTFs from different specialties (Medicine, 2 Surgery, Obstetrics and Gynaecology, Psychiatry) were interviewed using a semi-structured approach.

Summary of results: Three major themes emerged from this evaluation: 1) Teaching fellows felt they had been exposed to novel teaching techniques from other specialties which they could implement in their own teaching. 2) Confidential discussion regarding the recognition of difficult students. 3) Peer reviews from other specialty fellows helped improve their teaching. One negative theme that emerged was that using an open office could be disruptive to their working style.

Conclusions: Inter-speciality interaction and pooling of ideas can only be beneficial for faculty development. More research is needed to evaluate the benefits and challenges of using a common work environment to promote interaction amongst clinical teachers in undergraduate medical education.

Take-home messages: Clinical teachers can benefit from an inter-speciality work environment and where possible universities should encourage it.

3J6  Improving the quality of postgraduate medical education: traffic light feedback
Rickenbach M*, Plint S (NHS Education South Central, Southern House, Offterbourne, Winchester SO21 2RU, United Kingdom)

Background: There have now been three national PMETB surveys, which have evolved from local surveys introduced in the 1990's to describe and address problems with training
programmes. We outline the introduction of a traffic light system in the Wessex and Oxford deaneries, grading the quality of posts and driving an improvement cycle.

**Summary of work:** The system is based on the principle of local self-assessment and responsibility for quality improvement, using triangulated evidence from the national surveys, local surveys and local educators. The assessment is moderated at locality level as well as specialty level, and formally approved at deanery level with external representation.

**Summary of results:** A generic grading system has been developed - Excellent double green, Approved green, Problems Identified yellow, Significant Problems amber, Serious Problems red. The grading is effectively defined by length of approval, with the exception of the challenge of distinguishing excellent from good enough. We have now graded more than 4000 posts across the deaneries. We have identified the more effective educational questions from the PMETB survey, and developed a system of comparison to standards in conjunction with the national peer group comparison.

**Conclusions:** We review the challenge of establishing a successful quality improvement system with perceived legitimate authority and practical impact at local level. We discuss familiar quality assurance issues around the use of peer comparison data and data against set standards.

**Take-home messages:** This quality improvement system has immediate visual impact crucial for producing change - but it’s engagement with the process more than the grading which makes the difference.

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**3J7 Australia sets national registration and accreditation standards for health professions**

Gina Geffen* (Queensland Psychology Board, Australian Psychology Accreditation Council, Forum of Australian Health Professional Councils and School of Psychology, University of Queensland, GPO Box 2438, Brisbane, 4000, Australia)

**Background:** From July 2010 Australian health professions will be governed by national boards that will replace the current state-based jurisdictions. These boards will need to adopt national standards of training and accreditation that meet international best practice.

**Summary of work:** The World Federation for Medical Education (WFME) Guidelines for Quality Assurance and its Trilogy of Global Standards for Medical Education in conjunction with the WFME/WHO Avicenna project to record the accreditation status of individual health training institutions throughout the world are exerting a potent influence on the process.

**Summary of results:** Drivers for health educational standard setting include a policy shift towards multidisciplinary team care and global developments in health workforce mobility. As a result, professional and jurisdictional obstacles to interdisciplinary co-operation are being swept away and there is a high degree of co-operation between previously territorial health professions.

**Conclusions:** The move to define common principles underlying health professional training was initially catalysed in Australia by workforce productivity reforms rather than by a high minded desire for interdisciplinary educational co-operation. Nevertheless, the education and training of health professionals to common international standards is now firmly on the national agenda.

**Take-home messages:** After a century following Federation of fragmented health professional governance and training, Australia is developing a unified and multi-disciplinary framework for educational standard setting based upon international best practice.
**Summary of work:** Dutch processes of post graduate curriculum change were evaluated using the recommendations of the parliamentary enquiry.

**Summary of results:** We identified the following important pitfalls: 1) The tendency to dictate not only what medical specialists' competence should be, but also how it should be attained. 2) Dictating didactic methods on a large scale without performing pilot studies and without solid scientific base. 3) Tunnel vision: disregarding the opinion of clinical teachers. 4) Restructuring training without sufficient budget and without realistic time tables. 5) Intertwining curriculum changes with other major changes.

**Conclusions:** One man's fault should be another man's lesson. Internationally, important changes in specialist curricula are enforced by legislators. This hazardous process should be conducted in a reflective way and reflections should be reported in our international fora.

**Take-home messages:** The process of change in postgraduate training should be the result of respectful collaboration between health policy makers, educationalists and clinical teachers.

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**3K2 Supporting trainees in difficulty: a new Scotland-wide approach**

Fiona Anderson*, Philip G Cachia, Robert Monie, Alan A Connacher (NHS Education for Scotland, East of Scotland Deanery, Postgraduate Office, Level 7, Ninewells Hospital, Dundee DD1 9SY, United Kingdom)

**Background:** Educational supervisors have responsibility for the initial management of postgraduate medical trainees who are experiencing problems. This is often done without structured support and guidance and with variable Deanery/employer involvement. With increasing expectations from regulators and trainees, a more consistent and transparent approach is required.

**Summary of work:** To achieve this, NHS Education for Scotland (NES) has introduced a new infrastructure to support trainees and their supervisors. This new infrastructure includes: 1. an Operational Framework for practical guidance; 2. a National Advisory Group to oversee the implementation of the process; 3. a new national course on the Management of Doctors in Difficulty.

**Summary of results:** This infrastructure which is currently being implemented and evaluated throughout Scotland will be described in detail.

**Take-home messages:** This integrated approach has been designed to: (1) give supervisors the confidence to recognise early signs of trainees in difficulty; (2) specify the roles and responsibilities of those involved in the management process; (3) classify and clarify appropriate management; (4) facilitate the flow of information between relevant individuals and bodies; (5) provide national resources to support local remediation when this is necessary.

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**3K3 Practical advice on how to prevent and manage poorly performing doctors under postgraduate training – acceptance of a one day training course in Denmark**

Troels Kodal*, Allan Roholt, Kirsten Bested, Jonna Skov Madsen, Steen Tinning, Claus Østergaard, Frederik Mørk, Tine Rosengreen Pallisgaard (The Postgraduate Deanery of University of Southern Denmark, HR - Postgraduate Medical Education, Region of Southern Denmark, Damhaven 12, Vejle DK-7100, Denmark)

**Background:** Postgraduate training was reformed in Denmark in 2004 requiring assessment of specific clinical skills. This increased the attention on how to manage poorly performing doctors under postgraduate training (PPDUPT). In January 2008 “Managing trainees in difficulty” was published from “National Association of Clinical Tutors UK” providing practical advice for educational and clinical supervisors ([http://www.nact.org.uk/pdf_documents/trainees_in_difficulty_jan08.pdf](http://www.nact.org.uk/pdf_documents/trainees_in_difficulty_jan08.pdf)). In order to test the acceptance and usefulness of this guide in a Danish setting a one day adjusted course, was offered to senior doctors being clinical supervisor in Region of Southern Denmark. The main focus of the course was prevention, early detection and action plan.
**Summary of work:** Since February 2008 32 senior doctors have attended the course. Questionnaires assessing the acceptance and usefulness of the course were answered by 29 participants.

**Summary of results:** A positive evaluation was reported by 27. The most important learning points being the general management advices reported by 19, fast detection and intervention by 10, and focus on the importance of documentation by 6 participants.

**Conclusions:** Overall participants reported good acceptance and benefits of the course.

**Take-home messages:** We recommend the current one day course for educational and clinical supervisors as a tool in preventing and managing PPDUT.

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**3K4 The European Working Time Directive: implications for teaching and learning**

**Natasha Macnab*, Julie Bedward, Ian Davison, Hywel Thomas (University of Birmingham, School of Education, Pritchatts Road, Edgbaston, Birmingham B15 2TT, United Kingdom)**

**Background:** Full implementation of the European Working Time Directive (EWTD) in August 2009 limits the hours worked by junior doctors to 48 per week. Early implementation of EWTD in 20 pilots allowed exploration of its impact on the training experience of junior doctors.

**Summary of work:** The pilots were monitored and evaluated over a 2-year period. Focus groups and interviews were held with junior doctors and other key stakeholders.

**Summary of results:** Achieving EWTD compliance required new ways of working, including nurse-led emergency teams which impacted on the roles of junior doctors and reduced their opportunities for learning and development. Improvement in attendance at formal teaching occurred but did not compensate for reduced clinical exposure. EWTD reduced the extent and the effectiveness of the service provision made by juniors, particularly foundation doctors. This made their employment less attractive to smaller trusts.

**Conclusions:** EWTD reduces the clinical exposure of junior doctors and their opportunities for formal and informal workbased learning. Meeting educational needs will require innovation, which trusts may be reluctant to provide given the reduced level of service provision.

**Take-home messages:** EWTD increases the challenge of providing training in a service context. Possible solutions could include extending the overall training period.

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**3K5 Men are from Mars and women are from Venus: confirmation from postgraduate medical education**

**Davies SJ*, Walsh LA, Gallen DD (School of Postgraduate Medical and Dental Education, 9th Floor, Neuadd Meirionydd, Cardiff University, Cardiff CF14 4YS, United Kingdom)**

**Background:** It is documented that women doctors have less performance issues overall than male doctors.

**Summary of work:** The Deanery quality assures postgraduate medical training within the NHS Trusts in Wales. With the development of the Performance Unit within the Deanery to oversee and provide remediation for junior doctors in training with performance issues, the number of trainees and the nature of the performance issues have been monitored carefully.

**Summary of results:** Review of the current active trainees and those where performance issues have been resolved demonstrates that more men are referred than women. This is despite the fact that there are more women in postgraduate medical training, i.e. Foundation and Specialty training, in Wales. Performance issues are classified into five categories, attitude and behaviour, health, clinical competence, communication and failure to progress. Reviewing the reasons for referral and gender has shown that more men are referred for attitude and behaviour, clinical performance, communication and unsatisfactory progress. Women are more likely to be referred for health.

**Conclusions:** Women and men have different training needs and constraints in postgraduate medical training.

**Take-home messages:** Assessment and remediation needs to be sensitive to the gender differences.
3K6  Resident physicians’ attitudes and behaviors regarding underserved patients: a multi-institutional survey

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(Mayo Clinic College of Medicine, 200 First Street SW, Rochester 55901, United States)

Background: Resident physicians are often the first to encounter underserved patients, yet little is known about residents’ attitudes and behaviors regarding these patients.

Summary of work: In 2007 and 2008, surveys were distributed to 18 residency programs in the United States. Survey content was based on existing literature and an expert needs assessment. The attitude assessment had 15 items with 3-point scales. The behavior assessment evaluated volunteering for underserved patients in the past, present and future.

Summary of results: 497 surveys (response rate=52%) were completed. Attitudes were generally favorable, and rates of volunteering for underserved patients were high in medical school (N=376, 76%) and anticipated future practice (N=418, 84%), yet low during residency (N=96, 19%). Measures of attitude were higher for women than men, and behaviors were higher for women (future) and non-whites (past) when compared to men and whites. Respondents who volunteered regularly had significantly more favorable attitudes than those who did not volunteer (overall percent ‘very important’ 63% versus 49%; p=<0.0001).

Conclusions: Regarding underserved patients, this survey revealed that rates of volunteering during residency training are low, and resident attitudes are strongly correlated with behaviors.

Take-home messages: Future research should identify mechanisms for improving volunteerism among residents, and to determine whether plans to volunteer in future practice are actualized. The association between attitudes and behaviors suggests that these findings may represent a first stage in developing a process to identify altruistic residents.

3L  SHORT COMMUNICATIONS: Themes: Communications skills

3L1  Investigating the effects of medical communication skills course for undergraduate medical students

YM Lee*, SH Jeon, YH Lee, JW Bae (Department of Medical Education, Korea University College of Medicine, 126-1 Anam-dong, Sungbu-ku, Seoul 136-705, Republic of South Korea)

Background: Regardless of the growing importance of communication skills as a core clinical skill, a limited number of studies have investigated the effects of communication skill courses in undergraduate medical education.

Summary of work: We conducted a medical communication skills course for 122 second-year students in 2008. To examine the educational effects of the course, we compared the video-recorded results of SPs-based interview examination and questionnaire survey before and after the course implementation. For the analysis, 51 students’ videotapes were randomly sampled. Among them, three could not be included in the analysis due to poor quality of recording. As a result, 48 students’ performance were analyzed.

Summary of results: The total scores of performance checklist showed statistically significant improvements. Specifically, participants’ communication skills such as explaining their role, showing respects, non-verbal communication skills showing interest and respect, empathy talk, balanced use of open and closed question, facilitating questions and words, transition words, and asking patient’s perspectives on her/his illness. Also, students’ self–confidence on communication skills assessed by questionnaire was statistically significant improved after the course.

Conclusions: Providing medical communication skills course was beneficial for facilitating medical students’ development of understanding, confidence, and performance. The above experience of medical students could affect their future practice in authentic settings.

Take-home messages: Medical communication skills training in preclinical level improved the students’ interview skills in SP based clinical encounters.
3L2  **Does bedside assessment of communication skills improves medical students’ subsequent OSCE performance?**

Morris M*, Shuhaibar M, O’Ciardha C, Hennessy M (School of Medicine and Psychology and Dept of Clinical Medicine, Trinity College Dublin and Adelaide and Meath Hospital [AMNCH], Dublin, Ireland)

**Background:** Undergraduate medical students often struggle to ‘join the dots’ and utilise classroom taught skills in the clinical setting. This study hypothesises that structured communication skills training in a classroom setting may be improved by the addition of a real time observational supervised session at the bedside accompanied by feedback from a behavioral scientist. The aim of this study was to compare the end of year communication skills station OSCE results of students who participated in an additional structured session with those who did not partake.

**Summary of work:** Participating students were requested to interview a patient in a clinical session under the direct observation of a behavioural scientist. The time allocated was 20 minutes to interview and document. Patients were screened for similar medical history complexity. The student was assessed using an abridged version of a Calgary-Cambridge Guide to the Medical interview. The student received immediate feedback on findings.

**Summary of results:** Mean OSCE score whole group (n=61) = 69.83%; Mean OSCE score for non participating group (n=33) = 63.48%; Mean OSCE score for participating group (n=28) = 76.96%; Mean Bedside assessment score = 64.78%. (* p< .0004 ANOVA).

**Conclusions:** Students who participated in the bedside assessment scored statistically significantly better in the communication skills station at subsequent OSCE.

**Take-home messages:** Real time appraisal of communication skills in the clinical setting with immediate feedback is a beneficial method of teaching and assessing communication skills and should be integrated throughout the undergraduate years.

3L3  **Quantitative analysis of eye contact time in medical interview**

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**Background:** Nonverbal communication plays an important role in medical interview, and eye contact is one of the essential factors of nonverbal communication. However, appropriate eye contact remains unclear and seems difficult to teach for medical students.

**Summary of work:** We recorded medical interviews of 4th grade medical students with simulated patients (SP) on video before clinical clerkship. Two authorized raters who are MDs, observed videos and scored eye contact appropriateness 1 (poor) to 5 (excellent). Using template matching method which is a way of image processing, the scenes of the students turn his (her) face towards SP are detected automatically. We considered these scenes occurring eye contact. We analyzed the relationship between the “appropriateness” rates by raters and the eye contact time.

**Summary of results:** The median proportion of eye contact of medical students was 83.7% (range 66.5% - 94.6%). On the other hand, that of SP was 94.8% (range 41.8% - 98.8%). The correlation coefficient between eye contact length and the rate is -0.96.

**Conclusions:** The negative correlation showed that when the students spend longer time in eye contact, the raters considered poorer eye contact. This result indicates that students expect that longer eye contact is better meanwhile teachers do not. This gap should be recognized in clinical education.

**Take-home messages:** Media processing shed light on the discrepancy of appropriate eye contact between medical students and teachers.
How does gain in medical knowledge affect rapport-building protocols of medical interview?

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**Background:** The present study tests a hypothesis that increased medical knowledge in students could reversely affect their medical interview performance.

**Summary of work:** Forty-three preclinical students in a Japanese medical school who had experienced 2-year PBL curriculum participated in this randomized controlled study. After listening to a 45-minute lecture on the correct diagnosis (the study group) or another diagnosis (the control group), they interviewed a standardized patient for 10 minutes. The interview performance was assessed based on how the interview rated according to the Roter Interaction Analysis System (RIAS).

**Summary of results:** The RIAS coding revealed that the study group asked significantly fewer open-ended psychosocial (1.33 vs 2.36 discourses) and more orienting questions (7.62 vs 6.36 discourses) during the interview than the control group.

**Conclusions:** The results indicate that when the students are faced with situations where they can immediately apply the medical knowledge they have just acquired, they may become more focused on accurately diagnosing a case rather than following a rapport-building interview protocol. Consequently, they spent more time to ask orienting comments and did not leave time to ask psychosocial questions.

**Take-home messages:** In medical interview, rapport-building skills and information gathering for clinical reasoning may scramble for cognitive capacity with each other.

Impact of the introduction of a clinical subject at the beginning of first cycle.


**Background:** Clinical communication is an essential medical competence. Initiation of the students to communication skills and clinical interviewing allows not only the development of their communicative abilities, but also evidences their emotional difficulties in interpersonal relationships.

**Aim:** To know the student's experience in his initiation to communication skills, to identify the emotional difficulties, and to evaluate the degree of satisfaction of the students with this educational experience.

**Summary of work:** A confidential survey was distributed to the first year medical students registered in the Assistance Techniques subject (2005/2006, 2006/2007 and 2008/2009). The survey was divided into three main parts: 1) Learning objectives, 2) Emotional difficulties, and 3) Degree of satisfaction.

**Summary of results:** 355 of the 370 students answered the survey. The learning objectives were achieved by 80%, emotional difficulties were detected in 30% of the students and the degree of satisfaction and fulfillment of expectations was high. 99% of the students would recommend the subject and repeat the experience in the 2nd year.

**Conclusions:** The innovation of including a clinical care activity as a teaching strategy at the start of the first cycle is very favorably appreciated by students. The experience was useful to introduce basic concepts of the field of clinical interviewing.

The basic teaching qualification in health education: two tracks leading to the same goal

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**Background:** Maastricht University is running a project aimed at providing all faculty members with basic teaching competencies. In order to promote optimal commitment from faculty boards and members, faculties can design and implement their own Basic Teaching Qualification (BTQ) tracks.
**Summary of work**: Two tracks were designed for the Faculty of Health, Medicine and Life Sciences, serving all staff ranging from inexperienced to experienced educators. Individual faculty members' training preferences were met by offering them a choice between a structured, predesigned track and a demand-driven track tailored to individual preferences. Common components of the two tracks are: training, self-study, work-based learning, reflection and portfolio learning (McLean, 2008; Steinert, 2005).

**Summary of results**: When the two tracks were piloted, differences and commonalities were recorded. Open-ended questionnaires and semi-structured interviews were used to collect data from the participants and their coaches. The results for both tracks were positive and led to some refinements.

**Conclusions**: Both tracks appear to be successful in improving educational competence and in catering to different training needs.

**Take-home messages**: It is important that BTQ tracks are tailored to the differing needs of staff members of the health sciences faculty.

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**3M2 A training program for a basic teaching qualification based on coach supported teacher responsibility**

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**Background**: In 2008 all Dutch universities agreed on a framework for basic educational competences every university teacher should master: the 'Basic Teaching Qualification' (BTQ). Our BTQ workgroup designed a training program based on two major principles: 1) the participant is the manager of his own learning process, and 2) the workgroup facilitates and monitors learning processes.

**Summary of work**: To achieve 1), we induced self responsibility by having participants reflect on their present educational competences and lay down a personal development plan towards the BTQ goals. To achieve 2), we offered 1-on-1 coaching, using the development plan as a mutual frame of reference.

**Summary of results**: After 1.5 year with 16 participants and 4 coaches in the program, participants appreciate the idea of self responsibility, but mention initial problems in reflection and laying down a development plan. The coaches experienced that their role as a mentor in this process is substantial, but effective.

**Conclusions**: In long term educational staff training programs, the combination of self responsibility and 1-on-1 coaching appears to be a promising means to make and keep learners learning.

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**3M3 Using emotional intelligence to facilitate effective development and supervision by increasing self-awareness**

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**Background**: The introduction of revalidation for UK General Practitioners will enhance the appraisal process, bringing a greater emphasis on reflective practice, CPD and patient care. Appraisers therefore need to reflect on their skills and look to extend their current competencies to balance the individual developmental needs of appraisees with the regulatory requirements of re-licensing and recertification.

**Summary of work**: This project describes the design and implementation of a development centre process. Uniquely we combined personalised emotional intelligence feedback with opportunities to practice and receive feedback on various appraiser activities. Following a job analysis to identify 6 key appraiser competencies, pilots were conducted (N=20), with a further 200 participants attending live development centres (DC).

**Conclusions**: Qualitative and quantitative evaluation data was collected from participants, observers, simulators and facilitators, demonstrating both validity and utility of the DC in raising self-awareness and understanding of the impact of one's approach on others.
Take-home messages: Using emotional intelligence, coupled with opportunities to receive instant feedback, can increase self awareness. This approach is effective in supporting supervisors to positively influence their client’s learning and development.

3M4 Development and validation of an instrument to assess faculty development programs from a broader perspective
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Background: The context of each academic institution is unique, therefore, there is no “wide-ranging” or “quick fix” model for faculty development. Devising a structure may facilitate the process of planning and assessing faculty development activities. This may be possible by putting generalizable principles of faculty development together.

Summary of work: This study was done to develop a tool for assessing the current trend and quality of faculty development programs. We conducted a three-phase study. We designed a pilot test of the preliminary instrument. Finally, the research group summarized and then identified categories and indicators.

Summary of results: The three-phase process of instrument development was conducted by applying a qualitative content analysis methodology and involving stakeholders from the relevant area of expertise in Iranian medical universities. These enquiries generated 85-item instrument with 32 indicators and 6 categories with high validity for medical universities. The instrument had an alpha reliability of 0.93 in that administration.

Conclusions: The results reported in this study provide support for internal consistency reliability of the instrument. In addition, content development and validity of the instrument supported the Faculty Development Instrument questions in terms of their objectivity for assessing any faculty development programs from a broad perspective- managerial and pedagogical.

Take-home messages: The instrument can guide in building and detecting effective faculty development programs and also in mapping the existing situation of the faculty development activities.

3M5 Professional accomplishments among graduates of the FAIMER fellowship program
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Background: One indicator of the effectiveness of professional development programs is the professional accomplishments of program graduates. The FAIMER Institute, a fellowship program for international health professions faculty from developing regions, has on-site and distance learning components focused on education methodology, leadership and management, education research, and creation of a community of practice.

Summary of work: As part of evaluation of program outcomes, professional accomplishments data has been collected annually via a survey of program graduates. Forty-nine of 70 Fellows (70%) from the 2001-2006 classes responded to the 2008 survey.

Summary of results: Data show Fellows making contributions and serving as leaders on local, regional, and international levels by developing educational materials and publications, organizing conferences, and delivering presentations and workshops. Three-quarters responded that they had served as educational advisors/consultants since completing the fellowship. Fellows noted professional advancement through promotions and appointments, with the majority indicating that the fellowship contributed to these accomplishments.

Conclusions: Follow-up survey accomplishments data indicates that fellowship program graduates have sustained health professions education career paths and served as regional resources for change.
**Take-home messages**: Achievement of these outcomes is believed to support, in the long term, the development and strengthening of the field of health professions education in Fellows’ regions.

**3M6 Reflections of a new teacher, old country doctor over five years**  
Richard Turner*, Moira AL Maley (Rural Clinical School, University of Western Australia, 48 Frederick St, Albany, Perth 6330, Australia)

**Background**: The Rural Clinical School of Western Australia, delivers a clinical curriculum to multiple small groups of students embedded in rural / remote primary care settings for an entire academic year. The students' programme is coordinated / delivered by a small team of local clinicians in widely dispersed regions who may be new to undergraduate teaching.

**Summary of work**: As a clinician with five years experience in this new teaching role I reflect on a stimulating professional journey of personal anxieties about my performance, motivation, outcomes and style. Philosophical challenges involved the breadth and depth of teaching, i.e. teaching a life skill (clinical reasoning) or a professional behaviour, and the dichotomy of nurturing vs spoon feeding. A set of key elements in the teaching programme reduced student anxiety and promoted self directed learning.

**Summary of results**: Essential personal attributes as a teacher were to embrace evaluation and criticism, and to seek out remediation with a view to continual improvement.

**Conclusions**: This burnt out medical professional has transformed into a reinvigorated insightful medical educator, mentor and life long learner.

**Take-home messages**: Rural clinicians are a valuable medical teaching resource who are usually too busy to develop teaching skills. A small investment will result in a big return.

**3M7 Assessing stakeholders’ expectations for a faculty development program**  
Blouin, Danielle* (Queen's University, 82 Barrie St, Kingston, Ontario K7L 3N6, Canada)

**Background**: Stakeholders of faculty development (FD) offices (deans, department heads, faculty members, etc) have diverse expectations. Planning of educational activities needs alignment with these expectations. This study seeks to identify the outcomes of interest to different stakeholders of a FD office.

**Summary of work**: Possible outcomes of interest for FD programs were identified through literature and website searches. 8 themes emerged. 266 randomly selected faculty members (33% of total full-time) were asked in an electronic questionnaire to rate the importance of each theme. 2 reminders followed the initial e-mail. Individual and group interviews were held with holders of major academic portfolio. The importance of each theme was analyzed and a list of priority created for each stakeholder group.

**Summary of results**: Survey response rate: 53%. Top priorities for faculty members: teaching skills (94%), leadership skills (79%), technology use (78%), career advancement (77%). 23 interviews were conducted. The most important themes (qualitative analysis) for (1) the decanal office: leadership skills, career advancement, technology use, and teaching skills; (2) course chairs: teaching skills, research skills, and technology use; (3) department heads: teaching skills, leadership skills, and life balance.

**Conclusions**: Significant disconnects exist between the expectations of various stakeholders for a FD program.

**Take-home messages**: FD planners must know and prioritize these expectations.
3N PhD REPORTS: Work-based and clinical learning

3N1 Turning understanding into clinical practice
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Introduction: Current continuing medical education (CME) programmes are often insufficient in changing doctors’ performance, and there is a need to improve CME and shift toward a more comprehensive continuing professional development (CPD). The objective of this study was to develop and assess the effects of an educational intervention, based on a modified stages-of-change model, on general physicians’ stages of readiness to change, knowledge, attitudes and performance regarding management of depressive disorders in Iran.

Methods: A randomized controlled trial with 192 general physicians in primary care (GPs), were equally distributed to an intervention and control arm, following stratification related to stage of change, sex, age and work experience. The intervention comprised an interactive workshop for a small group at a higher stage of readiness-to-change ('intention') and an interactive large group meeting for those demonstrating a lower propensity to change ('attitudes') at the pre-assessment stage. All the measures were validated in the Iranian context. The GPs’ stages-of-change were assessed based on the Modified Prochaska Questionnaire (MPQ), their knowledge and attitudes were assessed using written questionnaires and their performance was assessed by standardized patients (SPs), who filled in checklists regarding the encounter, and collected prescriptions if any. Five different scenarios for depression disorders were compiled by an expert group. The validity and reliability of checklists, SPs’ portrayals and SPs’ ways of completing checklists were documented. The pre-assessment of GPs’ performance was done two months before and the post-assessment two months after the intervention.

Results: GPs in the intervention arm significantly shifted to a higher stage with an intervention effect of 47 percentage units. Their overall mean scores on the knowledge test also improved, with an intervention effect of 12 percentage units. Although their attitudes changed in the post-test in comparison with the pre-test, the difference between the intervention and control arms was not significant. The performance of the GPs in the intervention arm also improved for mean scores regarding diagnosis, with an intervention effect of 14 percentage units, and for appropriate management regarding treatment and referral, with an intervention effect of 20 percentage units. The largest changes appeared in the small intervention group with intervention effects of 28 and 38 percentage units, respectively.

Discussion and conclusion: The model was successful in improving both knowledge and practice according to the theoretical assumptions. It can be used in educational interventions within a CPD context. Key words: Continuing Professional Development, Continuing Medical Education, Stages of change, Depression, Primary care and Iran.

3N2 The doctor-patient relationship: a study of postgraduate medical trainees’ views
Sarah Burke* (University of Birmingham, School of Education, Edgbaston, B15 2TT Birmingham, United Kingdom)

Introduction: Greater understanding of how postgraduate medical trainees view the doctor-patient relationship would enable educators to relate training to learners’ preconceptions. A qualitative study explored the following research questions: how do postgraduate medical trainees conceptualise the doctor-patient relationship and how do they perceive that they have learnt to develop relationships with patients? The study focused on the perceptions of General Practice Registrars (GPRs) and Otolaryngology Specialist Registrars (ENT SpRs) in the West Midlands, England.

Methods: A mixed methods case study approach was adopted. Semi-structured face-to-face interviews were conducted with 20 trainees (10 GPRs and 10 ENT SpRs). Interview results informed the design of a questionnaire, distributed to GPRs and ENT SpRs in the West Midlands, with response rates of 90% (89/99) and 41% (16/39) respectively.
Results: Five conceptual frameworks that all interview participants drew upon when talking about the doctor-patient relationship were identified: paternalism; guided decision-making; partnership; clinical; and consumerism. Trainees described a fluid doctor-patient relationship which adapts to differing contexts, taking different forms in different situations and influenced by factors outside the doctor’s control, including time and the patient’s personality. Much discussion focused on decision-making. Active engagement of patients in decisions was considered important, but there was a lack of consensus as to what this meant and how it could be achieved. The majority of questionnaire respondents (73%) indicated that decision-making in their most recent consultation had involved the patient and doctor discussing options and agreeing the most appropriate course of action together (partnership), open comments suggesting that this was possible because a number of appropriate options existed. However, 47% indicated that they had guided the patient towards the appropriate course of action (guided decision-making), some noting that, “The patient looked to me for advice” and, “Your role as a doctor is to guide them”. Nearly a third of respondents (31%) ticked more than one response, indicating that different forms of decision-making took place within the one consultation. Within training, participants reported that a partnership approach was promoted, but this was not always considered appropriate in practice. For both GPRs and SpRs, personal experience and observing senior colleagues were thought to have had the greatest impact on learning.

Discussion and conclusion: Specialty training which acknowledges the complexity of the doctor-patient relationship and the challenges doctors may encounter is recommended. Reflective practice may enable trainees to better relate their formal training to professional practice.

3N3 Continuing professional development: exploring the choices UK physiotherapists make throughout their careers
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Introduction: Increasingly health professionals are under pressure to demonstrate engagement in CPD (Department of Health 1999), with a statutory requirement that requires practitioners to show evidence of having undertaken CPD and applying this to their practice (Health Professions Council, 2006). To date, there is little research that identifies the types of CPD activities which physiotherapists engage in and the choices they make at different stages in their career. Research Question: What are the reasons UK physiotherapists’ give for engagement in CPD activities, the barriers to achieving them, and their decision-making at different points in their careers and when working in different clinical specialties?

Methods: An exploratory sequential mixed-method design. Following ethical approval and piloting Phase 1 involved a postal survey of all physiotherapists in one Strategic Health Authority, using a four-page self-completion questionnaire involving two 5-point Likert scale questions relating to reasons for, and barriers to CPD. The data were analysed using SPSS. Descriptive statistics and cross tabulation were used to identify the type and frequency of activities. Principal Component Analysis was used as a data reduction technique to identify reasons for, and barriers to CPD. Phase 2: used audio taped face to face interviews with a stratified representative sample of respondents from the survey. Data from the interview transcripts were analysed using Nvivo 7.

Results: 140 completed questionnaires were returned. Participants had worked for mean of 12.4 years; 59% as senior clinicians, 29% as junior clinicians, 12% as managers. They had worked in their present speciality for a mean of 7.8 years. 32 different CPD activities were identified. Principal Component Analysis, revealed 3 components as motivating factors for engaging in CPD activities, and 4 components that can act as barriers. Internal consistency using Cronbach’s Alpha was acceptable to good (.653 to .891). Friedman ranks test found that the rank order of these components was consistent across all subgroups and the significance was p<0.05. Thematic content analysis of the 22 interviews suggest that there should be a greater focus on the contribution that work-based and self-directed learning activities can have on the CPD.
Discussion and conclusion: The findings indicate that the participants’ decisions to engage in CPD were influenced more strongly by values related to improving clinical skills and patient care, than by the prospect of extrinsic rewards such as increase in pay and promotion. Measuring the impact of CPD remains a challenge. An increased understanding of the differences in CPD requirements at different stages in their careers, and practising in different specialities, should enable appropriate CPD activities to be developed.

References:

3N4 Learning the pelvic examination
Karin Siwe* (Division of Womens and Childs Health, Department of Clinical and Experimental Medicine Faculty of Health Science, Ob/Gyn Plan 14, Linköping University Hospital, S-581 85 Linköping, Sweden)

Introduction: The model with professional patients (PP) as instructors for medical students in learning how to perform the pelvic examination (PE) at the Faculty of Health Sciences in Linköping, Sweden, was the inspiration for this thesis. The aim was to explore what learning about the PE meant for PPs, medical students and for women at an outpatient gynaecological clinic.

Methods: A qualitative approach was used in study I/phenomenology, III and IV/constant comparative method and a quantitative in study II. In study I, 13 women active as PPs were interviewed about their experiences of being a PP: In study II, medical students’ (n=48) outcome in terms of skills were compared between a PP and a clinical patient model. In study III, 12 female students, 4th semester, were interviewed after they had performed their first PE with PPs. In study IV, 12 women at an outpatient clinic participated in individual learning sessions (LS) about the PE prior to visiting the gynaecologist, followed by interviews about the impact of the LS.

All interviews were individual, audio taped and transcribed verbatim.

Results: Being a PP was rewarding. The incorporated knowledge increased their self-esteem and enhanced their ability to interact with the students during LS. Students learning with PPs were more skilful in palpating the uterus and ovaries and performed more PEs during the clinical clerkship than did clinical patient students. The female students' most obvious concern was about looking and touching another woman's vulva. The interactive feedback from the PPs enabled them to overcome hesitations and encouraged creative learning of interpersonal and palpation skills. Women's active participation during the LS about the PE generated increased knowledge and self-confidence, and promoted a creative ability to interact during their own following PE.

Discussion and conclusion: Learning to perform the PE in a supportive environment with skilful PPs enabled students to integrate communication and behavioural skills in a professional manner whilst learning to palpate the uterus, facilitating an inner security as a future examiner. Learning about the PE awoke women's curiosity about their body, generated a will to act and promoted a feeling of being empowered, findings that correspond well to the concept of empowerment in other studies. The use of a learning model with PPs seems to be of benefit for both students and PPs, a “win-win” concept. Facilitate women's learning about the PE promote autonomy and enable enhanced communication, of benefit for future PE examiners, both learners and professionals.

References:
1. Siwe, K., Learning the Pelvic Examination, in Faculty of Health Sciences. 2007, Linköping University: Linköping, Sweden. http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-10272,
Measurement of clinical skills: Rules, tips, guidelines and pitfalls
Kimberly A. Swygert*, Carol Morrison (National Board of Medical Examiners, 3750 Market Street, Philadelphia 19104, United States)

**Background:** The accurate and timely assessment of clinical skills is a crucial part of undergraduate medical education, and the use of clinical skills examinations for student assessment is now widespread within the medical education community. The United States Medical Licensure Examination (USMLE) series has included a clinical skills assessment since 2004. There is now literature summarizing the psychometric properties of these types of examinations, and a thorough understanding of these properties is essential, especially in high-stakes assessment environments.

**Intended outcomes:** This workshop will provide participants with detailed guidelines for the development of the critical quantitative measures for clinical skills assessments using standardized patients, including the development of rating scales/checklists, potential equating and scoring processes, and the potential analyses that can be used to demonstrate the reliability and validity of the outcome scores.

**Structure:** This workshop is intended for medical school faculty and clinical skills assessment administrators who would like a better understanding of the quantitative issues surrounding the measurement of clinical skills. Participants should be familiar with the basic quantitative methods used in assessment.

**Intended Audience:** The workshop will open with an overview of scoring considerations, with time allotted for audience discussion of scoring issues. This will be followed by breakouts into small groups to discuss specific assessment examples, and a final reconvening to share small group work.

**Level of workshop:** Intermediate

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Beyond CBME: Community Engaged Medical Education in Canada and Australia
Roger Strasser*, Sarah Strasser* (Northern Ontario School of Medicine and Flinders University School of Medicine, 935 Ramsey Lake Road, Sudbury, P3E 2C6 Canada)

**Background:** Around the world, there is a growing interest in the social accountability of medical education, specifically graduating doctors who are skilled and able to respond to the needs of the people and communities they serve. In this context, Flinders University in Australia and the Northern Ontario School of Medicine (NOSM) in Canada have developed undergraduate medical education programs which actively involve community members in the educative experience of medical students.

**Intended outcomes:** This workshop will introduce participants to Community Engaged Medical Education (CEME) and provide opportunities to explore the conceptual and the practical issues involved in this innovation in medical education. By the end of the workshop, participants will be able to initiate the development of CEME in their own setting.

**Structure:** Brief presentations on the Flinders and NOSM programs will provide a context for interactive discussion of the key principles of CEME, followed by a sharing of experience with implementing medical education in diverse community settings. The workshop will conclude with a summary of the important enablers of success in CEME.

**Intended Audience:** Academics, health professionals and community members.

**Level of workshop:** Beginners

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Young medical educator workshop: The write stuff: guidelines for getting published
Stewart Mennin*, Soren Huwendiek*, Monica van de Rijder*, Regina Petroni Mennin* (University of New Mexico School of Medicine, USA; Children’s Hospital Heidelberg, 69120, Germany; Albert Schweitzer Hospital Dordrecht, The Netherlands)

**Background:** Medical educators new to the field usually struggle with preparing their initial abstracts and publications. Comments from reviewers are often helpful however usually late in the...
developmental process. Learning how to write and preparing material for publication for medical education can be obscure and stressful, even for authors who have previously published in their specialty fields. This workshop is focused on helping people relatively new to medical education to write for publication in medical education journals.

**Intended outcomes:** At the end of the workshop participants will be able to: 1. Identify and apply criteria for writing for publication to their own writing; 2. Read, review and critique abstracts developed for publication; 3. Describe what editors are looking for in publications about medical education.

**Structure:** Participants working in pairs will apply criteria to review a sample of writing from submitted manuscripts. Next, participants will be asked to review abstracts from the AMEE program and samples of either their own writing or that of others. Experienced medical educators will be invited to share experience concerning publishing manuscripts as well as for career development in medical education. It is recommended to prepare for this workshop by reading the following three articles: (1) Georges Bordage. Acad. Med. 2001;76:889–896; (2) Lesley Pugsley. Med Educ 2008: 42: 866–871; (3) David A Cook, Georges Bordage & Henk G Schmidt. Med Educ 2008: 42: 128–133.

**Intended audience:** Young medical educators interested in publishing their work in medical education journals and abstracts for professional societies.

**Level of workshop:** All

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**3R WORKSHOP**

**When generations collide: Survival skills for millennial students and the faculty who teach them**

John F. Mahoney*, Karen Richardson-Nassif* (University of Pittsburgh School of Medicine and University of Vermont College of Medicine, Office of Medical Education, M-211 Scaife Hall, 3550 Terrace Street, Pittsburgh, Pennsylvania 15261, United States)

**Background:** This session will focus on the millennial generation and the teacher/supervisor-to-learner relationship. The current generations of mid-career and senior faculty and healthcare managers grew up in an old school environment where the attitude might be “we work until the work is done”. Today’s trainees and young faculty may opt to work only until it is time to stop working, for regulatory compliance or for a comfortable lifestyle. These differences in values and in daily functioning can result in highly disruptive clashes. This workshop will focus on differences in values and work habits.

**Intended outcomes:** (1) To help teachers and supervisors understand the unique characteristics of today’s trainees, and approaches that may be used to be more successful in supervising, teaching, and avoiding unnecessary conflict with millennials. (2) To provide an understanding of how to prepare millennials to succeed as they work with colleagues who approach work and life from a baby boomer perspective.

**Structure:** (1) Introductions, where participants will be asked to identify themselves based on their place in the generational ladder. (2) Exercise for reflection on participants’ own attitudes/values and how these correspond to prototypical generational definitions. (3) Overview of literature on generational differences. (4) Discussion of video cases that demonstrate aspects of the learner-supervisor relationship, including vignettes from each generational perspective. Themes: Work ethic-life balance; Professional behavior; Interpersonal communications. Discussion of specific challenges; approaches to overcoming these challenges; and summary discussions.

**Intended Audience:** Medical educators, medical trainees, clinicians who work with millennials.

**Level of workshop:** All

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**3S WORKSHOP**

**Developing a scholarship of medical education**

Charlotte Silén*, Cormac McGrath*, Klara Bolander Låtsov* (Karolinska Institutet, Dept. Learning, Informatics, Management and Ethics, Berzelius väg 3, Stockholm 171 77, Sweden)

**Background:** For teachers to develop best practice in medical education it is important to give adequate attention to good educational practice. At the Centre for Medical Education, Karolinska...
Institutet, a practice based on the idea of scholarship of teaching and learning, SoTL, is being developed. Teachers are encouraged to systematically evaluate their teaching and test educational practice vis à vis educational theory and research. To share and spread the ideas teachers will author Scholarship articles discussing new ideas of teaching practice, how this leads to increased student learning and connect to pedagogical literature.

Intended outcomes: Participants will become aware of the principles of the scholarship model. By the end of the workshop participants will have started outlining their own scholarship-project, eventually resulting in a scholarship article.

Structure: Experiences of working with scholarship-projects as a way to encourage development and motivation among teaching staff will be presented. The SoTL model will form the basis for discussions and critique. The participants will get a chance to discuss and get feedback on their ideas for scholarship-projects in small groups, based on different themes such as inter-professional learning, student learning, assessment and academic leadership.

Intended Audience: Teachers involved in teaching at different levels of undergraduate education.

Level of workshop: All

3T WORKSHOP

Leadership and management: understanding the difference and embracing the contradiction

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Background: Management is about promoting stability and coping with complexity. Leadership is about vision, pressing for and coping with change. Different but complementary, in a changing health care and educational system, we need both to survive. However, not everyone can be good at both. Some have the capacity to become excellent managers but not strong leaders; others have substantial leadership potential but, for a variety of reasons, have difficulty becoming strong managers. Smart programs value both and work hard to make both part of the team. Understanding the difference we can also work to develop students and faculty as leader-managers.

Intended outcomes: This workshop provides participants with an opportunity to explore concepts of management and leadership. It will: (1) Explore different, but complementary roles of managers and leaders; (2) Identify different, but complementary managerial and leadership activities that promote stability and position programs to address evolving trends in medical education; (3) Consider methods to instill a culture of leadership hierarchically across educational programs.

Structure: Working primarily through guided activities and case discussions, participants will explore major categories of management and leadership and generate strategies for impacting institutional culture. The workshop will be interactive, encouraging networking and collaboration.

Intended Audience: Anyone who is considering or currently holds a leadership position.

Level of workshop: All

3U WORKSHOP

Integration of non-technical skills into the curriculum – the potential of simulation-based training

Doris Østergaard* (Director of Danish Institute for Medical Simulation, Herlev University Hospital, Capital Region of Denmark); Marcus Roll* (Director of Center for Patient Safety and Simulation, Tuebingen University Hospital, Tuebingen, Germany); Walter Eppich* (Director of Medical Education, kidSTAr Simulation Program, Children’s Memorial Hospital, Chicago, IL, USA)

Background: Traditionally, medical education has focused on individual competence and primarily on medical expertise related to knowledge and practical skills. Patient safety has been on the agenda for the last decade and the IOM report “To Err is Human” described that many patients are injured due to medical errors (1). Critical incident reports and root cause analysis have shown that 70% of the critical incidents are not due to deficits in medical knowledge (technical skills) but rather due to human factors. In 70% of the root cause analyses communication is a major contributing factor (2). The importance of human factors is well known from other high risk industries, which
for many years have integrated team training with focus on non-technical skills to minimise risk. In the medical domain, anaesthesia was the first speciality to introduce this type of training that emphasised teamwork, communication, and leadership skills (also known as Crisis Resource Management, CRM). A framework for training and assessing the anaesthesia non-technical skills (ANTS) has been developed (3). The ANTS system has 4 main categories - task management, team skills, decision making and situation awareness. Frameworks for surgeons and assisting nurses have also been developed. The IOM report recommends the use of simulation as an educational tool, because training can take place without harming the patient. The education literature stresses the importance of actively involving learners in the learning process and encouraging self-reflection.

Simulation-based training incorporates these elements—active engagement and reflection—since simulations are usually followed by a feedback and debriefing session. Feedback, the opportunity for repetition and integration in the curriculum are the most important evidence-based factors for effective simulation (5). Introducing non-technical skills at the individual level for all health professions is a necessary step, but to change a team of expert into an expert team is a huge challenge (6,7,8). Involvement of institutional leadership and integration of cost effective programs for all health professions - starting at the pre-graduate level - is necessary if we intend to improve the safety culture and continue improving patient safety.

**Intended outcomes:** After this session, participants will be able to: (1) Describe the importance of human factors in safe patient care; (2) Discuss the importance of non-technical skills being able to apply these; (3) Discuss and plan how to integrate non-technical skills (human factors /CRM) in curriculum.

**Structure:** After brief theoretical inputs, this interactive session will focus on large and small group exercises to allow participants to apply their new knowledge of non-technical skills. Participants will also begin to plan how to integrate instruction of similar elements in their own educational home environment.

**Intended audience:** Participants interested in patient safety, integration of non-technical skills and the use of simulation based training.

**Level of workshop:** Intermediate

**Selected References:**
2. JCAHCO. Sentinel event statistics, June 29, 2004. Available at: www.jcaho.org
of both nations, and (c) receive practical information on how to apply elements to program review and improvement in institutional, local or national settings.

Structure: A combination of lectures and interactive sessions to engage participants, led by senior experts of the ACGME and the RCPSC accreditation process. The session includes a formal overview of the accreditation processes (20 minutes); simulation of an accreditation site visit and review session in small groups (30 minutes); interactive debriefing of lessons learned and applicability to internal program review and local and national program assessment efforts (20 minutes); presenters final comments and Q&A (20 minutes).

Intended Audience: Residency program directors, medical educators, staff of accrediting and educational peer review organizations and individuals interested in developing accreditation programs.

Level of workshop: Intermediate

3X POSTERS: Professionalism

3X1 Professionalism and medical humanism
Barceló HA, Aguilar OL, Etchegoyen FP* (Instituto Universitario de Ciencias de la Salud Fundación H. A. Barceló, Las Heras 2191, Buenos Aires 1127, Argentina)

3X2 Attitudes towards medical professionalism among interns and residents in an Iranian medical school
Mahasti Alizadeh*, Abolghasem Amini, Aliar Fazlzadeh, Paria Souriati, Sahar Madadi, Mahmoud Khatibzadeh (Medical Sciences Education Development Center (EDC), Daneshgah Street, Department of Community Medicine, Tabriz Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz 5166665813, Iran)

3X3 Professionalism in medical undergraduates
Vitor Fialho Lopes*, J Struthers, R Cruickshank (University of St Andrews, Westburn Lane, St Andrews KY16 9TS, United Kingdom)

3X4 Students' perceptions of professional behaviour
Gray CL*, McLoughlin TF* (University of Sheffield School of Medicine, Beech Hill Road, Sheffield S10 2RX, United Kingdom)

3X5 Medical students' attitudes and behaviours regarding academic misconduct
Somchai Tanawattanacharoen*, Chaichana Nimnuan (Office of Student Affairs, Chulalongkom University, Rama IV Road, Pathumwan, Bangkok 10330, Thailand)

3X6 Assessment of academic misconduct in medical students
Chaichana Nimnuan*, Somchai Tanawattanacharoen (Faculty of Medicine, Chulalongkom University, Office of Institutional Research, Rama IV Road, Pathumwan, Bangkok 10330, Thailand)

3X7 What teaching methods strengthen professionalism and ethics in medical students?
Wongtimarit K*, Suthamnirand A, Thongmeesee S (Chonburi Medical Education Center, Chonburi Hospital, Ban-suan, Muang, Chonburi 20000, Thailand)

3X8 Investigating the beliefs and attitudes of medical students in relation to professionalism
M Moneypenny*, H O'Sullivan, A Guha (School of Medical Education, Faculty of Medicine, University of Liverpool, Cedar House, Ashton Street, Liverpool L69 3GE, United Kingdom)

3X9 Final pass/fail decisions of a first-year professionalism course: a comparison of medical students' study careers
H Dekker*, EA van Hei, J Botelofs, JW Snoek, T van der Molen, J Cohen-Schotanus (Center for Research and Innovation in Medical Education, University Medical Center Groningen and University of Groningen, A Deusinglaan 1, Groningen 9713 AV, Netherlands)
3X10  Professionalism assessment with Multiple Choice Questions (MCQs): Believe it or not?  
Robert S. Lee*, André-Philippe Boulais, Tanya Bennett (Medical Council of Canada, 2283 St. Laurent Boulevard, Ottawa, Ontario K1G 5A2, Canada)

3X11  Assessing behaviours and attitudes – what do tutors think and feel about it?  
Philip Burns* (Rusholme Academic Unit, The University of Manchester, 1st Floor, Robert Darbishire Practice, Walmer Street, Rusholme, Manchester M14 5NP, United Kingdom)

3X12  Assessing professionalism in the early years of medical school  
Joao José Cerqueira*, Nuno Sousa, Joana Almeida Palha, Manuel João Costa (School of Health Sciences, University of Minho, Campus de Gualtar, Braga 4710-057, Portugal)

3X13  The assessment of professionalism by final year medical students  
R R du Preez*, Isobel van Huysteen* (Weskoppies Hospital, P Bag X 113, Pretoria, 0001; Department of Family Medicine, University of Pretoria, Pretoria, 0001, South Africa)

3X14  Students' perceptions of personal behaviour and professionalism  
Jandu, V S*, Marshall, M (University of Sheffield, 85 Wilkinson Street, Sheffield S10 2GJ, United Kingdom)

3X15  Bob the preliminary medical students diary  
Juliette King* (Cardiff University, Division of Medical Education, University Hospital of Wales, Cardiff CF14 4XW, United Kingdom)

3Y  POSTERS: Standardized patients

3Y1  Translating lessons from medical education to clinical ethics education  
Devra Cohen Tiggr*, Robert Baker, Terry Sommer, Sally Bliss, Nada Gligorov (Union Graduate College Mount Sinai School of Medicine, 252 Caroline St., Saratoga Springs, New York 12866, United States)

3Y2  Does the assessment of doctor-patient-relationships and communications by standardized patients as a component of a global rating scale influence students’ performance during OSCEs?  
Reißenweber JH*, Fischer MR, Rützler M, Brehmer M (Student Dean’s Office, Medical Faculty of Witten/Herdecke University, Alfred-Herhausen-Straße 50, Witten D-58448, Germany)

3Y3  “When you did it, I felt that…” Standardized patients’ (SP) feedback: How do we train them?  
Carine Layat Burn*, Raphael Bonvin (Educational Unit, Faculty of Biology and Medicine, University of Lausanne, Rue du Bugnon 21, Lausanne 1001, Switzerland)

3Y4  Clinical teaching: the use of simulated patients as an innovative teaching and learning strategy  
A Traut* (University of the Western Cape, Modderdam Road, Bellville 7530, South Africa)

3Y5  Sixteen years’ experience of applying standardized patients in teaching and assessing basic clinical skills for medical students  
Wan Xuehong*, Deng Hong (International Office, Sichuan University, West China School of Medicine, Sichuan University, No.17, Ren Min Nan Lu 3 Duan, Chengdu 610044, People’s Republic of China)

3Y6  Effects of students’ knowledge of feedback in Simulations with Standardized Patients  
Baerbel Schwald*, Stefanie Roeding, Matthias Siebeck, Karsten Stegmann, Frank Fischer (Department of Surgery – Innenstadt, Ludwig Maximilians University Munich, Nussbaurnstrasse 20, 80336 Munich, Germany; Ludwig Maximilians University, Munich; Educational Psychology, Ludwig Maximilians University Munich, Leopoldstrasse 13, 80802 Munich, Germany)
3Y7 Actual status of programs in cooperating with simulated patients and standardized patients for Occupational Therapy Students in Japan
Kaoru Houe*, Atsuko Tanimura, Chihiro Sasaki, Nobuo Oshima (Tokyo Metropolitan University, 7-2-10 Higashiguchi Arakawa-ku, Tokyo 1168551, Japan)

3Y8 Simulated patients' reflections on their experience of medical student training in a Malaysian medical school
Julia Blitz*, Kooi Yau Chean (Penang Medical College, 4 Jalan Sepoy Lines, Penang 10450, Malaysia)

3Y9 Training of difficult communication with standardized patients in a large medical school: does it raise the self-esteem and performance of medical students?
Hinske PM*, Görtitz A, Kopp V, Bauer D, Heußner P, Fischer MR (Medical Education Unit, Ludwig-Maximilians-University Hospital, Ziemssenstr.1, Munich 80337, Germany)

3Y10 'Patients as Partners': a framework for developing and running a simulated patient program
Melissa McCullough, Pauline Murphy*, Mairead Boohan (School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, 71 University Road, Belfast BT15 5HB, United Kingdom)

3Y11 Difference of PPI (Patient and Physician Interaction) scores between professor and SP raters
Sam Beom Lee*, Young Hwan Lee, Jae Beum Bang (Yeungnam UNIV, College of Medicine, 317-1 Daemyung-dong, Nam-gu, Daegu 705-771, Republic of South Korea)

3Z POSTERS: Planning clinical teaching
3Z1 A complex educational programme focused on clinical practice guidelines
Radim Licenik*, Martin Faix, Darja Jarosova, Daniela Jelenova, Tomas Kuhn, Pavel Kurfurst, Adela Michalciva, Jan Vodicka, Katerina Ivanova (Centre for Clinical Practice Guidelines, Department of Social Medicine and Health Policy, Faculty of Medicine and Dentistry, Palacky University, Hnevotinska 3, Olomouc 77515, Czech Republic)

3Z2 A model to explain the transforming effect of continuity on clinical teaching and learning
Julie K Ash* (Health Professional Education, Flinders University, School of Medicine, GPO Box 2100, Adelaide SA 5050, Australia)

3Z3 Essentials of clinical practice – a curriculum for subinternship
Hurley H*, O Mara D, Houihan D, Spooner M, Hill ADK (Royal College of Surgeons in Ireland, 123 St Stephens Green, Dublin 2, Ireland)

3Z4 Integrated interactive teaching and learning in evidence-based paediatrics
Mihal V*, Zapletalova J, Subova D, Potomkova J (Palacky University Faculty of Medicine & Dentistry, Puskinova 6, Olomouc 775 20, Czech Republic)

3Z5 "Behind Closed Doors": a qualitative description of single sex female clinical skills groups
Abigail E Cole*, Kenny J Boardman*, Dason E Evans (St George's, University of London, Cranmer Terrace, London SW17 0RE, United Kingdom)

3Z6 Uncovering secrets of success in medical students through positive deviance inquiry
Zareen Zaidi, Tara Jaffrey, Shaheen Main, Umair Pervaiz, William Burdick* (Foundation University Medical College, Jinnah Avenue, Defence Housing Authority - DHA Phase 1; author is faculty at FAIMER Institute, Islamabad 46000, Pakistan)
Does student willingness to participate in peer physical examination translate into action?
Julie Y Chen*, Cindy UK Lam, NG Patll, Amber LM Yip (Institute of Medical and Health Sciences Education, The University of Hong Kong, 2/F William MW Mong Block, 21 Sassoon Road, Pokfulam, Hong Kong)

Evaluating dedicated teaching gynaecology clinics – Everyone’s a winner
Rebecca Swingler*, Sarah Platt, Susan Glew (St. Michael’s Hospital, Southwell Street, Bristol BS2 8BJ, United Kingdom)

A dedicated ‘Teaching Registrar’ for medical students attached to emergency medicine
S Chambers, K Parkinson*, A Hassell (Keele University Undergraduate Medical School, City General Hospital Site, London Road, Newcastle under Lyme ST4 6QG, United Kingdom)

Diagnostic and patient centered competence in family medicine residents
Roger Ruiz-Moral*, Jesus Torio-Durántez, Juan Jose Rodriguez Salvador, Luis Perula de Torres* (Jaen & Vizcaya Family Medicine Vocational Training Units, Department of Medicine, University of Cordoba, Blanco Soler, 4, Cordoba 14004, Spain)

Clinical supervision improvement by student participation and web based assessment
Leo Wennström*, Charlotta Stienström* (Uppsala universitet, Medicinska fakulteten, Box 256, Uppsala 751 05, Sweden)

A guided approach to clinical practice

Progress and self-assessment in clinical practice in occupational therapy education in Japan
Chiiro Sasaki*,Keiko Satomura, Noboru Ohsima, Kaoru Inoue (Tokyo College of Welfare, Department of occupational therapy/Tokyo Metropolitan University, Faculty of Health Sciences, Division of Occupational Therapy, 3-7-15, Ainokawa, Ichikawa-shi, Urban crest Room 203s, Chiba 272-0143, Japan)

3AA POSTERS: The student and the student as teacher

Determination of learning style of teachers and students of the first cycle of Medicine and the teaching style of teachers in Zaragoza
Jesús Fernando Escanero*, Manolo Guerra, Carlos Gonzalez-Haro (Faculty of Medicine, University of Zaragoza, c/Domingo Miral s/n, Zaragoza 50.009, Spain)

Medical students’ learning styles in Birjand Medical University
M Naseri*, S Kalbasi*, Gh. R Sharifzadeh*, A Poursaftar (Faculty of Medicine, Birjand University of Medicine Sciences, Ghafarli Blvd, Birjand 97178 53577-379, Iran)

Why do some students do less well than others? Exploring the role of study skills in exam performance
Mizanul Hoque*, Mohammad O. Rahman*, Jon H. Fuller (Centre for Medical Education, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Garrod Building, Turner Street, Whitechapel, London E1 2AD , United Kingdom)

Motivation in medical education
Ashley Brissette*, Daniel Howes (Queen’s University, 72 Stuart Street, Kingston, Ontario K7L 2V8, Canada)

Gender differences in motivation for medicine
Kusurkar R*, Krutwagen C, ten Cate O, Croiset G (Centre for Research and Development of Education, Universitair Medisch Centrum, Utrecht, Universiteitsweg 98, Utrecht 3584 CG , Netherlands)
3AA6  Personality types, self efficacy and self esteem of medical students
Hong-Irn Shin*, Eun-Bae Yang (Yonsei University, College of Medicine, 262 Seongsanno, Seodaemun-gu, Seoul 120-749, Republic of South Korea)

3AA7  Factors effecting the fall in GPA and the autonomous regulation learning pattern in pre-clinical medical students
Supaluk Ralyawa* (Udomthanee Medical Education Center, 99 Potniyom rd., Meung 41000, Thailand)

3AA8  The relationship between I-consciousness, We-consciousness and Interpersonal Problems of Korean medical students
Sook-hee ryue* (Yonsei University College of Medicine, Department of Medical Education 229, 250 Seongsanno Deodaemun-gu, Seoul 120-752, Republic of South Korea)

3AA9  Personality, gender, and performance: a study with Portuguese medical students
E Magalhães*, P Oliveira, M Portela, A P Salgueira, M J Costa (University of Minho, School of Health Sciences, Campus da Gualtar, Braga 4710-057, Portugal)

3AA10  Medical students in an extracurricular educational program: does interviewing teachers enhance the students’ perceptions of their role as future teachers?
W.M.Molenaar*, F.M.Bos, A.W.Sillius (Institute for Medical Education, University Medical Center Groningen, PO Box 196, Groningen 9700 AD, Netherlands)

3AA11  OSCE style Medicine Taster Sessions as part of widening participation: new opportunities for supervised peer teaching
Nesargkar PN*, Cocker DM (Keele University, Keele School of Medicine, Keele ST5 5BG, United Kingdom)

3AA12  What do medical students do besides studying?
Peter Brüstle*, Silke Biller, Marianne Giesler (University Freiburg, Department of Education, Elsäser Straße 2 m, Freiburg 79110, Germany)

3AA13  Influence of dietary factors in performance in undergraduate medical students
Myrna Leticia Montemayor-Flores*, Donato Saldívar-Rodríguez, Catalina Torres-Ramos, Norberto López-Serna (Facultad De Medicina, U.A.N.L., Calz. Francisco I. Madero Y E. Aguirre Pequeño S/N Col. Mitras Centro, Monterrey 64460, Mexico)

3AA14  Profile of successful undergraduate students at UNAM Faculty of Medicine in Mexico
Florina Gatica-Lara*, Ignacio Méndez, Melchor Sánchez-Mendiola, Adrián Martínez-González, (UNAM Faculty of Medicine, Secretaria de Educación Médica, Edif. B, 3er Piso, Ave. Universidad 3000, C.U., Mexico City 04510, Mexico)

3AA15  Physical fitness and physical health behavior in medical students
Suchat Tantinirama* (Prapokklao Hospital, Medical Education Centre, Leubnoen Road, Muang District, Chanthaburi 22000, Thailand)

3AA16  A study of the effect of ranking on medical student motivation and OSCE performance
Andy Flett, Tobias Mitchell* (Barts and the London School of Medicine and Dentistry, Centre for Medical Education, Institute of Health Sciences, Room 210, Garrod Building, Turner Street, London E1 2AD, United Kingdom)

3AA17  Shame in medical encounters – Medical students’ experiences
Ulf Lindström*, Karolina Hamberg, Eva E Johansson (University of Umeå, Department of Public Health and Clinical Medicine, Umeå 90187, Sweden)
3BB POSTERS: Postgraduate training: The Foundation Years and the trainer

3BB1 Perceptions of workplace-based assessments amongst Foundation Trainees
Straw C.*, Drinkwater J.*, Baker P (North Western Deanery, 4th Floor Barlow House, Minshull Street, Manchester M1 3DZ, United Kingdom)

3BB2 Foundation Training: Can themed programmes deliver competencies?
B.T. Langham*, H.D.Breed, N.A.Lovell, T Pownal (East Midlands Healthcare Workforce Deanery, Trent Foundation School, University of Nottingham, Kings Meadow Campus, Lenton Lane, Nottingham NG7 2NR, United Kingdom)

3BB3 Generic teaching programmes for Foundation Year One doctors should be supported by a surgical teaching programme to ensure their ability to manage common surgical conditions
Kirti Jasani*, Richard Partington, Zaher Touni (Manchester Royal Infirmary, Oxford Road, Manchester M13 9WL, United Kingdom)

3BB4 Evaluation of e-Learning in the delivery of induction and mandatory training for a Foundation School
Amy L Walker*, Paul Baker (Foundation School North Western Deanery, Barlow House, Minshull Street, Manchester M1 3DZ, United Kingdom)

3BB5 Educational needs assessment for Year 1 Foundation Trainees
Bov Jani*, Kirtida Mukherjee* (Medway NHS Foundation Trust, Windmill Road, Gillingham, Kent ME7 5NY, United Kingdom)

3BB6 Self directed learning – a novel approach
H.Wong*, Z.Salchi, J.Maryosh, B.V.Prathibha (William Harvey Hospital, Kennington Road, Willesborough, Ashford TN24 0LZ, United Kingdom)

3BB7 Junior doctors – the untapped resource?
M.McMillan*, M.Harron, B.V.Prathibha (William Harvey Hospital, Kennington Road, Willesborough, Ashford TN24 0LZ, United Kingdom)

3BB8 The role of the tutor in postgraduate medical training: a study in the Murcia region of Spain
Foro de Jefes de Estudio de la Región de Murcia (Jose Galcera-Tomas*) (Hospital Universitario Virgen de la Arrixaca, Carretera de Cartagena s/n, Murcia 30120, Spain)

3BB9 Do we need a mentoring scheme? A survey
Prita Rughani*, Armita Mahendru*, Mr. Khaled (Colchester Hospital University Foundation Trust, Turner Road, Colchester CO4 5JL, United Kingdom)

3BB10 Development of a pilot mentoring scheme for newly appointed NHS consultants
Rakesh S Patell*, Gordon WG French (East Midlands Healthcare Workforce Deanery, Rutland House, 11 Merus Court, Meridian Business Park, Leicester LE19 1RJ, United Kingdom)

3BB11 A qualitative assessment of the role of training Programme Directors based within the Newcastle Upon Tyne Hospitals NHS Trust
Quinn S, Williamson A*, Clarke M, Macphail S, Davison J (Freeman Hospital, Newcastle upon Tyne Hospitals Foundation Trust, Post-Grad. Education Centre, High Heaton, Newcastle NE7 7DN, United Kingdom)

3BB12 Performance Unit in Wales Deanery ‘One Year on’
Walsh LA*, Davies SJ, Gallen DD (Cardiff University, School of Postgraduate Medical and Dental Education, Neuadd Meillionnydd, Heath Park, Cardiff CF14 4YS, United Kingdom)

3BB13 Innovation and evolution of the core training programme incorporated into the Andalusian Health Sciences Experts Training Programme 2007-2008
Garrido A.*, Martinez-Cañavate T, Ceron P, Campos-Garcia A (Andalusian Regional Ministry of Health, Edificio Arena 1, Avenida De La Innovacion s/N, Sevilla 41071, Spain)
3BB14 Educational visits to local educational providers for ACCS programme: learning points for KSS Deanery
I Subir Mukherjee*, I Kevin Kelleher* (Kent Surrey and Sussex Deanery, 7 Bermondsey Street, London SE12DD, United Kingdom)

3BB15 Strategic approaches to career management
Joan Reid* (Postgraduate Deaneries for Kent, Surrey and Sussex, and London, 7 Bermondsey St, London SE1 2DD, United Kingdom)

3BB16 Permanent Working Group of European Junior Doctors – recent projects for the improvement of postgraduate medical training in Europe

3CC POSTERS: Education and the healthcare system

3CC1 The Andalusian Public Health System Training Plan was created as a strategic instrument for an improvement in the quality of the Andalusian health services
Campos-Garcia T, Romanos A, Cortes-Martinez C* (Andalusian Regional Ministry of Health, Edificio Arena 1, Avenida De La Innovacion S/N, Sevilla 41071, Spain)

3CC2 Survey of nurses’ opinion about the nursing process
Meshkibaf MH*, Majidi F, Motazedian MH, Ekrahi M, Khademani S, Miladpoor B, Horang MH (Fasa University of Medical Sciences, Ave Sina square, Fasa, Iran)

3CC3 Learning strategy in a health protection unit

3CC4 Training of personnel is a key component towards achieving professional excellence and quality in the healthcare provided by the Andalusian Health Service (SAS)
Gomez S*, Morian MJ, Burgos R (Servicio Andaluz de Salud, Avenida de Hyltas S/N, Sevilla 41071, Spain)

3CC5 EMT students and coping skills
S Najafi*, M. Momennasab (School of Nursing & Midwifery, Shiraz University of Medical Sciences, Namazi Square, Shiraz 71936-13119, Iran)

3CC6 Older patients’ experiences of care in resident and practicing physician outpatient clinics
Brian J. Hess*, Loma A. Lynn, Lisa N. Conforti, Rebecca A. Lipner, Eric S. Holmboe (American Board of Internal Medicine, 510 Walnut Street, Suite 1700, Philadelphia, PA 19106, United States)

3CC7 Transfer Analysis Tool
Lourdes Alarcon Martinez*, Ramon Lopez-Cuesvo Derqui (Fundacion IAVANTE, Avenida de la Ciencia s/n, CMAT, Park of Sciences of the Salud, Armilla (Granada) 18100, Spain)

3CC8 Comparing Iranian National and WFME Global Standards for institutional accreditation
Khajehzad M, Yamani M*, Zarei A (Baqiyyatallah university of medical sciences (BMSU), Molasadra St., Tehran 1916755911, Iran)

3CC9 Results of the accreditation of a continuing training unit in a university hospital
Ruiz-Barbosa C.*, Rabadan A (Servicio Andaluz De Salud, Avenida De La Constitucion S/N, Sevilla 41071, Spain)
3CC10 **Expert training in health sciences in Andalusia**
Javier Suárez, Carmen de Vicente* (Red de Comisiones de Docencia, Av. Manuel Siurot s/n, Sevilla 41013, Spain)

3CC11 **Evaluation of transfer in the Empresa Pública Hospital Alto Guadalquivir (Junta de Andalucía)**
Molina IM, García V, Hoces MP* (Empresa Publica Hospital Alto Guadalquivir (Consejería De Salud, Junta De Andalucía), Avda.Blas Infante S/N, Andújar (Jaen) 23740, Spain)

3CC12 **Collaborative chronic disease management model using care managers among patients with diabetes in primary care: patients’ and providers’ preferences and perceptions**
R S DeJesus*, R J Stroebel, S S Cha, K Vickers Douglas* (Mayo Clinic, 200 First Street SW, Rochester, MN 55905, United States)

3CC13 **Fostering medical education and team work in Brazil: the creation and dynamics of the National Forum for the Education of Health Professions**
Adriana Cavalcanti de Aguiar*, Regina Lugarinho (Brazilian Association for Medical Education (ABEM), Rua Visconde de Silva 321/301 - Humaitá, Rio de Janeiro 22271-043, Brazil)

3DD **POSTERS: Community-based education**

3DD1 **Competences in Community Health Integration Program: different appreciations**
Valéria Menezes P Machado*, Alba Lúcia Dias dos Santos, Valde Ferreira, José Lúcio Martins Machado, Neile Torres (Universidade Cidade de São Paulo - UNICID, Rua Cesario Galeno 448, Tatuapé, São Paulo 03071-000, Brazil)

3DD2 **Preceptors’ perspectives on teaching in a new community-based, family practice clerkship**
RD Cohen*, J Fraser, L Sadownik, D Fairholm (Office of Faculty Development, University of British Columbia, Room 11223, Diamond Health Care Centre, 2775 Laurel Street, Vancouver, BC V5Z 1L7, Canada)

3DD3 **Preparing medical students through service learning to provide social justice**
Nosheen Zaidi*, Zareen Zaidi, Mehr mood Ahmad (Foundation University Medical College, DHA Phase 1, Defence Mall, Jinnah Avenue, Islamabad 46000, Pakistan)

3DD4 **Core clerkship learning opportunities: a comparison of community vs. academic centers**
Gene Dagnone*, Danielle Blouin, Matthew Simpson (Queen’s University, 82 Barrie St, Kingston K7L 3N6, Canada)

3DD5 **Family Medicine Longitudinal Experience (FMLE) 2008**
K Feldman*, D Midler, J McCabe, L Wilson, M Schreiber, J Rosenfield (Department of Family and Community Medicine, University of Toronto, 263 McCaul Street, 5th Floor, Toronto, Ontario M5T 1W7, Canada)

3DD6 **The Evolution of Longitudinal, Community-based Clerkships in British Columbia**
Joan A Fraser*, Judy Vestrup (University of British Columbia, Rm 2D3, 4480 Oak Street, Vancouver, British Columbia V6H 3V4, Canada)

3DD7 **The feminization of medicine: the importance of rural definition**
Maureen Seguin*, Robert Card, Maria Mathews (Royal University Hospital, University of Saskatchewan, 103 Hospital Drive, Saskatoon S7N 0W8, Canada)

3DD8 **Impact of an undergraduate patient-centred programme on postgraduate student’s clinical practice**
Tan CPL*, Aizura SAA (Medical Education & Research Development Unit, University of Malaya, Faculty of Medicine, Kuala Lumpur 50603, Malaysia)
3DD9  The General Practice experience – does it make a difference?
Susan Law*, Neil Mernykees (University of Dundee, Tayside Centre for General Practice, The Mackenzie Building, Kisty Semple Way, Dundee DD2 4BF, United Kingdom)

3DD10  Factors determining the readiness of the primary health care unit as a learning environment for medical students
Aphaphan Narenpitak* (Undornthani Medical Education Center, Undornthani Hospital, 33 Phoinyom Rd., Meung 41000, Thailand)

3DD11  An empirical study of retention in Emotional Intelligence and Empathy in first year medical students with 6 weeks community based practice
Keiko Abe1, Hideki Wakabayashi1, Tomomi Kato2, Phillip Evans2, Elizabeth Austin2, Kazuhiko Fujisaki1, Masayuki Niwa2, Yasuyuki Suzuki1 (1Faculty of Medicine, University of Glasgow, 2Gifu University School of Medicine, Medical Education Development Center, Gifu 501-1194, Japan; 3Department of Psychology, University of Edinburgh)

3DD12  Encouraging appreciation of the community health care by consistent medical undergraduate education
Hitoshi Sohma*, Izumi Sawada, Miki Konno, Hirofumi Akashi, Toshio J. Sato, Tomoko Maruyama, Norrisugu Tohrse, Koizoh Inai (Department of Educational Development, Sapporo Medical University Center for Medical Education, South-1, West-17, Chuo-ku, Sapporo 060-8556, Japan)

3DD13  The importance of community activities in the opinion of Brazilian medical teachers
Rodrigues MLV*, Piccinato CE, Passos ADC, Troncon LEA, Colares MFA, Peres CM, Figueiredo JFC (Faculty of Medicine of Ribeirão Preto, University of São Paulo, Campus USP, Av. Bandeirantes, 3900, Ribeirão Preto 14049-900, Brazil)

3DD14  International district general hospital (DGH) placements – a valuable opportunity for the UK medical student?
S Perera*, A Wylie, A Cullimore (King’s College London Undergraduate Medical Education Team, King’s College London School of Medicine, Department of General Practice and Primary Care, 5 Lambeth Walk, London SE11 6SP, United Kingdom)

3EE  SECRETS OF SUCCESS (2)

3EE1  A comparison of two methods of rating the quality of higher order thinking in problem based learning concept maps
R Damant*, D Harley, T Palmer, X Rossello, D Begg, M Brisbourne (University of Alberta, 2e4.37 WMC, 8440-112 Street, Edmonton T6G 2B7, Canada)

Short description of innovation: CaseMapper is a web-based application developed for use in Problem-Based Learning. CaseMapper allows users to diagram and organize ideas through a series of nodes: first order nodes represent broad concepts; sub-order nodes represent specific ideas and thoughts.

What will be demonstrated: Our study compares an analytic method used to appraise higher order thinking evident in concept maps to a global rating scheme. Forty eight first-year Medicine/Dentistry students (5 groups) used CaseMapper to document their treatment of a PBL case. The five resulting concept-maps scored by both methods. Several generic features indicative of HOTS were identified in an “expert” case-map created using the same PBL materials. This formed the basis of the analytic scoring instrument that was subsequently used to score the student concept-maps. Two independent clinician-raters, trained in the use of the global rating scale, similarly scored the maps.

What is particularly interesting about the innovation: Evidence of HOTS was seen in all five concept-maps. The analytic rating scale discriminated well between concept-maps and was easy to use. The global rating scheme required minimal training and provided scores reflective of the degree of HOTS. Inter-rater reliability of the global rating scale was fair (0.40–0.60).

How could It be implemented: Concept maps can be used to gain insight into student thinking and learning. There is some concordance between the rating methods studied. Further study is warranted before CaseMapper can be used to assign reliable and valid grades.
3EE2  The heart as a mechanical pump: use of a plastic siphon pump as a learning tool  
Kenny Sin* (National Heart Centre, 17 Third Hospital Avenue, Singapore 168752, Singapore)  

Short description of innovation: The teaching of mechanical cardiac function is often pedantic and dry. Engaging students and reinforcing physiological concepts can be more effectively achieved by harnessing group creativity and competitiveness.

What will be demonstrated: A scenario is created involving the students as researchers developing the perfect cardiac pump. Students are divided into teams who are then given a commercial inexpensive plastic siphon pump each with the brief of comparing the haemodynamic performance with respect to variables like preload, afterload, heart rate and contractility, against a normal human heart. Each team evaluated a different variable, and results are presented before a final debate as to the suitability of this device for human use.

What is particularly interesting about the innovation: Each team were able to creatively design experiments using common kitchen materials. Results obtained from the experiments closely simulated normal cardiac function. Students were able to compare and contrast the results to normal cardiac function, and relate the underlying principles of control of cardiac output.

How could it be implemented: The commercial plastic siphon pump is able to closely replicate mechanical heart function. Its use as a prop in a competitive scenario enhances team based learning in a creative and engaging manner.

Why participants should come to the demonstration: Simple, inexpensive, commonly available domestic devices can be creatively utilised to engage students and enhance team based learning.

3EE3  MD Connector: An innovative online utility for medical education  
Eugenia Shmidt*, Kevin N Christensen*, Daniel K Chan (Mayo Clinic College of Medicine, 200 First Street SW, Rochester 55905, United States)  

Short description of innovation: MD Connector.org is a free, innovative, online, academic utility founded in August 2009 that facilitates collaboration among 400+ healthcare trainees and professionals. In February 2009, MDConnector.org and Mayo Clinic Health Policy Center launched a $15,000 international student competition on healthcare education reform. Students from around the world utilized MD Connector’s unique internet-based resources to exchange ideas about health education and healthcare policy reform. This project will culminate in an Education Symposium at the Mayo Clinic.

What will be demonstrated: A description and analysis of the usefulness and popularity of various web-based functionalities offered by MD Connector will be shown, including wiki-based study guides, forums, a mentorship program, scholarship links, and a journal publication. Additionally, the results of the competition will be displayed.

What is particularly interesting about the innovation: MDConnector.org offers unique tools and opportunities for collaboration among healthcare students and professionals across various specialties and levels of training. The development of an online community for health professionals can enable users to learn from each other about specific academic material, current events, and educational opportunities and can also empower users to affect the direction of health education.

How could it be implemented: Participants will learn how to incorporate simple, yet highly effective web-based tools that generate discussion and information exchange among healthcare students and professionals.

3EE4  Twitter for Medical Education – What is it and why should I care?  
Julie K Hewett (iAMSE, 626 Main Street, Baboursville 25504, United States)  

Short description of innovation: Twitter is one of the fastest growing social media communication tools on the Internet. With close to 2mil users sending messages via the Internet, Mobile device or SMS; Twitter is now finding its way into the classroom.

What will be demonstrated: We will attempt to demonstrate how the application works, then specifically how it is being used by medical students, educators and health care...
professionals. We will look at the various software applications available to best use Twitter such as Tweetdeck, TweetChat and a variety of search and statistical analysis tools.

**What is particularly interesting about the innovation:** While it was originally designed as a social communications tool, it is now being used by very specific communities including Medical Education. Used as a micro-blogging tool, Twitter provides educators a tool to create communication communities that allow sharing of resources and collaboration in a real-time environment in 140 characters at a time.

**How could It be implemented:** Participants should attend this session as this application is already in their classroom! Twitter is being used on a regular basis by today’s students thus educators need to be equipped to use this technology effectively.
Session 4

4A SYMPOSIUM: Multiple-Mini Interview
Chairperson: Kevin Eva (McMaster University, Canada). Panellists: Peter Harasym (University of Calgary, Canada), David W. Harding (University of Western Sydney, Australia), Stephen Manuel (University of Cincinnati, USA)

The Multiple-Mini Interview (MMI) first developed in 2001 at McMaster University has steadily grown in use throughout the world as an OSCE type interviewing approach. The MMI is a series of six-eight interview “stations” or encounters that typically last ten minutes and are centered on a scenario and in some cases are behavior based. Each station has its own interviewer (rater); and consequently, each prospective student is evaluated by six-eight different raters. The station scenarios do not test or assess scientific or health care system knowledge but instead focus on issues such as communication, ethics, professionalism, empathy, critical thinking, teamwork and opinions on health care issues. The MMI has shown to be a reliable and valid measure and allows medical schools to not only include physicians and medical school faculty in the interview process, but to include the unique and insightful perspective of medical students and community members. The purpose of this panel symposium will be to review challenges, obstacles, and best practices of MMI implementation and successful continuation from an international perspective. The panel of three presenters will range in the number of years of experience with the MMI and will also discuss implementation and ongoing issues.

4B SYMPOSIUM: e-Learning Research in Health Professions Education
David A Cook¹, Denise M Dupras¹, Sören Huwendiek², Jorge G Ruiz³ (¹Mayo Clinic College of Medicine, Rochester, MN, USA; ²University of Heidelberg, Heidelberg, Germany; ³University of Miami, Miami, FL, USA)

e-Learning (including virtual patients) is increasingly used at all stages in health professions training. How much of this activity is based on hype, and how much is grounded in evidence? More importantly, how does research inform our use of e-learning, and what questions remain unanswered? The purpose of this Symposium is to summarize and critically discuss available evidence to inform best educational practices for e-learning, and to identify directions for future research. The presenters will summarize several recent systematic reviews to demonstrate the current state of research in Internet-based instruction, virtual patients, and computer animations. They will highlight trends in research methods, paradigms, and priorities; identify themes studied in the past and suggested for the future; and outline evidence-based recommendations for practice. Looking forward in time, the presenters envision that research comparing e-learning with traditional instruction or no intervention will be replaced by studies focusing on when and how to use e-learning effectively. Ample time will be allowed for attendees to debate this viewpoint and work toward consensus on a research agenda.

4C SYMPOSIUM: Global best practices in continuing medical education
Chairpersons: Bernard Maillet (General Secretary, Union Européenne des Médecins Spécialistes, Brussels, Belgium) and Hervé Maisonneuve (President, Global Alliance for Medical Education, Paris, France)

This symposium will address the issues surrounding the best practices in CME and review the needs assessments, the objectives construction, the content development, the choice of instructional methods and the learning evaluation. Continuing education of doctors is organized in all the European countries. CME programs are under the pressure of power, interests.

4D RESEARCH PAPERS: Miscellaneous topics

4D1 Biomedical and clinician scientists’ perceptions of social science research
Mathieu Albert*, Suzanne Laberge, Brian D Hodges (Wilson Centre, University of Toronto, 200 Elizabeth Street, Eaton South 1-581, Toronto, ON MSG 2C4, Canada)

Introduction: This paper explores biomedical (BMS) and clinician scientists’ (CLS) perceptions of social science research and more specifically, whether this stance is favourable or unfavourable. Drawing on Thomas Gieryn’s concept of “boundary work” (1999), it may be argued that BMS and CLS’s stance may operate as cultural facilitator or as a cultural boundary
to the integration of the social sciences into the field of health profession education research.

Methods: We conducted semi-structured interviews with 31 BMS and 30 CLS from universities across Canada. We sought a variety of profiles in order to represent as effectively as possible the diversity of BMS and CLS’ perspectives on the social sciences. The number of respondents was determined using the saturation approach. Data were analyzed by thematic content analysis.

Results: Both BMS and CLSs’ stance toward social science ranged widely, from very negative to very positive. Neither group was homogeneous in this regard. However, CLS tended to be more favourable than were the BMS. Favorable BMS and CLS said that social science research questions are as relevant as those of the biomedical and clinical sciences, and the methods used are as rigorous as their own. In contrast, unreceptive BMS and CLS (which were the majority) adhered to a strict definition of “good” science: the best science necessarily involves the performance of an intervention on variables; this intervention must be done in a controlled environment or with a randomized sample; results must be reproducible to ensure they are not due to chance. Given that the social sciences, and more particularly qualitative research, cannot satisfy these criteria, the unreceptive respondents hold them to be unscientific. BMS and CLS who reported having been exposed to social science research tended to exhibit a more favourable stance than those who did not.

Discussion and conclusion: Although BMS and CLS do not form a homogeneous group with regard to their position on social science research, they nevertheless remain predominantly unfavourable. Therefore, it may be argued that their stance is more likely to operate as a cultural boundary than as a cultural facilitator to the integration and development of social science research in the health profession education research field. However, as suggested by our results, finding mechanism to increase BMS and CLS exposure to social science research could increase the number of those favourably disposed toward social science research.


4D2 Migration for undergraduate medical education: performance data of applicants to ECFMG

Danette W McKinley*, James A Hallock, Amy Opalek, John R Boulet (Foundation for the Advancement of International Medical Education and Research, 3624 Market St, 4th Floor, Philadelphia 19104, United States)

Introduction: Historically, globalization in medical education has occurred through international (or emigrant) students’ pursuit of medical degrees in another country. Efforts towards determining equivalence of primary medical education (e.g., the European Credit Transfer System) are well underway. As part of the Tuning Project for Medicine (MEDINE), the formation of a framework for international recognition of qualifications and the development of quality assurance standards in Europe has been part of this effort. The Educational Commission for Foreign Medical Graduates (ECFMG®) is responsible for certifying all graduates of medical schools outside the United States (US), Canada, and Puerto Rico who wish to pursue postgraduate medical education in the US. In addition to the primary source verification of medical education credentials, the ECFMG certification process consists of various examinations including basic science knowledge (USMLE™ Step 1), clinical knowledge (USMLE Step 2 CK), and clinical skills (CSA, USMLE Step 2 CS). The purpose of this research was to compare examination performance of international (émigré) and local graduates of international medical schools (i.e., outside the United States and Canada).

Methods: Applicants to ECFMG were characterized as local (pursued undergraduate medical education in their home country), international (migrated to another country for undergraduate medical education), US émigrés (US citizens who left the US for undergraduate medical education but returned for postgraduate education), and those whose home country had no medical school. Examinee groups were compared based on their performance on US licensing exams. Examination outcomes (i.e., first attempt pass
rates) for examinees who obtained their medical school degrees between 1993 and 2008 are presented. Stepwise logistic regression was used to examine the relationships between graduate characteristics and examination outcomes. The independent variables were native language; whether the examination was taken before or after the medical degree was awarded; whether an internship was reported by the graduate; migration for medical school; English instruction at medical school; whether the curriculum was longer than 4 years; and whether the medical school required an entrance examination. Three analyses were conducted; for each examination, the dependent variable was examination outcome (pass, fail).

Results: For USMLE Step 1, local graduates had higher first attempt pass rates (71%; n=105,793) than US émigrés (57%; n=27,240), other émigrés (57%; n=15,308) or those who migrated because there was no medical school in their country (57%; n=912). Based on the results of the regression analysis for the Step 1 examination, reporting an internship was the only independent variable not significantly associated with outcomes. Local graduates were most likely to pass Step 2 CK on their first attempt (75%; n=91,576), compared to US émigrés (67%; n=23,358), other émigrés (62%; n=13,019) or those graduates with no medical school at home (64%; n=798). In contrast, for the clinical skills examination, US émigrés were more likely to pass on their first examination attempt (87%; n=181,847) when compared to other émigrés (84%; n=8,117), local graduates (84%; n=55,548) or those graduates with no medical school at home (82%; n=406). The results of the regression showed that for both Step 2 CK and the clinical skills examinations, the independent variables included were all significantly associated with examination outcomes for this graduate sample.

Discussion and conclusion: While the data analyzed are limited to those students and graduates of international medical schools who applied to ECFMG for certification, there were variations in first attempt passing rates. Examinee and medical school characteristics are associated with examination outcomes. Those who migrate for medical school may be of lesser ability. However, there are likely to be other factors (e.g., location and duration of clinical clerkships, medical school program characteristics), not included in the current study, that account for these differences in performance.

References:

4D3 Clinical reasoning of pharmacy students in basic emergencies: how useful is a SCT for its assessment?
Caroline Boulouffe*(), Bernard Chatiri(), Dominique Vanpee() (1) Université Catholique de Louvain, Cliniques Universitaires de Mont-Godinne, Service des Urgences, 1, Avenue Dr Gaston Therasse, (2) CPASS, direction de la recherche, Faculté de Médecine, Université de Montréal, CP 6128, Succursale centreville, Montréal, Québec, H3C 3J7, Canada

Introduction: In community practice, the public increasingly seeks help and assistance from pharmacists for small emergencies. The Louvain Catholic University proposes a “First Aid” course for pharmacy students. This course deals with the most frequent pathologies: pediatrics, traumatology and medical disorders. The script concordance test (SCT) approach, based on cognitive psychology script theory, is documented to be useful for assessment of reasoning skills in medicine but not yet in pharmacy. The tool allows assessment in ambiguous or uncertain situations and so testing on real-life situations that are not adequately measured with current tests (1). “First aid” is obviously composed by uncertain situations. The aims are to study the usefulness of SCT for the evaluation of pharmacy students facing basic emergency situations and to discriminate between good and weak students.

Methods: The 66-questions/ 22 cases examination were based on the main objectives of the “First Aid” course. 26 questions related to diagnosis problems and 40 questions to advices or treatment options. The students had two practice sessions before the final examination. The test construction followed the guidelines for construction (2) Cases and questions were reviewed for face and content validity by the 4 teachers (physicians) of the course and a
Results: The students’ mean score was 68.6 (SD 9.8) and panel members’ mean score was 86.5 (SD 4.2). The test had good reliability (Cronbach α, .82). SCT allowed the detection of students in difficulty: the SCT discriminates between good and weak students. Students' scores are ranged from 35.0 % to 85.5 %.

Discussion and conclusion: This "First Aid" SCT is a practical and reliable instrument. Findings support its construct validity for assessing pharmacy students clinical reasoning in basic emergency situations. Moreover, it allows the discrimination of students in difficulty.

References:
(2) Jean Paul Fournier 1, Anne Demeester 2 and Bernard Charlin *3. Script Concordance Tests: Guidelines for Construction. BMC Medical informations and Decision Making 2008, 8:18

4D4 Does higher cognition improve over time in undergraduate medical students?
F Ahmad*, A C Owen, G J Byrne (University of Manchester, 1st floor, ERC, University of South Manchester, Southmoor Road, Manchester M23 9LT, United Kingdom)

Introduction: The Manchester Progress Test includes 125 applied, clinical and scientific, MCQs drawn from UMAP. UMAP item writing workshops tutor clinical and academic staff in assessment techniques. This exam demonstrates students’ growth in knowledge over the programme; a well understood phenimena. Growth of cognitive ability, however, is less well understood. Our research question was ‘Does the cognitive difficulty level of questions answered correctly on the Manchester Progress Test change as students advance from Year 1 through to Year 4?’

Methods: Examination data for the cohort of students enrolled in 2004/05 (N=370) was used. The 55 students that did not the eight tests in normal succession were removed (N=315). Post test analysis by the school resulted in 34 questions being discounted leaving 966. A year four student read progress test one in the series of eight, and proposed five provisional categories, with prototypes, to explain cognition, from lower- to higher-order. On re-reading, two of five categories were found redundant. Three category descriptions, and prototypes were handed to a second rater, a Consultant Surgeon, who coded a 200 item random sample. A Cohen's Kappa of 0.834 (p<0.001) was found indicating 19 discrepancies including unique items and miscategorisations. Rater discussion produced category revisions, deliberately applied to 966 items by rater one, with no further exceptions identified. Category 1 (131 items): “Recall of factual knowledge - no interpretation required whatsoever.” Category 2 (440 items): “Comprehension and Application - involves problem solving by applying previously acquired knowledge in a given clinical situation.” Category 3 (395 items): “Evaluation - required to make judgements about information. Also includes questions that require prioritisation, whether it be investigations or management.”

Results: Significant differences were found between the total scores attributable to each category, at each progress test point (F=269.6, p<0.001). A statistically significant interaction was found between category and time (F=113, p<0.001). A repeated measures ANOVA confirmed a large, significant effect indicating knowledge improvement over time (F=1716, p<0.001), as predicted by previous work.

Discussion and conclusion: An improvement in students' performances on the Manchester Progress Test, for each cognitive category, was observed, over time. Students early in the course gained the largest numbers of marks from category 1 coded questions. As expected, over time students improved their category 1 scores, but greater gains were seen in categories 2 and 3. Findings suggest deeper cognition is emerging over time. This work is being repeated using year 3, 4 and 5 student raters.
References:
(1) UMAP: The Universities Medical Assessment Partnership www.umap.org.uk

4E SHORT COMMUNICATIONS: Assessment: Final exam

4E1 The Technion experience: Use of experienced and trained expert examiners improved the reliability of results on final oral exams assessing clinical reasoning in Internal Medicine

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Background: After 2006, graduating students' oral exams in clinical reasoning in Internal Medicine (IM) went from 6 to 9 scenario-stations, each with independent examiners. Morning and afternoon scenarios differ, but cover objectives from same IM domains. Each exam-station lasts 12 minutes. Examiner training focuses on describing clinical reasoning questions, and on marking. Progressively, more IM specialist-examiners increase their exam expertise.

Summary of work: Most examiners assessed domains outside their area of expertise. They could ask questions about reasoning, but prompting students was discouraged. History taking, physical examination, investigation, differential diagnosis, treatment, overall management and global rating of performance were scored. Results were marked on 5 point visual analog scales, with Likert item ratings. Marks included identification of key features, based on the use of examiners' professional judgment.

Summary of results: 2008 examiners, composed of 80.6% (29/36) experienced individuals, recorded higher and more consistent results (Cronbach α 0.76, 0.65, 0.76 and 0.70) compared to those (0.50, 0.40, 0.65, and 0.70) obtained by the 2007 cohort of 61.1% (22/36) experienced assessors.

Conclusions: Use of experienced and trained examiners improved reliability of final exam results in assessment of clinical reasoning. This should lead to increased credibility and acceptance of exams and decreased "costs" to students caused by unfair results.

4E2 Is a subdivided test modus more effective than a final examination? Outcomes from the model Curriculum at Hannover Medical School (MHH)

Volker Paulmann*, Volkhard Fischer (Hannover Medical School (MHH), Carl-Neuberg-Str. 1, Hannover 30625, Germany)

Background: At Hannover Medical School (MHH), the obligatory summative first national exam (after the second academic year) was substituted by a continuous test modus. In the new model curriculum Hannibal each course is tested separately, 16 exams take place in the first two years.

Summary of work: Learning and assessment are not only students' matters. For the teacher and the faculty the analysis of assessment data underpins quality management in medical education. Therefore, results are used to control the performance of various student groups in various settings.

Summary of results: The results of the cohort that started in the academic year 2006/07 show that 68% of the students have passed all required exams within the first two years. Although the standards are higher in the model curriculum, this value roughly matches the results of the MHH-cohorts, which took part in the "traditional" national exam. A positive output of the subgroups that were drafted in the selection interviews was also verifiable.

Conclusions: From the new test method derives a better performance in and control of the learning progress. Nevertheless, validity and reliability of the exams need to be enhanced.

Take-home messages: Assessment drives both, learning and quality management – faculties need to learn from the data to improve the quality of exams and the medical education as a whole.
4E3 National medical exam in the University of Chile
Christel Hanne*, Cecilia Sepulveda Alejandro Afani (University of Chile, School of Medicine, Independencia 1027, Santiago 8380453, Chile)

Background: The national medical examination (NME) is a written test that the Chilean medical schools take. Since 2003 all the graduates have taken it. The main objective of NME is to provide a standardized evaluation of the future physician's knowledge. Also it is used to select candidates for residencies. Since April 2009 it is a working requirement for public Health System, and it is considered equivalent to the certification for foreign physicians.

Summary of work: This paper aims to show the usefulness of NME, to improve the quality of the training of the physicians from University of Chile. The variables considered were: (1) Campus in which they had their clinical instruction; (2) Grades from their first five years and internship.

Summary of results: The average from the five campuses was 71%. This number fluctuated between 68% and 73%, depending on the campus. The correlation between NME results and the grades from the first five years were 67%, differing from the correlation with internship exams at 41%.

Conclusions: This data allows us to take remedial action in the campuses with lower results and with the students with lower grades in the first five years.

Take-home messages: A test like this is useful to investigate differences in medical schools with several campuses.

4E4 Generalisability study of a new Finals examination component – the MOSLER
S Wight*, PM Bradley, S Jones, JR Barton (Newcastle University Medical School, Framlington Place, Newcastle upon Tyne NE2 4HH, United Kingdom)

Background: Because of concerns over the reliability of the OSLER exam that had previously been a component of MBBS Finals at Newcastle University a new four station examination, the MOSLER, was introduced in 2008.

Summary of work: A Generalisability Study was performed on the MOSLER scores of 350 Year 5 Medical Students at Newcastle. The exam took place over six different sites across the North-East region. Four skills were assessed at each of four stations. Students were nested in groups, within which the design was fully crossed: person x examiner x skills. Separate variance components were calculated for each group and were pooled to calculate G-coefficients for each site and the MOSLER exam overall. A decision study was performed, measuring the effects of manipulating the number of skills and cases assessed.

Summary of results: G-coefficients were similar across sites, ranging from 0.497-0.642. Generalisability of the MOSLER exam overall was 0.592. Increasing either the number of cases or skills would improve further the reliability of the MOSLER exam.

Conclusions: The MOSLER examination has an acceptable G-coefficient. The inclusion of this examination as one component of Finals should enhance the overall reliability of the Finals examination process.

Take-home messages: The new MOSLER examination at Newcastle University Medical School has been shown to be a reliable assessment instrument for finals.

4E5 A large-scale high-stakes OSCE at UNAM Faculty of Medicine in Mexico: logistical and academic challenges
Andrés Trejo-Mejía*, Adrián Martínez-González, Melchor Sánchez-Mendiola (Universidad Nacional Autonoma De Mexico, Calz. de Guadalupe 120 Mod. 23-601 Col. Ex-Hacienda Coapa, México, D. F. 14310, Mexico)

Background: The end-of-career professional exam at UNAM’s Faculty of Medicine in Mexico includes a clinical competence component, which is tested with an OSCE exam. Due to national administrative restrictions the exam has a very short time-window period, which introduces logistical and academic challenges due to the large student population.

Summary of work: 708 Medical students were tested in a two-day period, in six different sites. The OSCE exam consisted of 18 six-minute stations, designed to assess clinical competency
at the general physician level. 114 Clinician raters and 124 trained standardized patients participated in the test.

Summary of results: The OSCE exam transpired uneventfully, the totality of the students were on time in their designated site, and the vast majority of professors and standardized patients performed satisfactorily. The raters and the students were satisfied with the exam. The results provided useful information to the Faculty of Medicine, and the student population accepted the test passing rate.

Conclusions: A large-scale OSCE exam with several logistical challenges can be successfully implemented in a developing country medical school. Careful long-term planning and faculty training contributed to the uneventful execution of the test.

Take-home messages: Large-scale OSCE exams can be used as high-stakes summative assessment in resource-constrained settings.

4F SHORT COMMUNICATIONS: Curriculum: Curriculum development (2)

4F1 National and local perspectives on defining the content of a specialty undergraduate curriculum: different process, similar results?

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Background: In response to GMC guidance, a new undergraduate curriculum for obstetrics and gynaecology (O&G) was developed using novel methodology by the Centre for Medical Education Research at Imperial College (IC), London. More recently, the Royal College of Obstetrics and Gynaecology has published a national undergraduate curriculum for O&G.

Summary of work: The IC curriculum was developed using a novel approach, in which a modified Delphi technique incorporating the views of experts within and outside O&G was supplemented with information from focus groups of newly qualified doctors.

Summary of results: The new IC undergraduate O&G curriculum, developed prior to publication of the national O&G curriculum, consisted of a modified Delphi technique. This involved 9 consultants and senior trainees in O&G, 2 A&E consultants and 3 GPs, and was supplemented by three focus groups. The resulting document was similar in content to the national O&G curriculum, emphasising both core generic and subject-specific competencies.

Conclusions: Engaging a broad spectrum of opinion in the development of a specialty undergraduate curriculum produced a document whose content was similar to national specialty guidelines but whose genesis was far more inclusive.

Take-home messages: A modified Delphi technique supplemented by focus groups of newly qualified doctors appears to be a legitimate tool for developing undergraduate specialty curricula.

4F2 Training the future medical workforce: appropriate, responsive and relevant education and training

Professor Judi Walker* (University of Tasmania, Faculty of Health Science, PO Box 3513, Burnie 7320, Australia)

Background: The University of Tasmania has established the Health Services and Workforce Education Unit to develop, coordinate and drive the university’s response to health workforce priorities.

Summary of work: Key criteria are that all activities should ‘add value’ and contribute to developing a rigorous evidence base that will lead to shared understanding of key issues.

Summary of results: The Modeling Portfolio is leading, encouraging and coordinating health workforce education evaluation, research, planning and policy development and providing a sound evidence base to inform course and curriculum models and decisions, bids for training places, and responses to health workforce policy and strategic directions. The Innovation and Improvement Portfolio is exploring, encouraging and coordinating new course, curricula and program developments that are responsive to better utilization
of the existing workforce and to new health workforce roles. The Education and Training Portfolio is investigating ways to maximize the capacity of health and education systems to provide sufficient appropriately trained and qualified graduates to meet projected demand and developing strategies to ensure education and training is relevant to changing health system needs.

Conclusions: The Unit provides a targeted basis for the development of collaborative initiatives to address the gap between the current situation and the vision of a vibrant learning culture that shapes and benefits health services.

Take-home messages: Health education and training providers can be responsive to changing workforce needs provided their systems are flexible and there is a willingness to incorporate change.

4F3  What matters to us? Service user involvement in researching assessment of working with patients and carers as co-producers in care  
Jools Symons*, Penny Morris (University of Leeds Institute of Medical Education); Chris Essen, Sam Samociuk (University of Leeds School of Healthcare); Caroline Plews, Jane Priestley (Division of Rehabilitation Studies, University of Bradford); KATH Padgett, Christine Rhodes (School of Health and Human Sciences, University of Huddersfield); Mike Bush, Sue Sherwin (Faculty of Health, Leeds Metropolitan University, United Kingdom)

Background: Professionals need to learn how to support patients and their carers play a greater part in care and decision making. Teachers across four Universities have been collaborating with service users to develop their role in professional learning, during a Patient Learning Journey programme which enables users learn, and help others learn, from their experience – leading to an enquiry into the attributes, behaviours and context that medical, health and social care students require for effective partnership working, and how to assess these.

Summary of work: Twenty three patients/carers met in groups (facilitated by University user involvement workers and recorded) during an iterative action research process, to examine and apply their experience to student assessment. Continuing reflection was undertaken with support from an observer/reflective academic and the project steering group, drawn from the four Universities involved. A modified Delphi study was then undertaken with more users, plus multi-professional students and clinical teachers.

Summary of results: Investigating competencies from this perspective reveals important differences from enquiries undertaken in professional silos.

Conclusions: It supports holistic framing of teaching and assessment, incorporating notions of ethics, communication and team working into person-based practices.

Take-home messages: Without public engagement, there is a missing expertise in curriculum development, as in healthcare.

4F4  Tomorrow’s Doctors: The review of UK standards for undergraduate education  
Ben Griffith (Presenter: John Jenkins) (General Medical Council, 350 Euston Road, London NW1 3JN, United Kingdom)

Background: The UK standards for undergraduate education are set by Tomorrow’s Doctors, last published by the General Medical Council in 2003. It is against these standards that medical graduates are quality assured and granted recognition.

Summary of work: As reported to AMEE in 2008, the GMC extensively reviewed the 2003 standards, by commissioning research on the preparedness of UK graduates for medical practice, drawing on its quality assurance of medical schools, and engaging key interest groups including doctors’ employers and patients. In early 2009 the GMC consulted formally on a new edition of Tomorrow’s Doctors.

Summary of results: The new guidance is intended to ensure that new UK graduates are fully prepared for practice under supervision. The GMC is placing a new emphasis on students receiving hands-on clinical experience in structured placements. Requirements on assessment and feedback to students have been strengthened. There is more detail on specific practical procedures in which new graduates must be competent.
Conclusions: The GMC has responded to concerns and evidence about the preparedness of UK medical graduates and has set out new standards for medical schools from 2010/11. The GMC is reviewing its quality assurance arrangements in this light.

Take-home messages: Evidence-based regulation of medical education, responsive to key interest groups, can address concerns and secure patient safety.

4F5 An Innovative matrix approach to multiprofessional curriculum change in preventive medicine

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Background: We expect students to see for themselves how things fit together. Unfortunately, the reality is they tend to learn what we teach. If we teach connectedness and integration, they learn that. If we teach separation and discontinuity, that is what they learn. Future physicians must respond to demands beyond the limits of science and technology with capacities in social and psychological domains. The Brazilian Ministries of Education and Health support changing health professions education to competence, interactive learning, and humanistic perspectives in authentic settings.

Summary of work: The Department of Preventive Medicine, UNIFESP is reshaping its 740 hour, 5-year curriculum accordingly. Generative themes, integration, and small-group learning with early guided community experience is focused on competencies and performance derived from socially relevant Public Health themes. Expectations progressively increase in complexity.

Summary of results: Curriculum management is organized as a matrix with integrated planning with dialogue between specialties and professions.

Conclusions: Because no teacher – specialist, in isolation, can assure a comprehensive approach to teaching/learning, a new integrated curriculum has been implemented with generative themes. Teaching is holistic in the real world. Matrix management is multidisciplinary, and collaborative with regular workshops, meetings and evaluation.

Take-home messages: Integrated learning is achieved through a multidisciplinary matrix planning group leading to a reformation of the educational climate for teachers and students.

4G SHORT COMMUNICATIONS: Curriculum: Outcome-based education (2)

4G1 Undergraduate medical education program curriculum needs assessment: through a CanMEDS lens

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Background: Memorial University of Newfoundland’s (MUN) renewal of its Medical Doctor (MD) Program included a comprehensive, multi-facet needs assessment to identify curriculum gaps and make recommendations for current Undergraduate Medical Education (UGME) program changes. This was completed through the lens of CanMEDS roles: medical expert, communicator, collaborator, manager, health advocate, scholar and professional.

Summary of work: The approach included support of a leadership and project team, an Advisory Committee, and ongoing communication. The methodology included a profile of the province’s population, literature review, review of the current curriculum (including outcomes of high-stake examinations), focus groups and interviews (with health leaders and professionals other than physicians), and an online survey (students, faculty/preceptors, residents, practicing physicians).

Summary of results: Current strengths vis-à-vis the CanMEDS roles (e.g., medical expert), and challenges for the revised curriculum (e.g. communicator and collaborator) were identified,
with recommendations for the new curriculum in all CanMEDS roles, and program delivery (e.g. multiple learning experiences).

**Conclusions:** Comprehensive, multi-faceted curriculum needs assessment is central to medical education program revision and development, ensuring that revisions reflect system and student needs, with integration of skills development across all years of programs, multiple learning opportunities, and provision of real-life experiences.

**4G2 A Guide for assessment of essential competences/learning outcomes of the Catalan Faculties of Medicine**

José Carreras* (Faculty of Medicine, University of Barcelona, Casanova 143, Barcelona 08036, Spain)

**Background:** In the year 2004 the Catalan Faculties of Medicine established a common framework of essential competences/learning outcomes for undergraduate medical education based on the “Global Minimum Essential Requirements in Medical Education” issued by the Institute for International Medical Education (IIlME), in the context of the Disseny Programme set up by the Agency of University Quality of Catalonia (AQU Catalunya) for the designing of new curricula in accordance with the EEES criteria. And three years later, the Medical Faculties decided to select the best methods for the assessment of those competences.

**Summary of work:** In the framework of a new programme developed by AQU Catalunya, a workgroup was constituted with representatives of the Faculties of Medicine, of the Institute of Health Studies of the Autonomous Government of Catalonia, of the Spanish and the Catalan Societies of Medical Education, and of the magazine “Educación Médica”.

**Summary of results:** More than 300 papers and documents were reviewed, and a “Guide for Evaluation of Medical Competences” was developed that includes: 1) The analysis of the main medical catalogues of competences/learning outcomes, 2) The process of assessment of medical competences (international, national and local context, strategies and procedures), 3) Recommendations for the assessment of the competences/outcomes established in the Disseny Programme.

**4G3 Assessing clinical competence in consonance with TUNING (Medicine)**

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**Background:** We report a purposely designed criterion-referenced assessment tool to test learning outcomes in consonance with TUNING (Medicine) competences for primary medical degrees in Europe, aiming to certify competence and grade candidates at the end of an undergraduate course of studies.

**Summary of work:** The final clinical examination in medicine at the University of Malta is a high-stake multi-part integrated evaluation matched to educational objectives. A written test appraises the knowledge base and a clinical examination is designed to closely mirror actual practice. The clinical assessment is based on a multi-sampling strategy with candidates rotating around six stations, some involving real patients. Each station is judged by two senior practicing clinicians acting independently. To ensure reliability, candidates are exposed to a minimum of ten clinical scenarios.

**Summary of results:** The testing/grading process is assessed for quality assurance through feedback from candidates and scrutiny of marking for consistency and concordance between examiners. Feedback from external observers and visiting examiners from other Universities is analysed and change implemented accordingly.

**Conclusions:** The current method of assessment at the University of Malta Medical School is a valid, reliable, feasible and practical tool.

**Take-home messages:** This form of assessment tests TUNING competences while fully satisfying the WFME European specifications for quality improvement in medical education.
Teaching clinical genetics using the portfolio method and constructive alignment

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Background: The curricula of the medical school at Karolinska Institutet have recently changed with a larger share of elective courses. In this context a five week long course in clinical genetics was introduced.

Summary of work: Twenty learning outcomes were formulated. All parts of the course were designed to align with these outcomes. A learning portfolio was created that included diverse tasks that a clinical geneticist meets in his every-day work. In the examination students had to solve two problems that were aligned with the learning outcomes.

Summary of results: More than one student stated that this was the first course during medical school they had read and scrutinized the learning outcomes. At a midcourse evaluation a majority of students were concerned about the heavy work load of the course. To meet this criticism the number of items of the portfolio and seminars were reduced.

Conclusions: Working with learning outcomes and a portfolio gave a good structure for both teachers and students and the outcome based examination gave a good final summary of the course.

Take-home messages: When designing a new course using portfolio the teacher should be aware of the risk of overloading it with too many items.

Community views and expectations of doctors in Saudi Arabia

Rania Zaini* (Department of Medical Education, Umm Al Qura University, Makkah 13611, Saudi Arabia)

Background: National consensus of essential competences of Saudi medical schools’ graduates was generated from a group of stakeholders in medical practice and education including students, graduates, academic staff, deans, and higher decision makers (Zaini, 2007). This study aims to investigated the Saudi community views and expectations of doctors.

Summary of work: The study consisted of two Phases: 20 semi-structure interviews with community members (representing various backgrounds and cultures in SA): close-ended questionnaire (60 items) that formed from the interviews’ results and literature. The questionnaire addressed five domains: perceptions of Saudi doctors, doctors and ideal practice: doctors and health promotion, doctors and communication skills, and doctors as scholar and researcher.

Summary of results: Saudi society represented great respect of the doctors role in the healthcare system. They placed a great emphasis on the way doctors approach their patients, doctors’ communication skills and their role in health promotion and patients’ education. Doctors’ role as scholar or researcher was not perceived very well.

Conclusions: Saudi community has a great expectation of doctors’ role as a communicator, they believe in the psychological aspects of wellbeing and illness. Doctors’ role as health advocate is emphasized amongst community. Such competence must be emphasized in medical programmes.

Take-home messages: The community is a partner in the health delivery system, their views and expectations must be investigated and informed in the medical practice and education.

SHORT COMMUNICATIONS: e-Learning: e-learning and undergraduate education (2)

A survey of the implementation and utilisation of online learning resources for final year medical students across the UK

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Background: To ensure all basic competencies are covered, medical schools increasingly deliver their final year curriculum via the internet to regionally dispersed students. A survey
was undertaken of all UK medical schools to determine the extent of the online learning resources made available.

**Summary of work:** A survey was sent to all UK medical schools across the UK and results and comments collated for comparison.

**Summary of results:** Responses were received from 17 medical schools from across the UK. Online resources for final year students ranged from zero at some schools, such as Liverpool where final-year students are seen as ‘apprentices’ to extensive at newer schools such as Brighton and Peninsula, which together offer almost 700 online proprietary online cases in multimedia format. All schools involved currently offer resources formatively, not summatively. Positive student feedback suggests propagation of this trend.

**Conclusions:** UK medical schools are increasingly offering more online resources to final year student to deliver a standardized curriculum to regionally dispersed students. Resources are offered in a wide range of formats and have met with very positive student responses and participation.

**Take-home messages:** Online learning resources for final year students are becoming increasingly widely offered and are popular with students.

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**4H2 Development and institutionalization of a Curriculum Management System (CMS) to support an integrated curriculum: The case of University of Malawi College of Medicine**

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**Background:** In African Universities the introduction and use of e-learning is being perceived as a solution to improving quality of education. The progressive College of Medicine (COM) based in Blantyre, Malawi is introducing a new integrated curriculum which has an increased emphasis on independent learning. This has provided them with a unique opportunity to develop a curriculum management system that will manage both the administration and educational aspects of the curriculum. This system will provide students with convenient access to educational resources both on and off campus whilst integrating with the student management system.

**Summary of work:** This paper presents the design and development challenges in the implementation of electronic-based delivery of a curriculum in one African University.

**Summary of results:** The solution to challenges met in the course of this project have included the use of open source software and locally sourced development expertise. Also the development and maintenance of strong collaborative ties both internally and with partner institutions has been invaluable.

**Conclusions:** Consistent, quality electronic support for the curriculum can be developed despite significant infrastructural challenges.

**Take-home messages:** This project exemplifies the commitment of the COM to maintain a place at the forefront of African institutions in the implementation of IT based systems to support learning.

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**4H3 Moodle platform supporting student assessment and program evaluation in internship**

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**Background:** Moodle is a Virtual Learning Environment (http://moodle.org) that focuses on giving educators the best tools to manage and promote learning. In 2008, Unicid’s Medical School implemented the two years undergraduate internship in different and distant settings (hospitals and basic health units).

**Summary of work:** We developed an online environment for internship students where they could access their grades (global ratings, tutorials, tests and portfolio). At the end of each rotation they have to answer a questionnaire for the specific program evaluation regarding the entire faculty and also the infrastructure of internship settings.
Summary of results: Every semester we produce a report about internship rotations that support curriculum decision making. Feedback from students has been presented to the faculty and an individual report was sent to them with students’ perceptions and evaluation.

Conclusions: Moodle has been able to shorten distances and to help students and faculty to provide as well as access information.

Take-home messages: Program evaluation is feasible even if students and faculty are disperse in different or distant educational settings.

4H4 A secure web based assessment system for the school of medicine
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Background: Security is one of the main problems in web-based assessment systems, particularly guaranteeing non-repudiation of tests submissions. Online assessment has been largely debated because of difficulties with properly authenticating the students and making their submissions non-repudiable. Non-repudiation is defined by the International Organization for Standardization (ISO) as the security property that provides protection against false denial of having been involved in a communication.

Summary of work: We implemented a secure environment which students of the medical school could rely on. Implementation of this work depends on the local network. We set up a local network environment and included web service with clients. The difference between this assessment and usual web based assessment was to use offline network for server and online network for clients.

Summary of results: A total of 620 students have been using this system for their assessment. In the feedback a total of 86% were satisfied with their outcome. We examined the remaining 14% students concerning the security issue. We played back the result for them and received their feedback for the second time. No reports concerning false security have been reported.

Conclusions: Using a web based environment in a large scale assessment required assurance of security. We demonstrated that using a simple local network solves the security issue with full security coverage.

4I SHORT COMMUNICATIONS: Teaching and Learning: Approaches to clinical teaching
4I1 Introducing clinical paediatrics to medical students: a novel hospital visitation program involving kindergarten children
Mimi Pham*, Katrina Williams, Karen Zwi, Les White, Bronwyn Chan (School of Women and Children’s Health, University of New South Wales, Australia, Sydney Children’s Hospital; High St Randwick NSW, Sydney 2031, Australia)

Background: Increasing numbers of medical students in Australia and shorter paediatric hospitalisations require new and creative ways to teach clinical paediatric medicine. At the University of New South Wales, Sydney, we developed a program involving well Kindergarten children visiting Sydney Children’s Hospital to introduce medical students to clinical paediatric medicine.

Summary of work: The aim was to teach medical students how to engage children and gain their cooperation while performing paediatric examinations. Eight sessions were conducted involving 240 Kindergarten students from seven local primary schools and 217 medical students. School children were escorted by medical students through five activities comprising examination of gross motor skills, testing visual acuity and otoscopy, measuring growth parameters, chest auscultation, pulse counting and blood pressure cuff inflation. Questionnaires were used to gather quantitative and qualitative evaluation data.

Summary of results: The program achieved its main objective, with 94% of students rating highly their learning about interacting with children and appreciating the challenges in
examining them. Medical students (94%), tutors (100%) and participating schools (100%) thought the program should be continued.

**Conclusions**: This new, innovative program involving well children introduces medical students to clinical paediatric medicine.

**Take-home messages**: Well children can provide medical students with a practical and appropriate introduction to paediatrics.

### 4I2 Early patient approach with feedback improves clinical skill of medical students

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**Background**: To improve clinical skills of medical students, early patient approach under close supervision and feedback of a facilitator has been implemented. Clinical skill outcomes regarding history taking and physical examination were evaluated and compared to another student group with the conventional method.

**Summary of work**: 124 clinical year medical students were divided into 2 groups. For group A students (n = 56), conventional clinical skill teaching was done. For group B students (n = 68), each pair of medical students was assigned to approach a patient under close supervision and immediate feedback by a facilitator. They then took time to search for their patient’s problem and came back to present their learning issues. The same category’s checklists of OSCE and long case examination score were collected from both groups at a half year later. All scores were calculated to 100 points.

**Summary of results**: The mean OSCE score of group B, 77.56 + 4.70, was significantly higher than group A, 75.31 + 4.90, (p = 0.01). The mean long case examination score of group B, 76.62 + 9.20, and group A, 77.32 + 7.77, was no significant difference ( p = 0.69).

**Conclusions**: Early patient approach with feedback significantly improves clinical skill of the medical students.

**Take-home messages**: Early patient approach with feedback is helpful in clinical skill teaching.

### 4I3 Training clinical skills effectively: a blended design

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**Background**: Clinical skills training is usually a limited part of the medical curriculum. Most skills are still learned in medical practice under supervision, the patient being the main instrument of learning. Nowadays this is more and more considered to be an undesirable practice. We have developed a training program on clinical skills which students do before entering internship.

**Summary of work**: The program consists of an e-learning tutorial, a classical workshop and skills centre training (linking theoretical knowledge and skills training) and assessment. We have developed this for four basic skills and are currently running this program. The online tutorials are aimed at developing procedural knowledge of the skill, as research shows that e-learning can effectively be used to enhance knowledge and skills (Cook et al, ’08).

**Summary of results**: Preliminary evaluation results show that students evaluate the design of the skills training positively. They find the instructional videos with patients and the interactivity in the tutorials very helpful. They also appreciate the demonstration and explanation of the skill in the workshop. The program design, the tutorial and the evaluation results will be presented at the congress.

**Conclusions**: The blended concept of a ‘before-the job’ skills training, consisting of online and face-to-face elements, is appreciated by students and makes them better prepared for their clinical work when starting their internship.
First semester students’ perception of the teaching of clinical skills by polycom projected patient interviews to the class room

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Background: Polycom training is known to be an efficient, cost effective and a valuable tool for teaching medical students a variety of clinical topics. A pilot project of polycom interviews of real patients projected from the hospital to the campus class room was done during the Fall of 2008. First semester students observed the interviews, interacted with the patients and received feedback on organizing the clinical history.

Summary of work: A six Likert scale rated questionnaire, of the value of this clinical experience, was completed by the students at the end of the semester.

Summary of results: Students rated all questions on the experience as positive.

Conclusions: The overwhelming response was for this program to be a regular part of the Doctor Patient Society course. The experience of seeing a clinical interview done by an experienced physician, with also the ability to interact with the patient and being able to organize the clinical history, appears to be a valuable part of the early clinical training for medical students.

Take-home messages: Polycom interviews are an easy way to bring real patient encounters into the classroom for an early and valuable clinical experience.

Deliberate distributed practice with paired and mixed examples is an efficient and effective method to learn key abnormalities on the CXR

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Background: CXR interpretation is a core clinical skill. Traditional teaching usually presents a concept followed by examples. A major challenge in medical education is to ensure transference of knowledge and skills. Educational literature suggests that use of deliberate distributed practice using paired and mixed examples facilitates learning.

Summary of work: Our experience using a combined approach of initial concept with examples, followed by deliberate practice with quiz sets utilizing paired and mixed examples, engagement of students via regular emails to encourage distributed practice as an integrated teaching and learning system to facilitate skill transference will be presented.

Summary of results: A cohort of 25 undergraduate medical students and 10 postgraduate radiology trainees was engaged in a pilot study. Over 90% of both cohorts of students preferred the use of paired examples and mixed examples compared to standard sequential case presentation. Surveys and focused interviews showed that students felt that this improved their ability to detect abnormalities, increased their confidence in differentiating these abnormalities from look alike conditions, and was a more time efficient and engaging method for learning key radiological signs. Limiting factor is the collection of a large enough group of examples. Systematic efforts by individual and teams of faculty members can overcome this.

Conclusions: Deliberate distributed practice with paired and mixed examples is an efficient and effective method to learn key abnormalities on the CXR.

SHORT COMMUNICATIONS: Education Management: Integration of medical education and health service provision

The evaluation of a novel training pilot programme for general practice nurses in the UK

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Background: There is currently no mandatory training for general practice (GP) nurses in the UK. Pre-registration nurse training is generic therefore GP nurse training lies at the discretion of general practices offering different standards of training. Our training programme aimed to prepare nurses that have no previous experience of general practice. Nurses are mentored...
by a peer, or clinical practice supervisor and the overall learning plan is revised with a GP in the practice. Trainees also attend learning days delivered by the University of Plymouth.

**Summary of work:** Based around an evaluation framework we have looked into the perceptions of trainees, mentors, educators and others on the scheme. Factors analysed include practices as learning environments, expectations on the training, barriers encountered, support required and perceived impact on patient care.

**Summary of results:** The programme trains nurses to a standard of GP competencies. In some cases, the trainees’ expectations on what it means to be a GP nurse are unrealistic. Mentors have found the experience somewhat challenging due to other work commitments, and having to assess the trainees’ competencies for the first time in the work place.

**Conclusions:** Some skills are specific to practice nurses and reaching a certain level of competence is important to endorse patient safety and professional accountability. The GPNP is effective in providing a standard quality of training for nurses from a variety of backgrounds.

**Take-home messages:** Standard training for general practice nurses has been overlooked. There is a need to provide quality assured training for this workforce in the UK.

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**4J2**

**The challenges faced by the informal caregivers in the Primary Health Care Centre with particular reference to the Ntapane Clinic, Eastern Cape, South Africa**

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**Background:** The aim of the study is to explore the challenges experienced by the informal caregivers in the Primary Health Care Centre with particular reference to the Ntapane Clinic, Eastern Cape, South Africa.

**Summary of work:** For this study, a group of informal caregivers from the local community will be asked to respond to a set of questions related to the challenges they face in fulfilling their task. The questionnaire will take approximately 40 minutes.

**Summary of results:** This study will provide a better understanding of the plight of the informal caregivers in the Primary Health Care Centres in most rural settings in South Africa, especially in the centre under study. The community will then receive high quality of care. Policymakers are challenged to redesign the health systems policy. The caregivers could benefit from support and relevant instruction.

**Conclusions:** There is need for growth in nursing staff due to a number of factors including the death rate in this HIV/AIDS era. The awareness of patients’ rights by patients, occupational illnesses also have a great impact.

**Take-home messages:** Interventions and redress of health systems policy are essential to improve the conditions of service. This may lead to reduction in health care costs and health hazards to our communities.

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**4J3**

**Detection of training needs from the evaluation of professional performance in Empresa Publica Hospital Alto Guadalquivir**

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**Background:** (1) Quantify the training needs of professionals in Empresa Publica Hospital Alto Guadalquivir (EPHAG). (2) Identify the dimensions that make up the educational training needs detected.

**Summary of work:** We analyzed a total of 900 interviews of evaluation performance, 79 questionnaires assessing training needs and 18 interviews with the management team for the year 2007.

**Summary of results:** We detected a total of 519 training needs. Of those 107 were doctors, 230 nurses, 26 technicians, 61 nurses, 60 administrative staff and 35 guards. All of them have been grouped into 13 dimensions formats: Stress Control (4); Critical Care and Emergency (51); Development of technical skills (133); Development of clinical skills (36); Professional Management (25); Communication Skills (56); Quality Methodology (52); Care Methodology...
Conclusions: The 13 training dimensions found to meet the 519 training needs identified coincide with the strategic lines of Andalusian Public Health System (SSPA) and the competencies maps defined for professionals in the EPHAG and the ACSA.

Take-home messages: Continuing education, professional excellence, competitiveness, investment in training.

4J4 Impact of the accreditation process of training entities in the improvement of professional practice
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Background: The accreditation process of training entities in Andalusia (Spain) seeks to encourage reflection on strengths and areas for improvement in its management, planning and development.

Objective: To analyze the improvement of the whole training provided by the accredited training entities, from the continuous and progressive introduction of improvement elements and best practice.

Summary of work: The analysis was performed on 13 accredited training entities from 2006 to 2008. During the process, the accredited training entities (through self-assessment) and the evaluators (through observation, interviews, document review, etcetera) identified 700 ideas for improvement. Monitoring the implementation of these improvements is done by the computer tool (ME_jora C ). Moreover, the quality of the activities of continuing training is analyzed before and after accreditation.

Summary of results: 1. More than 50% of the improvements have been implemented: identification of training needs based on Individual Development Plans, development of guidelines and protocols, management of teachers and impact assessment. 2. The quality of training of the accredited training entities increases significantly during the accreditation process from 1.79 to 2.12 average (minimum 1, maximum 2.8).

Conclusions: The accreditation process of training entities in Andalusia represents a powerful tool to provide excellence in training, in order to reinforce professional development and best practice.

Take-home messages: The process of accreditation of training institutions for excellence ensure training.

4J5 Training as the basis for improving the quality and development of nursing care in Andalusia
Felipe Rodriguez Morilla, Susana Rodriguez Gomez*, Bienvenida Gala Fernandez, Susana Gomez Garcia, Concepcion Padilla Marin (Andalusian Regional Ministry of Health, Avenida de la Innovacion s/n Edificio ARENA 1, Sevilla 41020, Spain)

Background: This communication describes the role of training in developing a process for strategic improvement in nursing care for the period 2002-2008.

Summary of work: Different face-to-face training methodologies have been used, amongst these: distance and face-to-face combined with new communication and information technologies, hands-on research-action, learning based on problems created in clinical programmes sessions.

Summary of results: 130 training activities were organised with 1,035 editions, and 27,590 professionals were trained. Average satisfaction rate for this programme was 82%. The training had a definite influence on the introduction of the Andalusian case management model (365 case management nurses), improvement in care continuity (54, 12% of reports on care continuity over total hospital discharges), use of the nursing methodology and classification (41.32 of the services) and increase in the scientific production of Andalusian nurses (32 research projects and 942 publications.)
Conclusions: A key tool for adapting to new skills so nurses can respond to society's new healthcare requirements.

Take-home messages: Use of face-to-face teaching methods allows for the maximization of training in professional practice.

4J6 Differences in concepts of trainees and teachers on “the effective teacher” in the department of postgraduate training for general practitioners
Thea van Roermund*, Fred Tromp, Albert Scherpbier, Ben Bottema, Herman Bueving (Department of Postgraduate Training for General Practitioners, Postbus 9101, Nijmegen 6500 HB, Netherlands)

Background: In several countries, postgraduate medical education is organized in practice and on regular one day courses in the department. Both presume an effective learning environment. In this study we focus on concepts of trainees and teachers in the department, regarding the teachers' competences. The research question was: do trainees and department teachers agree on what should be taught and how?

Summary of work: This study was conducted in two departments in the Netherlands. We carried out semi-structured individual interviews with teachers and semi-structured focus group interviews with trainees and compared the data around 4 themes, classified after analysis.

Summary of results: 1. Role taking: trainees see teachers as expert, teachers see themselves as coaches; 2. Teaching content: trainees focus on medical content, teachers on personal development; 3. Position: trainees want teachers to be leaders, teachers want to be facilitators; 4. Attitude: trainees want to be equal, teachers see themselves as a kind of parent.

Conclusions: Concepts of trainees and teachers do not match.

Take-home messages: If we want postgraduate medical education to be effective, concepts, roles and competences should be expressed more clearly. An interactive form of evaluation, understanding each others’ perspectives, could be helpful.

4K SHORT COMMUNICATIONS: Postgraduate Education: Training for General Practice

4K1 Evaluating the New General Practice Training Curriculum in the UK
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Background: The new curriculum for general practice training, introduced in the UK in 2007, is being evaluated over a three-year period.

Summary of work: Research focuses on the implementation of its three main elements: the written curriculum; the assessment system; the electronic portfolio. Focus groups, interviews and case studies are used to explore stakeholders’ experience, together with statistical analysis of recorded assessment data and a national survey.

Summary of results: Initial findings highlight some difficulties in translating the curriculum into practice. These include: the content of the written curriculum was viewed as overwhelming; assessment often was a main driver of learning; different marking criteria were used by GP and hospital-based assessors; the e-Portfolio’s potential as a learning tool was undermined by its assessment function. Feedback of findings has informed the ongoing process of implementation.

Conclusions: The second year of the study allows continued focus on these issues. It will reflect changes and development that have occurred within the curriculum and how its meaning is being negotiated, constructed and applied in general practice training.

Take-home messages: This evaluation explores the continuing process for curriculum implementation and its impact on teaching and learning.
4K2 Quality assessment of practice-based education in family medicine residency program
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Background: The first year of residency in family medicine in Israel is spent in primary care practices under the supervision of preceptors. Our aim was to examine whether structured evaluation meetings performed by program coordinator reflect the quality of education residents experience in practice.

Summary of work: Eight in-depth interviews and one focus group were conducted with residents to explore their learning experience. Emerging themes were compared with residents’ and preceptors’ pre-meeting evaluations and coordinator’s meeting reports.

Summary of results: Active involvement in patient care, preceptors’ availability for consultations and feedback, and discussing reasoning process with preceptor were valued by residents as contributing most to professional growth. However, pre-meeting evaluations and meeting reports focused on the setting in which teaching and learning took place, rather than on process or content.

Conclusions: Pre meeting evaluations and meeting reports didn’t include major themes that emerged from interviews and focus group. Similarly, residents felt that evaluation meetings neither reflected their learning experience nor contributed to it.

Take-home messages: The assessment of the quality of practice-based education should move beyond the setting towards process and content evaluation. Incorporating site visits and one to one interviews with residents and preceptors may improve validity and educational impact.

4K3 Differences between general practice trainers (GPtrainers) and general practitioners (GP) on practice management
Schalk-Soekar RG*S, Braspenning J, Kramer AWM (Radboud University, Department of Vocational Training, PO Box 9101, Nijmegen 6500 HB, Netherlands)

Background: There is this assumption that GPtrainers should perform better than GPs, that they should be “excellent” doctors, and distinguish him/herself compared to general practitioners. This has never been investigated. The current study is a first attempt to show the differences.

Summary of work: The differences between these two groups are very important for policies within the institutions that educate GPs into GPtrainers. Data from accreditation on practice management (in the Netherlands) were used, to investigate the differences on individual and on practice level.

Summary of results: On individual level GPtrainers qualified the standard better than GPs on many aspects (e.g., using equipment, applying medical tasks). Somewhat fewer differences were found on a practice level, yet, still convincing. When correcting for some covariates (gender, age, total years of working, etc.) not all differences disappeared.

Conclusions: More GPtrainers have their practice better organized and have better organizational abilities than GPs.

Take-home messages: Differences between GPtrainers and GPs on practice management exists, questioning whether faculties (who educate/train GPs in becoming GPtrainers) already need to select the better doctors.

4K4 Individualised learning plans for family medicine tutors according to a competence map
Bermudez Isabel* (Unidad Docente Provincial De Medicina Familiar Y Comunitaria De Cadiz, Distrito De Atencion Primaria Bahia De Cadiz-La Janda, Servicio Andaluz De Saludavenida, Ramon De Carranza, 19, Cadiz 11006, Spain)

Background: Recently in Spain there have appeared new legal regulations for postgraduate education, some of them involving the role of tutors. Health authorities in Andalucia have
developed a competence map for tutors of any postgraduate specialty that constitutes a guideline in order to detect any learning gaps either in knowledge, skills or attitudes.

**Summary of work:** In this study, the postgraduate family medicine residence training unit of Cadiz (Andalucia, Spain) proposed to 75 tutors, all of them working at accredited primary care health centers, to find out their learning gaps in relation to the competence map for tutors. They were invited to position themselves in one of the three following situations: proper learning, need of basic learning or need of advanced learning. Finally they outlined their own individual learning plans for the following four years.

**Summary of results:** The author obtained 75 individualised learning plans competency-based. Analysing the gaps detected by the group of tutors, most of them belonged to subjects related to educational methods and evaluation techniques.

**Conclusions:** Determining learning gaps by facing a competence map can be useful to define learning plans. The author is actually working on a new study to demonstrate the impact of the learning plans proposed by tutors in this study.

**Take-home messages:** It is easier to acknowledge your learning deficits if you discover them by yourself.

### 4K5 GP Grand Round – a hospital tradition modified for general practice in Western Australia

Lesley Skinner*, Tracy Reibel*, Jon Emery* (School of Primary, Aboriginal and Rural Health Care (SPARHC), MS01, 35 Stirling Highway, Crawley, Perth 6009, Western Australia)

**Background:** This study describes a series of CPD activities for GPs, GP Registrars and medical students. GP Grand Rounds were developed as small group interactive learning sessions focussed on the application of Evidence Based Medicine (EBM) in a primary care setting for GP clinical topics. The grand round format was evaluated to determine responses and whether learning objectives were achieved.

**Summary of work:** Evaluations were completed after each session. Data was collated and responses to evaluation questions related to the key functions of the learning activity were thematically arranged.

**Summary of results:** There was a strong positive engagement by GPs with the process of participating in small group learning. The analysis of quantitative and qualitative demonstrates that the participants had their learning needs either partially or entirely met.

**Conclusions:** The GP Grand Round format offers a novel learning activity for GPs, promoting positive interaction between different levels of GP learners whilst achieving learning outcomes.

**Take-home messages:** GP Grand Round format is an innovative modification to achieve learning outcomes in a small group session.

### 4K6 Developing academic skills for GP Specialty Trainees

David Price*, Sanjiv Ahluwalia, Anthea Lints* (The Department of Postgraduate General Practice Education, The London Deanery, Stewart House, 32 Russell Square, London WC1B 5DN, United Kingdom)

**Background:** There is a need in London to develop research opportunities for GPs. We report the findings of a pilot programme of extended GP training providing experience of academic work.

**Summary of work:** 10 trainees were selected to undertake a fourth year of training, combining clinical practice with secondment to an academic department of primary care. Projects selected included qualitative research, data analysis, random controlled trials and cohort studies. Trainees have been involved with undergraduate teaching. The group met monthly facilitated by a programme director.

**Summary of results:** Trainees developed research and teaching experience and presented research findings at scientific meetings. Trainees learned to coordinate a portfolio career. Some trainees plan to continue in academic work.
Conclusions: An academic training programme provides opportunities for trainees to develop research and teaching skills. Significant educational resources are required for such a programme. The programme is in line with the Tooke Report’s recommendation for extending the length of specialty training.

Take-home messages: Defining academic and clinical commitments for such a programme has been challenging. The financial burden on academic departments to support the programme needs to be recognised. Collaboration between the Deanery and the academic departments has been rewarding.

4L SHORT COMMUNICATIONS: Themes: How should students learn anatomy?

4L1 Plastinated prossections in undergraduate anatomy teaching – an innovative approach to studying the human body

Birgit H. Fruhstorfer*, Emma C. Esquillant, Tim Rattay, Anne-Marie Feeley, Paul Gazzani, Jamie Roebeck, Uzma M. Satti, Stephen Bydges, Gregory Smith, Peter H. Abrahams (Warwick Medical School, University of Warwick, Gibbet Hill Road, Coventry CV4 7AL, United Kingdom)

Background: Over the past decade anatomy teaching has been substantially transformed in most UK medical schools. Active dissection of cadaveric specimens has been gradually replaced by prossection-based methods and other resources such as e-learning. However, debate continues in relation to content, style and duration of undergraduate anatomy teaching.

Summary of work: In Warwick Medical School a range of plastinated prossections have recently been introduced substituting the use of cadaveric specimens in undergraduate anatomy teaching. These specimens are impregnated by a polymer replacing water molecules ensuring safe and odourless handling. First year medical students familiarize themselves with the anatomy of the human body by studying a number of plastinated prossections in interactive small group sessions facilitated by a tutor. Learning is further supplemented by simultaneous sessions in normal radiological anatomy and correlative e-learning packages.

Summary of results: This new method of anatomy teaching has been enthusiastically received by medical students. A mixed method approach has been employed to evaluate reactions and attitudes of medical students.

Conclusions: Learning human anatomy on plastinated specimens has been favourably perceived by medical students.

Take-home messages: Plastinated prossections present a promising alternative to cadaveric specimens in undergraduate anatomy teaching.

(We gratefully acknowledge funding for plastinated prossections from the West Midlands strategic health authority.)

4L2 Learning Anatomy: What’s the best teaching strategy?

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Background: According to the new paradigm of the European Higher Education Area, teachers guide the student to acquire knowledge. For this purpose, we developed two new online training strategies (electronic (e-) and blended (b-) learning) in the human anatomy course (digestive system).

Aim of the study: Comparative analysis of the academic performance between the classical and new on-line methods.

Summary of work: 226 students in the second year of Medicine degree were included. Teaching strategies: Classical (lectures and practices); b-learning (virtual dossier support and practice) and e-learning (on line tutorial of clinical anatomy cases with reflective algorithms and illustrations).
Academic performance was assessed by a multiple-choice test and practice exam (score range 0-10). To assess the possible differences between teaching strategies, statistical analyses were performed.

**Summary of results:** Comparative academic performance results (mean ± standard deviation) showed better results in the b-learning group (8.02 ± 1.55) than in the two other groups. We also observed better results in the e-learning group (5.16 ± 1.73) than in the classic one (4.07 ± 1.08).

**Conclusions:** Although the e-learning strategy provided better results than the classical method, the combination of both (b-learning) showed the best results.

**Take-home messages:** B-learning can be considered the preferential method of teaching anatomy.

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### 4L3

**A multidisciplinary, multimedia approach for teaching human embryology: Development and evaluation of a methodology**

Moraes, S.G.* Pereira, L.A. (State University of Campinas [UNICAMP], Department of Histology and Embryology, Institute of Biology, P.O. Box 6109, Sorocaba 13083-970, Brazil)

**Background:** The aim of this study was to develop and evaluate new educational materials and a teaching methodology based on multimedia and multidisciplinary approaches to improve the comprehension of human development.

**Summary of work:** The materials developed in this study include clinical histories, movies, animations, and ultrasound, radiograph, and autopsy images from embryos, foetuses and neonates. These materials were used in the Human Morphophysiology disciplines of the medical curriculum at the State University of Campinas. At the end of the discipline, the material and methodology were evaluated with an attitudinal scale instrument, interviews, and knowledge examination.

**Summary of results:** The exams showed that most students scored above 6.0 (5.0 is the minimal limit for approval); the students approved of the materials and the teaching methodology and also emphasised the importance of integration between basic and clinical disciplines.

**Conclusions:** A multidisciplinary and multimedia approach for teaching human embryology proved useful for solving an important problem associated with teaching methods in many medical institutions: the lack of integration between basic and clinical disciplines.

**Take-home messages:** We develop and evaluate new teaching methodology based on multimedia and multidisciplinary approaches.

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### 4L4

**Integrative Anatomy Labs: A pilot study**

Marjorie Johnson*, Peter Haase, Kevin Fung (University of Western Ontario, Medical Sciences Bldg Rm 487, Dept of Anatomy & Cell Biology, London, Ontario N6A 5C1, Canada)

**Background:** Recently, the undergraduate medical curriculum at UWO has undergone renewal in order to make it systems-based and integrative. These changes have resulted in a decrease in lectures and an increase in online independent learning (IL) modules. Anatomy is no longer a course but integrated into the system-based courses.

**Summary of work:** Many anatomy lectures have been replaced by IL modules combined with anatomy laboratory sessions. The labs have been re-designed to be more investigative and clinically relevant by including pertinent histology, embryology and images (x-ray, MRI and CT) along with traditional identification. Students work in small lab groups and complete an assessment sheet, which evaluates their knowledge, using clinical scenarios. When available, surgical residents circulate through the lab.

**Summary of results:** Preliminary feedback is mixed. Some students appreciate the integration and clinical application approach but an equal number think they are not learning enough basic anatomy. Results from questionnaire data, collected from 123 students during their Respiratory and Airways course, will be elaborated upon.
Conclusions: The importance of anatomy teaching is recognised by medical students and surgeons but the most effective way of delivering and assessing the material in this system-based curriculum needs more work.

4L5 Assessment drives learning – an unavoidable truth?
Ben Wormald, Scarpas Schoeman*, Arnold Somasunderam, Michelle Penn (St George’s, University of London, Centre for Medical and Healthcare Education, 4th Floor Hunter Wing, Cranmer Terrace, London SW17 0RE, United Kingdom)

Background: The debate around which factors drive medical students’ learning is ongoing and controversial. What is the influence of an assessment’s weighting on the motivation of students to study the particular subject? One medical school in London is in a unique position to investigate this question.

Summary of work: At our institution the weighting of Anatomy within the overall scheme of assessment has changed twice in recent years, a trend of increased weighting. This enabled a comparative investigation into the effect these changes have had on the students’ motivation to learn Anatomy. Students were asked to respond to statements using a 5-point Likert scale. A section within a broad survey of Anatomy teaching and learning was dedicated to the evaluation of the amount of weighting Anatomy received within the assessment structure and the effect this had on students’ motivation towards learning the subject.

Summary of results: Increasing Anatomy’s weighting within the scheme of assessment produced a dramatic increasing trend towards students’ motivation to learn it.

Conclusions: The weighting of Anatomy has a profound effect on students’ motivation to learn it.

Take-home messages: Although multi-factorial and complex in nature, medical students’ drive to study a subject is directly influenced by the weighting of the subject in the overall scheme of assessment.

4L6 Did virtual patients using Computerized Tomography (CT) imaging of cadavers put the clinical into clinical anatomy course? A one year evaluation
Stanley Jacobson*, Joseph Polak, Susan Albright, Veronica Coppersmith, Scott Epstein (Tufts University School of Medicine, 136 Harrison Ave., Boston 02111, United States)

Background: Virtual Patients created using Computerized Tomographic images of seventeen cadavers were posted on TUSK’s (Tufts University Sciences Knowledgebase) case simulator to enhance translational education at the Tufts University School of Medicine in the 1st year Anatomy Course. Our Purpose was to support the integration of basic and clinical science emphasizing clinical correlation during early classroom and laboratory by highlighting the clinical relevance of content.

Summary of work: The cadavers underwent total body CT imaging. Images were converted into movies and labeled. The CT images were analyzed and, together with knowledge of the reported cause of death, we constructed plausible clinical cases which were designed to highlight abnormal anatomic findings encountered during the cadaveric dissection. A team of clinicians were recruited to create the virtual patients. The sixteen Virtual Patients were sequentially deployed through TUSK, the Tufts University Sciences Knowledgebase, corresponding to cadaveric dissection (e.g. limb, thoracic, abdominal/pelvic). Labeled 3D volumetric images and movies were created using Osirix on the Mac.

Summary of results: Students reviewed cases, CT images (with normal images for comparison) and answered questions emphasizing clinical-anatomic-pathophysiologic correlation. Students evaluated their experience at the end of the semester.

Conclusions: After one year students found the cases useful. Teaching styles need to be adjusted to enhance the use of the virtual patients.

Take-home messages: Attendees will learn whether the challenges and benefits of creating virtual patients in conjunction with clinical anatomy and changes to teaching style to enhance teaching and learning.
4M SHORT COMMUNICATIONS: Staff development (2)

4M1 The Resource Archive for Teacher Trainers (RAFTT) project – a mechanism for sharing resources produced by and for the educators of health care educators

Nigel Purcell*, Reg Dennick, John Spencer (Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine, School of Medical Sciences Education Development, Faculty of Medical Sciences, Newcastle University, Newcastle NE2 4HH, United Kingdom)

Background: In recent years the need for effective teacher development programmes for staff engaged in medical education has become increasingly clear. As a result many locally based educator development programmes have been created and a range of associated teaching and learning materials have been developed. They constitute a substantial resource of great potential value to the health care teacher educator community.

Summary of work: The RAFTT project provided a blog based website to enable education staff developers to share their teaching and learning resources. A series of workshops were held to foster an active community of practice and promote the creation, utilisation and development of the resources.

Summary of results: Over 100 resources have been added to the site supported by annotations intended to make explicit the implicit knowledge embedded in the materials, to facilitate their more effective use.

Conclusions: There are significant obstacles to sharing teaching and learning resources. Overall the RAFTT blog has been successful both in terms of the value of the resources shared and in successfully fostering a community of practice.

Take-home messages: Issues of copyright need to be addressed from the start. Participants need to be given full technical support. It is essential to have face to face in addition to electronic means of meeting.

4M2 Mentoring experiences of training program directors

Suzanne M Norby*, Rachel L Bzoskie, Amy W Williams (Mayo Clinic, 200 First St. SW, Rochester, MN 55902, United States)

Background: Although mentoring in academic medicine is reported to be beneficial, mentoring of training program directors (TPDs) has not been evaluated.

Summary of work: We conducted an e-mail survey of all TPDs (n=200) at a single institution comprised of three training sites.

Summary of results: Response rate was 55%. Respondents’ academic rank was: instructor 2.7%, assistant professor 44.7%, associate professor 31.2%, and professor 21.4%. 76% were male. While 76.8% of respondents thought mentoring would have been beneficial, only 59.8% reported receiving mentoring for the TPD role. 41.1% did not initially feel prepared to be TPD, and mentoring was associated with feeling prepared (p=0.003). Mentoring was more likely for graduates of the same program for which they are now TPD (p=0.048) but was not more likely for prior associate program directors (APDs) although they were more likely to feel prepared than those who had not served as APD (p=0.017). Mentors included: the preceding TPD (41.1%), other TPDs at this institution (30.4%), associate deans (13.4%), and TPDs from elsewhere (15.2%).

Conclusions: In conclusion, respondents who felt prepared for the TPD role were more likely to have been mentored as well as to have served as APD.

Take-home messages: Formal mentoring experiences for TPDs should be explored, and further investigation is needed.

4M3 Role-play technique in the training of clinical instructors on: “How to improve my communication with my students?”

Ruth Abramovitz, Netta Notzer* (Tel Aviv University, 54 Pinkas St, Tel Aviv 62261, Israel)

Background: A faculty-development workshop dedicated to improve instructional skills is an obligatory demand in our faculty. Since 2007, following complaints of miscommunication with students, part of the workshops has been allotted to improve communication skills. This session trains how to improve instructors’ communication with their students. The goal is to
internalize the high-level speech to avoid miscommunication. The participants’ feedback to those activities during 2007-8 has been reported as favorable (AMEE 2008).

Summary of work: This year, following participants’ suggestions, instead of exercising written scenarios, we introduced videotaped role-play simulations of the participants which were then used for group discussion. The leader and the participants of the workshops provided constructive remarks and suggested possible solutions.

Summary of results: Participants’ feedback to the new strategy was enthusiastic. They noted that actively playing the role, helped in practicing and internalizing how “to switch their speech”.

Conclusions: This new method of training clinicians to deal with the miscommunication with students seems even more successful, based of the participants’ feedback.

Take-home messages: Combining a proven methodology of role-playing and innovating approach to deal with communication problems seems promising. The active-learning technique in faculty development sessions can be a suitable answer to instructors’ needs.

4M4 Surgical teaching fellows: the way ahead for education in surgery?
Cocker DM*, Nesargikar PN, Lengyel J, Hassell A (Keele School of Medicine, Keele University, Keele ST5 2EF, United Kingdom)

Background: Recent years have seen the emergence of the “Surgical Teaching Fellow” (STF) in the UK. STF posts are stand-alone with a large educational remit. Little is known about the structure and funding of these posts and we wished to investigate STFs in the West Midlands, and to ascertain the views of post-holders.

Summary of work: Structured telephone interviews were conducted with all 10 STFs within the West Midlands, UK, working at six different educational/NHS establishments.

Summary of results: Respondents were 4-9 years post-graduation, three were female. They reported teaching medical and surgical skills and topics to medical students and postgraduates. 7/10 posts included clinical (service) sessions, and 3/10 had on-call commitment. All posts were stand-alone. 6/10 STFs felt well-supported and 9/10 were encouraged to develop research projects. All fellows were studying for teaching qualifications, felt these jobs were beneficial, allowed them to learn new teaching methodologies and develop their teaching skills.

Conclusions: STF posts are an opportunity to develop both teaching skills and scholarship in medical education. These posts could be strengthened by closer allegiance to surgical training-programmes and by development of networks of STFs and their supervisors. STFs will be ideally placed to promote the development of undergraduate and postgraduate surgical education.

Take-home messages: Surgical Teaching Fellows are an innovative new post which can develop teaching skills and improve the quality of surgical education.

4M5 A basic teaching qualification: also feasible for medical students?
F.M.Boo*, A.W.Sillius, W.M.Molenaar (Institute for Medical Education University Medical Centre Groningen, PO box 196, Groningen 9700 AD, Netherlands)

Background: A Basic Teaching Qualification (BTQ) for higher education is widely introduced in the Netherlands. Therefore we developed a two years training program (A.W.Sillius et al.). Besides teachers, medical students also expressed their interest. We choose to honour their request, if it would be feasible for them to reach the required BTQ learning outcomes. In comparison with teachers the main issues would be that students have 1) less opportunities to practice their educational competences and 2) difficulties scheduling to attend these extracurricular courses.

Summary of work: We developed a students’ training program similar to the teachers program. However, to solve the above issues we explored teaching opportunities for the students, we spread the program over 4 years and concentrated some of the courses in summer schools.
Summary of results: A pilot group of twelve students started in 2008. They already (plan to) practice teaching competences such as being tutor, teaching assistant, developing courses for teaching first-aid at elementary schools. On average ten participants attended six scheduled courses and two summer schools. Due to word-of-mouth advertising students report themselves as candidates for the next group.

Conclusions: Based on the attendance and the students’ progress thus far a BTQ for students in a four years program appears feasible.

4N WORKSHOP

Education for Quality Assurance and Improvement in the Americas and Iberian Peninsula
Pablo A. Pulido M.*, Margarita Barón Maldonado* (PAFAMS/FEPAFEM, Caracas, Venezuela; Universidad de Alcalá Henares, Madrid, Spain)

This session provides a picture of the current situation with regard to medical education in the Americas and the Iberian Peninsula. Particular attention is focused on efforts to enhance not only the quality of medical education itself through traditional means like accreditation and certification but also the teaching of quality improvement and patient safety techniques to medical students in classroom and practicum settings in order to better meet the needs of patients and society. The aim of this session is also to present and discuss models of the competencies and attributes of the physician of the 21st Century and the requirement for both clinical and non-clinical expertise. The session aim is to arrive at conclusions to orient and align action agendas.

4O WORKSHOP

Quality assurance considerations for high stakes examinations
Gail E. Furman*, Sydney Smee*, Crystal Wilson (1 National Board of Medical Examiners; 2 Medical Council of Canada; 3 National Board of Osteopathic Medical Examiners, National Center for Clinical Testing, 3750 Market Street, Philadelphia 19104, United States)

Background: Quality assurance in high stakes examinations using standardized patients is vital to ensuring that the standardized patient (SP) performances are sufficiently accurate and standardized, and that the evaluators completing the checklists and scales used for scoring do so correctly and consistently. This workshop addresses quality assurance methods applied to the non-scoring aspects of these high stakes examinations.

Intended outcomes: This workshop will prepare participants to consider the key elements of quality assurance as applied to case development, SP and evaluator training, monitoring, and administrative aspects of implementing SP-based examinations.

Structure: After an introduction to the process of quality assurance (QA), participants will be divided into small groups to develop QA processes for case development, training and monitoring SPs, and for administrative and security measures. The groups will reconvene to discuss approaches for each purpose.

Intended audience: This workshop is intended for those using SPs for teaching and assessment who want to implement quality assurance measures related to case development, SP training, examination administration and post-examination processes.

Level of workshop: All

4P WORKSHOP

Writing for publication
William C. McGaghie*, Diane B. Wayne* (Northwestern University Feinberg School of Medicine, Augusta Webster MD Office of Medical Education and Faculty Development, 1-003 Ward Building, 303 East Chicago Avenue, Chicago, IL 60611-3008, United States)

Background: The purpose of this workshop is to inform and engage participants about practical procedures involved in writing for publication. These procedures include clarifying one’s message, identifying the intended audience, selecting an outlet to reach the audience, reporting conventions for different types of studies, crafting a manuscript, submitting a manuscript for peer review, and navigating the publication process.
Intended outcomes: The goal is to make writing for publication transparent. Participants will create a step-by-step plan to get their scholarship written, submitted to a peer reviewed journal, and published.

Structure: Introductory framing statements, presentation about the steps involved in the publication process for peer reviewed journals, preparation of an individual or group publication plan by workshop participants.

Intended Audience: Young or inexperienced medical education scholars

Level of workshop: Beginners

4Q WORKSHOP
A practical guide to managing trainees in difficulty
Alistair Thomson*, Elizabeth Spencer*, Peter Harrison* (National Association of Clinical Tutors (NACT), Norfolk House East, 499 Silbury Boulevard, Milton Keynes MK9 2AH, United Kingdom)

Background: NACT UK represents Directors of Medical Education (DMEs) who have responsibility for managing education to trainees in hospitals in the UK. They also identify and manage remedial training for Doctors in Difficulty (DiD). With better supervision and assessment trainees are being identified earlier with a range of problems and difficulties that with prompt identification can be remediated without damaging trainee's prospects or patient care.

Intended outcomes: Issues of professional competence are usually the most common and pertinent for patient safety. For many DMEs the identified trainees tend to have a problem at the more complex end of the spectrum. However a stratified approach can lead the way to successful management and a good outcome. The costs of failure at any level of training cannot be underestimated.

Structure: The workshop will allow participants to explore issues of identifying the DiD and discuss methods to manage remediation and strategies to avoid failing trainees and will be based around small groups to allow time to discuss scenarios.

Intended audience: Who should attend: All trainers and educational supervisors who have a responsibility for identifying trainee's needs and difficulties.

Level of workshop: All

4R WORKSHOP
Developing qualitative research in medical education: a focus on using observation as a research tool in clinical settings
Trudie Roberts*, Sue Kilminster*, Naomi Quinton*, Miriam Zukas* (University of Leeds, Medical Education Unit, Lifelong Learning Institute, Leeds LS2 9NL, United Kingdom)

Background: There is a recognised need to develop medical education research and to integrate theoretical understandings with empirical work. We believe that if this is to happen, researchers need to discuss their methodologies in much more detail than is possible in short communications and many journal papers. Therefore this is a methodological discussion workshop with particular focus on developing the use of observations in clinical settings. We will use our own work on performance and learning in clinical settings to consider specifically: planning and standardising observations; recording observations; addressing challenges resulting from research team members’ different perspectives; ethical issues. Analysis and interpretation of results will be discussed more generally.

Intended outcomes: Participants will be able to consider methodological issues both specific to observations and more general issues of analysis, interpretation and synthesis of research data

Structure: The workshop will begin with a brief introduction and then give participants an experience of observation (using a DVD). This will followed by group and plenary discussion and will include an interactive presentation of the methodological issues that arose in our research project.

Intended audience: Researchers interested in discussing and developing qualitative research in medical education.

Level of workshop: All
4S WORKSHOP

Is effective education really entertainment? Advanced teaching skills
Shirley Lee*, Gloria Kuhn* (Faculty of Medicine, University of Toronto, Canada and Faculty of Medicine, Wayne State University, Michigan USA, Rm 206 - 600 University Avenue, Toronto, Ontario M5G 1X5, Canada)

Background: If you are looking for new techniques to freshen up your teaching or innovative strategies to enhance knowledge transfer, then this is the workshop for you. Whether you are a new teacher or an “old dog” at teaching, strategies for success depend on identifying your strengths as a teacher, as well as understanding potential barriers to adapting new teaching techniques. This workshop will help teachers to understand and identify new instructional strategies to use in their own practice settings. In addition, advanced teaching strategies to help learners in difficulty will also be reviewed.

Intended outcomes: The goals of this workshop are to help participants: 1) identify strategies to become a content expert 2) implement new instructional strategies to be more effective 3) develop strategies for learners having problems 4) polish their teaching style to enhance education delivery.

Structure: This interactive workshop will involve small group work and demonstration of a number of both large and small group techniques by the workshop leaders to demonstrate advanced teaching techniques.

Intended audience: Health Practitioners involved in teaching

Level of workshop: Intermediate

4T WORKSHOP

Tools for supporting the international community of medical educators
M. Brownell Anderson*, John J. Norcini* (Foundation for Advancement of International Medical Education and Research, 3624 Market Street, 4th Floor, Philadelphia 19104, United States)

Background: Globalization and the internet present opportunities for medical educators around the world to share information about their educational programs. Sharing this information facilitates education, assessment, quality improvement, collaboration, regulation, and student-faculty exchange. Seven resources will be described: International Medical Education Directory, Directory of International Opportunities, Directory of Organizations that Recognize/Accredit Medical Schools, “Snapshots”, MedEdPORTAL, Masters of Medical Education programs, and the Curriculum Directory.

Intended outcomes: Participants will: (1) explore the resources and consider uses for each; (2) consider alternate sources of information for each resource; (3) contribute to the information available in each resource; (4) identify points for collaboration and networking.

Structure: (20 min) Overview of each database; (50 min) Working in groups of 3-4 with case studies, participants will use the different tools to consider issues such as 1) experiences for students at international medical schools, 2) exploring available learning resources at various medical schools, and 3) comparing the characteristics of educational programs of medical schools around the globe; (20 min) Groups report back and general discussion of the tools.

Intended audience: Those interested in using web based tools to share information about their educational programs and discovering information about other schools’ programs

Level of workshop: All

4U WORKSHOP

Setting standards for high fidelity simulation centres
Bryn Baxendale* (National Association of Medical Simulators & NHS Education for Scotland, c/o Trent Simulation and Clinical Skills Centre, QMC Campus, Nottingham University Hospitals NHS Trust, Derby Road, Nottingham NG7 2UH, United Kingdom)

Background: The National Association of Medical Simulators (NAMS) represents multiprofessional healthcare educators and researchers in the UK who are involved in utilising simulation. NAMS in conjunction with NHS Education for Scotland (NES) are developing a set of standards and quality
assurance processes that will be relevant for existing and new ‘simulation centres’ nationally. This workshop aims to develop this project further by inviting the broader perspective and expertise of AMEE participants.

**Intended outcomes:** To agree the value of standards applicable to centres / institutions employing simulation in healthcare education.

To define core standards and quality assurance processes that can subsequently be piloted on a voluntary basis.

To identify other stakeholders within healthcare education who should be invited to contribute to this theme of work along with consideration of how best to engage them.

**Structure:** Brief outline presentation and circulation of the draft standards developed to date by the NAMS / NES collaboration (10 mins). Division into small groups according to professional backgrounds and simulation experience and facilitated debate and feedback on key themes and the draft standards / QA framework (50 mins). Synthesis of outcomes and identification of next steps (30 mins).

**Intended audience:** Experienced educators and administrators with significant involvement with the development or implementation of simulation-based education.

**Level of workshop:** Advanced

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**4V WORKSHOP**

**Curriculum development: putting theory into practice**

Helen Fernandez*, Reena Karani*, David Thomas*, Sara Bradley*, Nisha Rughwani*, Emily Chai*, Rainier Soriano*, Audrey Chun*, Karen Mann* (Mount Sinai School of Medicine and Dalhousie University, One Gustave L. Levy Place Box 1070, New York, United States)

**Background:** Medical educators are frequently called upon to develop new 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 sound educational experiences.

**Intended outcomes:** This interactive workshop is designed for an international audience of educators interested in developing their skills in curriculum design. By the end of the session, faculty will 1) become familiar with the fundamental theories of learning, 2) gain practical skills in a stepwise approach to curriculum development, 3) practice developing a model curriculum using the stepwise approach and 4) reflect upon their own curricula and share strategies for improvement and change.

**Structure:** We will use a variety of instructional methods including small group practice, facilitated discussions and large group presentation during this workshop.

**Intended audience:** It is intended for educators at all levels and no prior experience is required.

**Level of workshop:** All

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**4X POSTERS: Curriculum themes (1)**

**4X1 Teaching public health in medical schools: a case study in three universities in Paraná**

Campos JJ*, Elias PEM, Cordoni Jr L (University State of Londrina, Rua Robert Koch n. 60, Londrina 86039550, Brazil)

**4X2 Learn health promotion from extracurricular activity**

Ronnaphob Uaphanhasath* (Faculty of medicine, Chiang Mai university, 110 Intawaroros Road, T. Sripum, A. muang, Chiang Mai 50200, Thailand)

**4X3 Health Promotion Medical School**

Wanchai Ruppanharun* (Srinakharinwirot University, 114 Sukhumvit Soi 23 Wattana, Bangkok 10110, Thailand)
4X4 Integrating prevention in the medical curriculum – the role of medical students and nurses
Meshkibaf MH, Khademi S, Ekrahi M*, Majidi F, Hourang MH, Miltadpour B, Motazedian MH (Fasa University of Medical Sciences, Fasa 7461686688, Iran)

4X5 Contribution of medical students to health promotion during electives: a case study
Victoria A Bennett*, Sarah Elsabagh, Ann Wylie [Department of General Practice and Primary Care, King's College London School of Medicine, S Lambeth Walk, London SE1 6SP, United Kingdom]

4X6 Evaluation of on the job learning for health-care associated infection prevention
Kistiwattana, J.*, Ponpinit, N. (Undornthani Medical Education Center, Undornthani Hospital, 33 Patniyom Rd, Meung 41000, Thailand)

4X7 Education and control of sexually transmitted diseases (STDs) – picture of the situation of adolescents in a school in Southern Brazil
Caroline Gerhardt, Silvana Salgado Nader, Denise Neves Pereira, Paulo Nader* (Universidade Luterana do Brasil - ULBRA, Rua Farroupilha, 8001- Bairro São José, Canoas, RS 92425-900, Brazil)

4X8 Students' attitudes toward elderly people
Keshvar Mohrikh*, Farajzadegan Ziba, Khadv Zade Talat, Hosseini Nazafarin (Istahan University of Medical Science, Nursing & Midwifery Faculty, Hezarjarib Street, Istahan 81746-73461, Iran)

4X9 Use of active learning teaching modalities to enhance ethnogeriatrics training in medical education
Marisol S. Sanchez-Lance*, Richard V. Sims, Stanford Massie (University of Alabama at Birmingham, 201 CH 19-933 19th St. South Rm 219, Birmingham 35294, United States)

4X10 Stigma of illness: a trans-disciplinary approach to change the perception and attitude of medical students
Jen-Hung Yang*, Jia-Yu Chen, Chi-Wan Lai (School of Medicine, Chung-Shan Medical University, No.110, Sec.1, Jianguo N. Road, Taichung 402, Taiwan)

4X11 Adolescent medicine curriculum at Faculty of Medicine, Universiti Teknologi MARA, Malaysia
Ainam Sher Malik*, Ruksana Hussain Malik (Universiti Teknologi MARA, Faculty of Medicine, Level 20, Tower 1, S&T Complex, Shah Alam 40450, Malaysia)

4X12 Learning about the patient’s and carer’s perspective in the medical response to intellectual disability
Peter Davy* (NSW Institute of Medical Education and Training, Building 12 Gladesville Hospital, Victoria Rd, Gladesville 2111, Australia)

4X13 Problems of training for primary health care in the university atmosphere
Ilhami Unluoglu*, Murat Unalacik (Estisehir Osmangazi University, Medical Faculty, Dept. of Family Medicine, Estisehir 26480, Turkey)

4X14 CAM-related content of Canadian postgraduate medical program: a pilot study
Isabelle Gaboury*, Antoine Bourgeois, Loic Chartier, Marina Claracq, Benedict Hébert, Jean-Francois Provencher, Francis Rivest, Maria Verhoeft*, Marianne Xignnese (Department of Community Health Sciences, University of Calgary, 3330 Hospital Drive NW, Calgary T2N 4N1, Canada)

4X15 Information literacy competencies of health care professionals in Ireland
Kate Kelly* (Royal College of Surgeons in Ireland, Mercer Library, Mercer Street, Dublin 2, Ireland)

4X16 Integration of telemedicine into medical study programmes
Kralova E*, Kukurova E, Bergendi L (Institute of Medical Physics, Biophysics, Informatics and Telemedicine, Faculty of Medicine, Comenius University, Sasinikova 2, Bratislava 84105, Slovakia)

4X17 Neurology for Non-Neurology Residents: Working Toward a National Canadian Curriculum Consensus
Peter C Tai*, Julia Hopyan*, Jason Lazarou*, Daniel Panisko* (University Health Network, #446, 5 West Wing, Toronto Western Hospital, 399 Bathurst St, Toronto M5T 2S8, Canada)
4X18 Teaching medial students how to do research
Murt Ahmet*, Khanivey Shahin, Sana Salmaan, Davaris Nikos (EMSA [European Medical Students' Association] and EMS Council [European Medical Students' Council])

4Y POSTERS: Simulation

4Y1 Students teach students: development and evaluation of medical emergency training provided by student tutors with realistic high tech simulators
Benjamin J. Kober*, Jennifer Jerges, Kristian-Christos Ngasmit, Caju Rohrbach, Carola-Eileen Ruiner, Daniel Schäfer, Bertram Schaedle, Nicole Siegert*, Marcus Rall* (Tuebingen Patient-Safety and Simulation CentreTuePASS, Silcherstr. 7, Tuebingen 72076, Germany)

4Y2 The Norwegian mobile in-car ambulance simulation program for training EMS providers (KIA)
Jen Barstein*, Stefan Kutzsche (Norwegian Air Ambulance Foundation, Holterveien 24, Drøbak N-1440, Norway)

4Y3 Critical Care Advanced Training Course with state-of-the-art methodologies
José Manuel Pinzón*, Juan Chaves, David Riley, Javier Vázquez (Javante Foundation, Parque Tecnológico de Andalucía C/ Marie Curie, 16 Edificio Possibilia 2005 - 1º Planta 29590, Campanillas (Malaga) 29590, Spain)

4Y4 Acute care simulation: experiences with final year medical students
Haydar Hussein, Jonathan Harikrishnan, Sophie Butterworth, Breanna Winger, Ian Forrest, Gillian Vance, Roger Searle* (Medical Sciences Education Development, Newcastle University, Framlington Place, Newcastle upon Tyne NE2 4HH, United Kingdom)

4Y5 Engaging Postgraduate Program Directors in medical simulation
Ronald Gottesman*, Kevin Lachapelle, Francesco Ramadori, Linda Crelinsten (Montreal Children’s Hospital/MUHC, McGill Medical Simulation Centre and McGill Centre for Medical Education, C-808, 2300 Tupper, Montreal, Quebec H3H 1P3, Canada)

4Y6 Objective assessment of laparoscopic surgical skill: dual-task approach
George Pachev*, Adam Meneghetti, Valentyna Koval, Bin Zheng, Karim Qayumi (University of British Columbia, Koerner Pavilion, UBC Hospital, S173-2211 Wesbrook Mall, Vancouver V6T 1B5, Canada)

4Y7 Simulation – a chance to learn emergency care
Maija Hupli*, Merja Nurminen, Leena Salminen (University of Turku, Department of Nursing Science, Turku 20014, Finland)

4Y8 Developing a library of virtual palpable objects to complement hands-on clinical training
T Kinnison*, N Forrest, S Frean, S Baillie (UVE, The Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield AL9 7TA, United Kingdom)

4Y9 Interactions which contribute to the quality of analyses in simulation training debriefings
Klas Karlgren*, Anders Dahlin, Sari Ponzer (LiME & Department of Clinical Science and Education, Berzelius väg 3, Stockholm 171 77, Sweden)

4Y10 The effectiveness of simulation based training and traditional approach on students’ self confidence in providing IUD services
F Erfanian, T Khadivzadeh* (Montashyeh Hospital, Women Health Research Center, Mashhad University of Medical Sciences, Mashhad 9137913199, Iran)

4Y11 Using a model of deliberate practice to develop a fibreoptic intubation-training package for anaesthetists at a Scottish regional airway centre
S Bolton*, S Edgar, G Price (St John’s Hospital, Howden Road West, Livingston EH54 6PP, United Kingdom)
**4Y12**  High fidelity ‘stimulation’ for the clinical teacher  
Huon Snelgrove*, Greg McAnulty, Nicholas Gosling, Philip Newman*, Emma Evans* (St George’s Healthcare, NHS Trust, Blackshaw Rd, Tooting, London SW17 0QT, United Kingdom)

**4Y13**  Assessment of trainee doctors’ performance by audit of medical records in order to obtain information to develop a simulated training program  
Ullikka Nyaard, Henriette Sarve Nielsen, Ida Maria Schmiet, Karsten Nysom, Kjeld Schmiegelow, Anja Poulsen*, Jette Led Soerensen* (Rigshospitalet University Hospital, Pediatric Department, The Fertility Clinic, Juleane Marie Centre, Blegdamsvej 9, Copenhagen DK 2100, Denmark)

**4Y14**  Medical simulation in radiation oncology – preparing new radiation oncology residents for oncologic emergencies  
Nadia Laack*, Paul Brown, Torrey Laack (Department of Radiation Oncology, Mayo Clinic, 200 First St SW, Rochester 55905, United States)

**4Y15**  Learning pediatric health supervision: transferring the class to the simulator and to student  
Carla Benaglio, Astrid Valenzuela*, Janet Bloomfield (Clinica Alemana Universidad del Desarrollo, Av Kennedy Interior 5436, depto 54, Vitacura, Santiago 7710162, Chile)

**4Y16**  Models for teaching deep surgical knotting – a study at the Udonthani hospital, Thailand  
Wadwilai Chalapati* (Undorthani Medical Education Center, Undorthani Hospital, 33 Potniyom Rd., Meung 41000, Thailand)

**4Z POSTERS: Patients and contexts for clinical teaching**

**4Z1**  Attitude and perception of patients about medical student during physician consultation  
Phongsak Dandechea*, Charoenporn Kaewlaead (Department of Internal Medicine, Songkanagarind Hospital, Prince of Songkla University, Songkhla 90110, Thailand)

**4Z2**  “We cannot find enough patients….”– is there truth behind this? A cross-sectional spot-survey of patients suitable for medical teaching in a District General Hospital  
Anup Mathew*, Atiq-ur Rehman (Northern General Hospital, Sheffield Vascular Institute, Herries Road, Sheffield S5 6EE, United Kingdom)

**4Z3**  Patients’ sense of identity in medical education. Phenomenological analysis  
Emma McLachlan*, Etienne Wenger, Nigel King, Tim Dornan (Hope Hospital, Universities of Manchester and Huddersfield, UK, Stott Lane, Salford, Manchester M6 8HD, United Kingdom)

**4Z4**  Female Emirati patients’ experience with and attitudes towards medical students  
M Mclean*, S Al Ahbabi, M Al Ameri, M Al Mansoori, F Al Yahya, R Bernsen (United Arab Emirates University, Faculty of Medicine and Health Sciences, PO Box 17666, Al Ain, United Arab Emirates)

**4Z5**  Availability, suitability and willingness of medical inpatients to participate in undergraduate clinical teaching. Is there a crisis?  
Walters G*, Ng Yi-Y, James A (George Eliot NHS Trust, Nuneaton, College Street, Wawickshire CV10 7DU, United Kingdom)

**4Z6**  The demise of the firm – what is happening to clinical attachments?  
Anja Timm*, Faith Hill (School of Medicine, University of Southamptton, Division of Medical Education, Boldrewood Campus, Southampton S016 7PX, United Kingdom)

**4Z7**  Evaluation of a logbook to support self-directed learning in the workplace  
Stephanie E Pierce, Vicki HV Dale, Paul Mahoney, Richard Hooker, Stephen A May* (The LVE Centre, The Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield AL9 7TA, United Kingdom)

**4Z8**  Barriers to workplace learning  
Woollard A, Martin C, Lesley Pugsley* (School of Postgrad Med and Dental Education, Dept Med Education, Wales College of Medicine, Cardiff University, Heath Park Cardiff CF14 4XN, United Kingdom)
Evaluation of work based learning
Mark Regi*, Juliette King*, Mubbina Hashmi*, Bal Bajaj*, Samar Aboul Soud*, Tok Osunrinade*, Charlotte Lawthorn* (Cardiff University, School of PG Medical and Dental Education, 8th and 9th Floors, Neuadd Meironnydd, Heath Park, Cardiff CF14 4YS, United Kingdom)

Assessing competency in clinical skills using T: DOCs (Teaching, assessment and feedback by direct observation of clinical skills)
Paul Gazzani*, Chia-Tsyh Tan, Anne-Marie Feely, Emma Esquillant, Birgit Fruehauf, Tim Rattay, Jamie Roebuck, Uzma M. Satti, Vinoth Patel (Warwick Medical School, Institute of Clinical Education, The University Of Warwick, Gibbet Hill Road, Coventry CV4 7AL, United Kingdom)

Role of different methods on a multidisciplinary primary care-based clerkship
Domingues Rosângela Cuvo-Leite, Amaral Eliana*, Bicudo-Zeferino, Angelica (State University of Campinas, Rua Alexander Fleming 101, Campinas 13081-883, Brazil)

The challenges of assessing student performance in UBC senior clerkship electives
Cindy-Ann Lucky* and UBC MD UG Year 4 Lead Faculty (MD Undergraduate Programme, University of British Columbia, Gordon and Leslie Diamond Health Care Centre, 2775 Laurel Street, 11th Floor, Vancouver, B.C. V5Z 1M9, Canada)

MINICEX as assessment method in under graduate medicine
Tofangchiha, Shahnaz*, Mohseni, Fariba, Malekanrad, Hamid, Sheikachi, Babak (DDC Shariati Hospital Kargar Avenue, Educational Development Center, Tehran, 14117, Iran)

Assessment of the humanity competences in medical students in Taiwan
Chung-Sheng Lai*, Huie-Wen Angela Lo (Kaohsiung Medical University, No.100, Tzyou 1st Road, Kaohsiung 80756, Taiwan)

Video-based standardised physical examination – an interdisciplinary project at Heidelberg Medical School
Anke Simon*, Ina Weber, Jörg Miebach, Martina Kadmon, Sören Huwendiek, Thorsten Steiner (Children's University Hospital Heidelberg, Im Neuenheimer Feld 430, Heidelberg 69121, Germany)

Modified long case examination as comprehensive clinical skills assessment
Maleechat Sripipattanakul* (Khon Kaen Hospital, Medical Education Center, Srijan road, 40000, Thailand)

How valid are self- compared with expert-ratings of the Mini-Clinical Evaluation Exercises (Mini-CEX)?
Berendonk Ch*, Roggausch A, Montagne S, Jucker-Kupper P, Westkämper R, Giger M, Beyeler Ch (Institute of Medical Education, Inselspital 37A, Bein 3010, Switzerland)

Clinicians’ attitudes to the workplace based assessment of junior doctors’ communication skills
David Leeder* (Peninsula Medical School and SW Peninsula Deanery, Barrack Road, Exeter EX3 5DW, United Kingdom)

A trainer’s guide to MSF – how to make this work for your trainees
David Bruce, Elaine McNaughton, Emma Wilson*, Joan Sargeant (NHS Education for Scotland, Tayside Centre for General Practice, Postgraduate Unit, The MacKenzie Building, Kirsty Semple Way, Dundee DD2 4BF, United Kingdom)

Workplace-based assessment: an evaluation of the use of Surgical DOPS in the Intercollegiate Surgical Curriculum Programme
J D Beard, Anup Matthew* (Royal College of Surgeons, 35-43 Lincoln’s Inn Fields, London WC2A 3PH, United Kingdom)
4AA12 Video benchmarking of simulation based workplace assessments
Paul Sice*, Gemma Crossingham, Thomas Gale, Martin Roberts, Hiu Lam, Peter Davies, Jeremy Langton, Ian Anderson, Alison Carr (Plymouth Hospitals NHS Trust, Anaesthesia Recruitment Validation Group, Department of Anaesthesia, Theatres and Pain Management, Tavistock Road, Plymouth PL6 8DH, United Kingdom)

4AA13 Paediatric trainees’ experience of workplace based assessments
Damian Roland, Anna Davies-Muir, Caroline Brown*, Mary McGraw (Royal College of Paediatrics and Child Health, 5-11 Theobalds Road, London WC1X 8SH, United Kingdom)

4AA14 The effects of examiner performance feedback
Davies-Muir A, Davis L, Newell SJ, Muir G*, Lissauer T (Royal College of Paediatrics and Child Health, 5-11 Theobalds Road, London WC1X 8SH, United Kingdom)

4AA15 Recruitment and selection of evaluators in surgical assessment
Jeanett Oestergaard*, Jette Led Soerensen, Christian Riffbjerg Larsen, Bent Ottesen (Juliane Marie Center, Rigshospitalet University hospital, Blegdamsvej, afsnit 4221, Department of Gynecology and Obstetrics, Copenhagen 2100, Denmark)

4AA16 Peer and self-assessment of professional behaviours: a pilot study in a small group learning environment
Denise Thwaites Bee*, Patsy Stark (Academic Unit of Medical Education, University of Sheffield, 85 Wilkinson Street, Sheffield S10 2GJ, United Kingdom)

4AA17 Educational peer evaluation
Saad Al Qahtani, Thuraya Kattan*, Khalid Alharbi, Michael Seefeldt (SAME, King Abdulaziz Medical City, King Saud Bin Abdulaziz University For Health Sciences, College of Medicine, Riyadh 6438, Saudi Arabia)

4AA18 The results of assessment by teaching staff and medical students’ peers during the practice of breaking bad news
Kullawan Chaicharoenpong*, Kanokkorn Sawasdichai, Sampop Sarakul, Thitikorn Krisorakul (Prapokklao medical education center (MEC), Prapokklao Hospital (PKK), Leab-nern Road, Tumbol Wat-mai, Meung District, Chanthaburi Province, Chanthaburi 22000, Thailand)

4AA19 Drawing the line: a qualitative analysis of the words doctors use to judge the acceptability, and unacceptability, of their peers’ clinical practice
Alison Sturrock*, Lucinda Etheridge, Katherine Woolf, Peter Raven, Katharine Bousisicot, Liam Conlon, Jane Dacre (Academic Centre for Medical Education, University College London, 4th Floor Holborn Union Building, Archway Campus, Highgate Hill, London N19 5LW, United Kingdom)

4AA20 Evaluation of clinical skills teaching and learning
Pamela Bradley* (Peninsula Medical School, Clinical Skills Resource Centre, The John Bull Building, Research Way, Plymouth PL6 8BU, United Kingdom)

4BB POSTERS: Specialist training

4BB1 Trainees’ knowledge and opinion of the annual review of competency progression
Helen Goodyear*, David Wall (West Midlands Workforce Deanery, St Chad’s Court, 213 Hagley Road, Birmingham B16 9RG, United Kingdom)

4BB2 Discrepancy between consultant and peer assessment in specialist registrars presentations: A field study
A Abdulla*, U Umasankar (Princess Royal University Hospital, Farnborough Common, Orpington, Kent BR6 8ND, United Kingdom)

4BB3 The opinion of residents: satisfaction and expectations of the specialized training process
4BB4 Specialist training quality management in an acute care hospital
E Sánchez González*, JL Cura Rodríguez, CToro Pérez (Hospital Basurto, Osakidetza/Servicio vasco de salud, Avenida Montevideo-18, Bilbao 48013, Spain)

4BB5 Factors impacting on alienation and engagement in pathology registrars
J Bezuijenhout*, M van Heusden, F Cilliers, E Wasserman, V Burch (Stellenbosch University / NHLS / FAIMER, PO Box 19063, Tygerberg, Cape Town 7505, South Africa)

4BB6 The major outcomes of a Postgraduate Diploma in Transfusion Medicine
Louw VJ*, Nel MM, Hay J. (Division of Clinical Haematology, Department of Internal Medicine, University of the Free State, PO Box 339(G2), Bloemfontein 9301, South Africa)

4BB7 Definition and quantification of the attitudes of resident physicians. Definition and quantification of excellence and intermediate grading in the evaluative classification of resident physicians
Raquel Guerrero, Jaime Nevado, Juan D. Tutosaus*, Remedios Dorado, JM de la Higuera, Joseba Barota (Hospitales Universitarios Virgen del Rocío, Edificio de Gobierno, Av. Manuel Siurot, s/n., Sevilla 41013, Spain)

4BB8 Assessing medication reconciliation practices in nephrology fellows’ continuity clinics: a performance improvement project
Ziad El-Zoghby*, Suzanne Norby (Mayo Clinic, 200 First Street SW, Rochester 55901, United States)

4BB9 Quality of implementation of study program of continuing education in residency
Jevgenija Livdane*, Zane Trupu (Riga Stradiņš University, 16 Dzirciema street, Riga LV-1007, Latvia)

4BB10 Hypothetic deductive reasoning to make diagnosis using UpToDate or FIRSTConsult: A randomized controlled trial
Masoume Faghankhani, Ladan Sayyah Ensan*, Seyyed-Foad Ahmad, Hamid Baradarani (Iran University of Medical Sciences, Medical Student Research Committee, Education and Development Center, Junction between Noori Highway and Chamran Highway, Beside Milad Tower, Hammat Highway, Tehran 14155-5983, Iran)

4BB11 Held in transition, not lost in translation: creation of Surgical Faculties to implement a new postgraduate surgical curriculum.
Jacqueline Joyce (Presenters: Humphrey Scott*, Pam Shaw*) (Royal College of Surgeons of England, 7 Bermondsey Street, KSS Deanery, University of London, London SE1 2DD, United Kingdom)

4BB12 Use of iBooks in surgical residency training
Anne Vinsel*, Alan J. Smith*, Jay Agarwal, Leigh Neumayer (Office of Graduate Medical Education, University of Utah School of Medicine, 1C412 University Medical Center, 30 North 1900 East, Salt Lake City, Utah 84132-2115, United States)

4BB13 Trends in operative training opportunities for junior general surgical trainees in England
Toll EC*, Davis CR, Pothish DD (North Bristol NHS Trust, Frenchay Park Road, Bristol BS16 1LE, United Kingdom)

4BB14 Changing from quantity to focus and time when learning basic surgical skills
Stefan Redeem*, Pär Myrelid (University Hospital of Linköping, Surgical department, Linköping SE-58185, Sweden)

4BB15 From intern to generalist – Basic surgical skills training and competency
Frank Peters* (Department of Family Medicine, University of Pretoria, Faculty of Health Science, Pretoria 0001, South Africa)

4BB16 Challenges facing postgraduate psychiatry training
Sheraz Ahmad*, Michael Maier, Tom Sensky (London Deanery, Stewart House, 32 Russell Square, London WC1B 5DN, United Kingdom)
POSTERS: International dimensions

4CC1 International clinical experiences – which students go abroad?
  Biller S*, Giesler M (University Freiburg, Department of Education, Elsässer Straße 2 m, Freiburg 79110, Germany)

4CC2 International comprehensive clerkship for undergraduate medical programme
  Tri Nur Kristina*, Nurkukuh*, Anon Surendro*, Soejoto* (Diponegoro University (FMDU), Faculty of Medicine, Semarang, Indonesia)

4CC3 I came, I saw, I reflected: a qualitative study into learning outcomes of international electives for Japanese and British medical students
  Hiroshi Nishigori*, Takashi Otani, Simon Plint, Minako Uchino, Nobutaro Ban (International Research Center for Medical Education, The University of Tokyo, 7-3-1, Hongo Bunkyo-ku, Tokyo 113-0033, Japan)

4CC4 An experience of ‘instant disability’: raising awareness and offering support in a cohort of overseas pharmacists; a pilot session
  McIntosh, T.C.*, McHattie, L.W., Diack, H.L (School of Pharmacy and Life Sciences, The Robert Gordon University, 10 Schoolhill, Aberdeen AB10 1FR, United Kingdom)

4CC5 Evaluation of the health link which exists between Birmingham Children’s Hospital (BCH), UK and Queen Elizabeth Central Hospital (QECH), Blantyre, Malawi
  Victoria Walker, Samantha Lissauer*, Elizabeth Molyneux, Amanda Goldstein (Birmingham Children’s Hospital, Steelhouse Lane, Birmingham B4 6NH, United Kingdom)

4CC6 Tutoring international students – the importance of cultural awareness training
  Jacqueline Daly*, Judith Strawbridge, Alice McGarvey (Royal College of Surgeons in Ireland, 123 St Stephen’s Green, Dublin 2, Ireland)

4CC7 Teaching histology and histopathology as a surgical registrar in Bulawayo, Zimbabwe
  Seema Biswas* (Kent and Sussex Hospital, Mount Ephraim Road, Tunbridge Wells, Kent TN4 8AT, United Kingdom)

4CC8 Cultural influences on medical curriculum innovation
  Jippes M*, Majoor G (Dept. of Educational Development & Research, Faculty of Health, Medicine and Life sciences, Maastricht University, POB 616, Maastricht 6200 MD, Netherlands)

4CC9 Alternating skills training and clinical clerkships to ease transition difficulties
  EA van Heill*, J Cohen-Schotanus (University Medical Center Groningen and University of Groningen, Antonius Deusinglaan 1, Groningen 9713 AV, Netherlands)

4CC10 Gender and country of primary medical qualification does affect performance in postgraduate examinations
  A R Bowhay*, S Watmough (School of Medical Education, Centre for Excellence in Teaching and Learning, The University of Liverpool, Cedar House, Ashton Street, Liverpool L69 3GE, United Kingdom)

4CC11 Medical Communication Assessment Project (M-CAP) with International Medical Graduates at the University of Calgary
  David Watt*, Deidre Lake*, Claudio Violato, Lubna Baig (Medical Communication Assessment Project, University of Calgary, Faculty of Medicine, 3330 Hospital Drive NW, Calgary, Alberta T2N4N1, Canada)

4CC12 Clinical communication for international students in the UK undergraduate curriculum
  James Maurice*, Kelechi Eseonu*, Catherine Wedderburn*, Karen Simpson* (College of Medicine and Veterinary Medicine, 49 Little France Crescent, Edinburgh University Medical School, The University of Edinburgh, The Chancellor’s Building, Edinburgh EH16 4SB, United Kingdom)
4CC13 Effective model of international collaboration
I.R. Kulmagambetov, F.N. Nurmanbetova*, Sh.S. Kalyyeva, A.S.Kalina (Karaganda State Medical University, 40, Gogolya street, Karaganda 100000, Kazakhstan)

4CC14 An e-learning module to improve language related communication skills in health
M.Kemal Alimoglu*, Ugur Bilge (School of Medicine Department of Biostatistics and Medical Informatics, Akdeniz University, Antalya 07059, Turkey)

4CC15 The Glasgow-Kaohsiung corpus of academic medical English
John Corbett*, Peih-ying Lu (Department of English Language, University of Glasgow, 12 University Gardens, Glasgow G12 8QQ, United Kingdom; Kaohsiung Medical University, Taiwan)

4CC16 Factors predicting the success of international medical graduates who train in residency programs in Québec, Canada
Anne-Marie MacLellan*, Carlos Baiovsky, Éric Drouin, Sylvie Leboeuf (Collège des médecins du Québec, 2170 boulevard René Lévesque Ouest, Montréal, Québec H3Y2Y2, Canada)

4CC17 Providing International Medical Graduates with advanced training and support for licensure
Elizabeth Bannister*, John Campbell, Lisa Fleet, Fran Kirby (Professional Development & Conferencing Services, Faculty of Medicine, Memorial University, St. John’s A1B 3V6, Canada)

4CC18 Characterization of a sample of Venezuelan medical graduates seeking postgraduate residencies in the United States of America
Uzcategui Z*, Dueñas JC, Perez-Gonzalez JF, Patrño M (Ciudad universitaria, Centro de Investigación y Desarrollo de la Educación Médica (CIDEIM), Escuela de Medicina “Luis Razetti”, Facultad de Medicina, Universidad Central de Venezuela, Los Chaguaramos, Caracas 1050, Venezuela)

4CC19 Is the Erasmus a useful program for medical students? What can we change in order to make it more suitable in the context of Italian medical education?
Veíra Azevedo Telma Susana*, Valsamidi Christina* (Prima Facolta di Medicina e Chirurgia; Policlinico Umberto primo; UNIVERSITÀ DELI STUDI DI ROMA “LA SAPIENZA”, Viale Regina Elena 324; presso: Dipartimento di Medicina Sperimentale, [prof.Snelgrove Huon], Centro di Didattica Multimediale, Palazzo “ex-scre”), Rome 00161, Italy)

4CC20 Making the transition to the UK workplace: a qualitative study with overseas doctors
Charlotte Kergon*, Jan Illing, Gill Morrow, Bryan Burford (Northern Deanery, NHS North East Education/ Newcastle University, 10-12 Framlington Place, Newcastle upon Tyne NE2 4AB, United Kingdom)

4DD POSTERS: Curriculum evaluation

4DD1 Bridging the gap in the internship
Valdes Roberto Bollela*, José Lucio Martins Machado, Valéria Peixeiro Machado, Joaquim Edson Vieira (Universidade Cidade de São Paulo - UNICID, Rua Cesario Galeno 448, Tatuapé, São Paulo 03071-00, Brazil)

4DD2 How effective is our teaching of rheumatology to medical students?
Jason Balgi, Rodger Laurent* (Royal North Shore Hospital, St Leonards, Sydney 2065, Australia)

4DD3 Medical Students Survey: addressing educational shortcomings with empirical data
Andréas O’Neil*, Maria Ehlin Kolk*, Yosef Tyson* (Medicine Studerandes Förbund, Box 5610, Stockholm 114 86, Sweden)

4DD4 Knowledge about local anesthetics in odontology students
R. Guzmán Alvarez*, A.E. Campos Sepúlveda, A.A. Martínez González (Universidad Nacional Autonoma De Mexico, Cerro De La Estrella 109 - 3 Col. Campestre Churubusco, Mexico DF 04200, Mexico)

4DD5 Knowledge management in internal quality assessment
Pattana Kaewpratit* (Buddhachinaraj Hospital, School of Medicine, 90 Sthammitipidok Road, Ampur Muang, Phitsanulok 65000, Thailand)
4DD6 Effects of performance outcomes
Morcke AM*, Elka B (Centre for Medical Education, Aarhus University, INCUBA Science Park, Brendstrupgaardsvej 102, Aarhus 8200, Denmark)

4DD7 The attitudes and viewpoints of the medical graduates on the basic sciences courses at Kashan University of Medical Sciences, Iran, 2004
A Khoshtid*, D Agadost, J Asgar Armani (School of Medicine, Department of Microbiology, Kashan University of Medical Science, Garto Ravandi Blvd, Kashan 87154, Iran)

4DD8 TUMS educational programs quality assessment
Fereshteh Fazlanpour*, Amir Hossein Emami, Ali Akbari Sari (School of Public Health, Tehran University of Medical Sciences, Tehran 13918, Iran)

4DD9 Clinical practices in the medical centres: expectations and satisfaction of Andalusian medical students
Campos-Garcia T*, Serrano R, Cortes-Martinez C (Andalusian Regional Ministry of Health, Edificio Arena 1, Avenida De La Innovacion S/N, Sevilla 41071, Spain)

4DD10 The self-evaluation of Turkish Medical Schools on basic global standards of World Federation for Medical Education European Specifications
Iskender Sayek*, Sevgi Turan, Orhan Odabası (Department of Surgery, Hacettepe University Faculty of Medicine, Sihhiye, Ankara 06100, Turkey)

4DD11 Student voice as a way to improve your curriculum
LMG Meems*, JH Humalda* (3rd year Medical Students) (University Medical Center Groningen, Faculty of Medical Sciences, Keoeisterweg 16a, Groningen 9727 AB, Netherlands)

4DD12 Perceptions of medical students in King Abdul Aziz University about teaching and learning modalities
Samar M. Alsaggaf*, Abdul Momeim Al-Hayani, Nasra N. Ayoub (Medical College, King Abdul Aziz University, Jeddah 21551, Saudi Arabia)

4DD13 Design and program evaluation of the course ‘Curriculum Development For Residency Program Directors’
Marisol Sirhan*, Ximena Triviño (Facultad de Medicina Pontificia Universidad Católica, Blase Cendras, Santiago 6580, Chile)

4DD14 Evaluation of two different educational programs in pathophysiology curriculum for the third-year medical students
Kalbasi Saed*, Naseri Mohsen, Mohammad Zadeh Afsaneh (Department of Internal Medicine, Faculty of Medicine, Birjand University of Medical Sciences, Birjand 97178 53577-379, Iran)

4DD15 An educational program realized in an intensive care unit increased the survival of the patients with sepsis
Bellido I*, Salazar C, de la Torre MV, Gomez-Luque A. (School of Medicine, University of Malaga, D. Pharmacology and Clinical Therapeutics, Boulevar Louis Pasteur, 32, Campus de teatinos, Malaga 29071, Spain)

4DD16 Program Evaluation – a necessity: an example from Pakistan
Zubia Razzaq*, Zareen Zalid, Saadat Ali Khan, Shaheen Moin (Foundation University Medical College, Jinnah Avenue, Defence Housing Authority - DHA Phase 1, Islamabad 46000, Pakistan)

4DD17 Effects of course evaluation on sustained improvement of class in Japanese Medical School
Kaori Takada*, Takeshi Morimoto, Mio Sakuma, Yoshie Kubota, Susumu Seki, Yuko Maeda, Noboru Kuramoto, Atsushi Hiraide (Center for Medical Education, Kyoto University Graduate School of Medicine, Konoe-cho, Yoshida, Sakyo-ku, Kyoto 606-8501, Japan)
SECRETS OF SUCCESS (3)

4EE1 Web2.0 technologies and how to use them to enhance your online systems

Tony McDonald* (School of Medical Sciences Education Development, Newcastle University, 16-17 Framlington Place, Newcastle upon Tyne NE2 4HH, United Kingdom)

Short description of innovation: Web2.0 technologies are characterized by the sharing of information, data interoperability between disparate systems and increased opportunities for collaboration. They may range from fully developed applications such as blogs, wikis, photo-sharing and other person-facing 'social sites' through to services which are designed for machine to machine communication. There is a great opportunity to use the 'best of breed' Web2.0 applications and services to enhance the experience of anyone using an online service, be they a student, member of staff or someone involved in administration.

What will be demonstrated: Various Web2.0 applications and services which can be integrated with existing virtual learning environments and other online systems with minimal effort and/or cost.

What is particularly interesting about the innovation: The great benefit of these systems is that they are, for the most part, free or low cost to use, and have APIs (Application Programming Interfaces) which means that a competent IT specialist can combine them to create something which is synergistic, and more applicable to the problem.

How could it be implemented: They will learn more about what is possible without having to pour vast sums into development of similar systems. Google is rumoured to have spent $200 million on Gmail and similar sums are spent by other companies - use their funds, not your own.

4EE2 Helping medical teachers in the ongoing evaluation of the clinical reasoning process in supervision of residents

Marie-Claude Audétat*, Suzanne Laurin* (Université de Montréal, Département de médecine familiale et CPASS, C.P. 6128, succursale Centre-ville, bureau S-310, Montréal H3C 3J7, Canada)

Short description of innovation: A research done in 2008 at the Université de Montréal has found that medical teachers had difficulties grasping the clinical reasoning concept and its effects in pedagogy. They tend to globally and intuitively identify the difficulties in clinical reasoning of residents. They express the need to develop their abilities in this domain.

What will be demonstrated: Looking at recent research, we have developed strategies to identify the different signs demonstrating the reasoning process during direct supervision and case discussion. We share those strategies and teaching tools in professional development workshops in our Faculty.

What is particularly interesting about the innovation: We have developed different tools that we use in workshops: short films of typical examples of some of the steps of the reasoning process, videos of supervision and a rubric to support direct supervision and case discussion focused on clinical reasoning.

How could it be implemented: Medical teachers can go beyond intuitive evaluation of the clinical reasoning process of the residents and develop abilities to support it in day-to-day supervision.

Why participants should come to the demonstration: (1) Need to develop supervision techniques geared to clinical reasoning; (2) Structured observation of the clinical reasoning process of the residents and develop abilities to support it in day-to-day supervision.

4EE3 One-week simulated internship for senior medical students

Laack TA*, Newman JS, Goyal DG, Torsher LC (Mayo Clinic, 200 First Street SW, Rochester, MN 55905, United States)

Short description of innovation: The Internship Boot Camp is an intensive 1-week course with simulated, longitudinal patient-care scenarios utilizing high-fidelity medical simulation, standardized patients, procedural task trainers, and problem-based learning to help students apply their knowledge and develop a framework for responding to challenges they will face as interns. Students manage common issues likely to be encountered as interns with rotated
on-call responsibilities, admission and dismissal of patients, code coverage, cross-coverage for other residents, and the handling of phone calls from nurses, family members, and staff.

What will be demonstrated: A brief overview will be given, including a description of the course content and resources utilized. The demonstration will be highlighted with video clips from previous courses.

What is particularly interesting about the innovation: Medical students are often excluded from aspects of patient care that they are expected to provide as soon as they become interns. Simulating situations and decisions new interns will face allows experiential learning without posing danger to actual patients. Although resource intensive, the course can be modified for implementation in a variety of settings.

How could it be implemented: The transition from medical student to intern is inherently stressful. We will demonstrate how an Internship Boot Camp can ease this transition by offering experiential learning for students in a safe and enjoyable environment.

4EE4 Using standardized patient instructors to train students for diabetes and physical activity counseling with patients of low health literacy

Julienne K. Kirk, Carol A. Hildebrandt, Gail S. Marion*, Sonia J. Crandall* (Wake Forest University School of Medicine, Department of Family and Community Medicine, Medical Center Boulevard, Winston Salem, NC 27157, United States)

Short description of innovation: Type 2 diabetes is a chronic condition affecting people worldwide in epidemic proportions. Ethnic minorities in the US are disproportionately affected by diabetes. Diabetes has a major adverse impact on life years and quality-adjusted life years in all US sub-populations. National guidelines emphasize the importance of control. Opportunities for students to assess health literacy and tailor interviews on diabetes and diet/activity counseling are infrequent in clinician training.

What will be demonstrated: We present a case scenario for health professions students using standardized patient instructors (SPIs) to provide an opportunity for students to practice diabetes and weight management counseling skills and receive immediate feedback on their interview.

What is particularly interesting about the innovation: We completed 101 Physician Assistant (PA) SPI training sessions. Evaluations from 93 PA students indicated that on a 0-4 scale, students evaluated the exercise as 3.8 on its effectiveness in teaching patient counseling skills.

How could it be implemented: SPI interviews with subsequent feedback as an addendum to didactic learning enhances ability to counsel patients of low health literacy on diabetes, diet and physical activity.

Why participants should come to the demonstration: Student comments indicate they appreciate the opportunity to practice counseling skills and value the immediate feedback received from SPIs. Trained SPIs delivering feedback frees up faculty time.
Session 5

5I WORKSHOP
Taking AMEE home, why wait? Delivering medical education faculty development at our home institutions now
Michael G Richardson1*, Sally A Santen2*, John H Shatzer3* (1Vanderbilt University School of Medicine, Dept of Anesthesiology, Nashville, TN 37232; 2Emory University School of Medicine, Medical Education and Student Affairs, Atlanta, GA 30322; 3Vanderbilt University School of Medicine, Office for Teaching & Learning, Nashville, TN 37232, United States)

Background: Medical education faculty development (MEFD) promotes teaching skills among clinical teachers. Conference attendees often desire to bring exciting and useful medical education ideas and concepts back to colleagues at home institutions – many are unsure how to do so, others try but struggle, some succeed.

Intended outcomes: This workshop is designed to provide practical strategies for implementing MEFD initiatives at participants’ home institutions.

Structure: Workshop leaders will introduce workshop segments with concepts review, followed by small group work, then large group bring back. This workshop will draw on participants’ experiences with MEFD, both receiving & delivering it, and will include implementation strategies that presenters have found successful. Segments include: (1) What’s the problem? – Identify barriers, perceived or real. Prior experiences delivering MEFD, good & bad. (2) Start with strength – Identify education topic(s) of which participants have knowledge and interest, and consider learner needs, focusing on importance & appealing aspects of topic. (3) Strategies: starting small – Use curriculum development approach to create implementation plan, including generating colleague and leader buy-in, and overcoming barriers. (4) Identify champions – broaden base with partners at home who will advocate and help deliver the innovation. (5) Outcomes – make sure to measure impact.

Intended audience: Educators experienced or interested in implementing MEFD.

Level of workshop: All

5J WORKSHOP
Piloting clinical teams toward safe and effective care
Thivierge, R.L.*, Anderson, C.*, Patenaude, J.V., Rubin, M., Drolet, P.*, Sansregret, A., Hervé, G., Aylward, M., Boucher, A. (CPD Division, Faculty of Medicine, Université de Montréal, 3175 Cote St.Catherine, bureau 7945; Montreal H3T 1C5, Canada)

Background: Interprofessional collaboration is increasingly identified as a key element in improving healthcare and safety outcomes. Previous attempts at teaching collaboration skills to healthcare professionals have met with mixed success. Crew Resource Management (CRM) and Threat and Error Management (TEM) are aviation teamwork concepts focussing on: (1) Establishing shared awareness of situations and team roles and resources; (2) Identifying potential threats early to plan preventative measures; (3) Recognizing errors quickly and acting to minimize ill effects. The University of Montreal and CAE are collaborating on a blended learning course involving simulation and the application of CRM and TEM concepts to healthcare to: (1) Manage crises; (2) Take preventative steps to recognize threats and avoid errors.

Intended outcomes: 1. Characterize competencies required for effective teamwork; 2. Discuss use of simulation to practice teamwork skills; 3. Discuss integration of skills maintenance training with development of professional communities of practice; 4. Discuss tools needed for near and long term evaluation.

Structure: (1) Scenarios with video or role playing; (2) Small group work with discussion.

Intended audience: Healthcare instructors and administrators interested in the role of simulation in initial training, residency and continuing professional development.

Level of workshop: Intermediate
5K WORKSHOP

Humanism in Surgery – Continuum of Care: an experiential methodology to foster surgical skills

Diana Tabak*, Kerry Knickle**, Debra Nestel***, Roger Kneebone****, Zubin Austin****, Alexandra Easson***

(*)University of Toronto, Standardized Patient Program, and Department of Family and Community Medicine, University of Toronto; (**)University of Toronto, Standardized Patient Program; (***)Gippsland Medical School, Monash University, Victoria, Australia; (****)Department of Surgery & Surgical Technology, Imperial College London, UK; (***)Faculty of Pharmacy, University of Toronto; (****)Department of Surgery, University of Toronto; University of Toronto, Standardized Patient Program, 200 Elizabeth Street, 1ES, Rm 565S, Toronto, ON M5G 2C4, Canada

Background: Technical procedural and communication skills are seldom taught together but required to be integrated in clinical practice. Complex communication challenges (e.g. informed consent, bad news, end of life decisions) may only be formally taught opportunistically. This workshop will provide immersive experiential learning of humanistic and technical skills for surgical practice with the support of a standardized patient (SP), simulator kit (e.g. skin lesion pad) and simulated clinical environment. Beginning with a procedural task the surgical trainee advances through several phases of care requiring technical expertise and advanced communication skills for interacting with the patient, family and health care team.

Intended outcomes: Participants will: 1. Experience and/or observe this experiential model across the continuum of care; 2. Discuss the benefits and challenges for learners, SPs and tutors; 3. Identify potential applications in their own and other areas of clinical practice.

Structure: Interactive session that includes: 1. Facilitated group discussions; 2. Interactive exercises; 3. Observation and/or participation in live SP-based simulations; 4. Small group problem solving.

Intended audience: This workshop is for clinical educators.

Level of workshop: All

5L WORKSHOP

Evaluation and management: the Program Performance Portfolio (P3)

Heidi Kremei*, Ingrid Guerra-Lopez, Wilhelmine Wiese-Rometsch* (Wayne State University School of Medicine, Graduate Medical Education, 540 E. Canfield, Detroit, Michigan 48201, United States)

Background: The ACGME requires that Institutions monitor Residency Program adherence to common and program specific requirements. We developed the “Program Performance Portfolio (P3)” to facilitate graduate medical education administration oversight and management of resident and fellow education programs. The Program Portfolio concept is an automated structure for planning and managing competency-based learning activities, evaluations, curriculum, performance improvement initiatives, and other relevant program educational and evaluation activities. The ultimate goal of this tool is to improve program performance through systematic self assessment and evaluation. The Wayne State University School of Medicine Graduate Medical Education Department partnered with the College of Education to pilot this initiative. Based on a multidisciplinary approach, the P3 design draws from research in academic medicine, performance improvement, and program evaluation.

Intended outcomes: Participants will benefit from exposure to a performance based management tool for organizing, documenting, evaluating, and improving Residency/Fellowship Programs and will be able to: (1) Identify core performance elements of the P3; (2) Apply elements of the P3 to their own program/institution.

Structure: PowerPoint presentation and interactive group activity. Participants will complete a P3 worksheet to identify portfolio elements relevant to their individual programs.

Intended audience: GME Program Leadership and Administrators

Level of workshop: All
**5M WORKSHOP**

**Teamwork lessons that incorporate brain-based learning principles**

Yue Ming Huang*, Walter Eppich* (David Geffen School of Medicine at UCLA, Los Angeles, CA and Northwestern University Feinberg School of Medicine, Chicago, IL, 10833 Le Conte Ave. BE-274 CHS, Los Angeles, CA 90095, United States)

**Background:** Effective teamwork and communication are essential skills that are necessary for patient care but often not formally taught in healthcare education. Using brain-based learning principles, we demonstrate how these skills can be experienced through engaging and memorable non-medical exercises.

**Intended outcomes:** After this session, attendees will be able to: 1) Describe key elements of teamwork and communication; 2) Discuss brain-based educational principles within the context of learning teamwork and communication skills; 3) Implement strategies that incorporate active learning into existing curricula.

**Structure:** The workshop components are: 1. Introduction and overview of objectives (10 mins) – We will engage the participants in an ice-breaker exercise to understand their baseline knowledge and experiences. 2. Team-building exercises (60 mins) – We will break into two groups for two guided team-based activities, followed by debriefing of each exercise emphasizing key teamwork and communication principles. 3. Conclusion (20 mins) – We will conclude with a discussion of the participants’ experiences in the two activities and how they will incorporate into their own practice as a healthcare educator.

**Intended audience:** Multidisciplinary, designed for anyone interested in interactive strategies for enhanced learning.

**Level of workshop:** All

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**5N WORKSHOP**

**Continuing Professional Development and Leadership in Medical Education**

Pablo Pulido M., Honorio Silva, Thomas Thomson (Project Globe, care of Panamerican Federation of Associations of Medical Schools (PAFAMS), Calle El Torreón, Quinta FEPAFEM, Urb. Sorocaima, La Trinidad, 1086 Venezuela)

This session provides an overview of Project Globe CPD, an innovative global initiative in the continuing professional development of primary care physicians. Preliminary data from Russia and Venezuela will be presented demonstrating a link between the education of primary care physicians and cardiovascular risk factor outcomes in the patients treated by those physicians. An overview of how e-learning played a significant role in providing this medical education will be provided as well as a review of a recent study highlighting the importance of non-clinical education in areas like the doctor/patient relationship. The session includes data and information on FAIMER leadership and professional development activities with emphasis in Ibero-America.

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**5O WORKSHOP**

**Test construction**

Ann M. King*, Melissa Margolis*, Henry Pohl*, Dianne P. Wagner* (National Board of Medical Examiners, 3650 Market Street, Philadelphia 19104, United States)

**Background:** The use of detailed specifications to guide test development activities is viewed as the state of the art in assessment. Test specifications provide a complete and detailed definition of all relevant test characteristics that should be addressed when creating an examination, and as such they ensure that evaluation instruments correspond to the curriculum, include important topics with the proper emphasis, measure the intended skills consistently over time, and provide students with meaningful feedback. Test specifications provide administrators, instructors, and students with a common framework for understanding the cognitive and behavioral skills expected of students.

**Intended outcome:** Following the workshop, participants will be able to: (1) Understand the importance of test specifications and recognize their multiple, related uses; (2) Understand the relationship between curriculum objectives and test specifications; (3) Identify the key components
of test specifications for tests of cognitive knowledge (e.g., basic sciences) and assessments of clinical skills; (4) Evaluate the quality of a test specification.

**Structure:** The 90 minute workshop will be divided into three parts: (a) 30 minutes of lecture and discussion of handouts (examples of test specifications; guidelines and checklists related to test design, etc.); (b) 50 minutes for a small-group exercise; and (c) 10 minutes to summarize and evaluate the workshop. During the small-group exercise, participants will develop a test specification for one of the following: (a) End-of-year assessment of knowledge of the subject matter covered during one year of study in the basic medical sciences. (b) Assessment of clinical skills for a specific course, clerkship, or rotation (e.g., psychiatry, family medicine).

**Intended Audience:** Instructors; medical educators involved in curriculum design or student assessment. It is suggested that the number of participants be limited to 30.

**Level of Workshop:** Beginner and Intermediate. Although it is not a requirement, participants would benefit from attending the FAME preconference workshop.

### 5P WORKSHOP

**The Strongest Link: Participation and discussion of an innovative and interactive CME program**

Doug Klein*, Sherry Robertson* (University of Alberta, 2J3 WMC, University of Alberta, Edmonton T6G 2R7, Canada)

**Background:** This session will share how academia and industry partnered to develop a challenging and innovative accredited CHE program. It will share insights as to how specific design methods can create a learning environment that is stimulating and challenging fostering greater learning retention among participants.

**Intended outcomes:** This workshop presentation is designed to share and discuss with CHE leaders, an example of a high quality, innovative accredited CME and how this can transform a group of skeptical physicians who are typically “the teachers” into active, enthusiastic and impassioned learners. Through the workshop we hope to offer participants some ideas for developing CME programs that will lead to the translation of physicians professional competence into practice.

**Structure:** Through an interactive discussion group this session is designed to share the impact of the Strongest Link program by modeling the format and engaging participants in the process. Participants will experience the difference. Afterwards, the results of an 8 month multi-centred study comparing this unique format to traditional didactic CME formats on learning retention will be shared. We hope to tease out with participants the following: Why is this intervention working? What does it offer that traditional CME does not? What are the implications to future design models?

**Intended audience:** All physicians, health professionals and educators of all levels of trainees.

**Level of workshop:** All

### 5Q WORKSHOP

**Constructing problem-based learning cases: hands-on training**

SAMY A. AZER* (Universiti Teknologi MARA, Chair of Medical Education Research and Development Unit, Faculty of Medicine, Tower 1, Level 5, Shah Alam 40450, Malaysia)

**Background:** Although training first-year medical students and tutors is important for successful implementation of a PBL program, constructing authentic, engaging and integrated cases is vital. This workshop will provide participants with key elements of a PBL template, and principles for developing authentic, engaging and integrated cases.

**Intended outcomes:** Participants will have a greater understanding of key elements of successful cases; how to use the criteria/principles discussed in assessing cases, and designing new cases that address the intended learning objectives.

**Structure:** Participants’ previous experience of writing PBL cases will be briefly explored. There will be then two short presentations on key elements of PBL template and principles for constructing educationally effective cases. Participants will then be divided into groups and asked to use the principles learnt in developing the educational objectives, a trigger and an outline of a PBL case. Outcomes will be brought together in a plenary session at the end.
**WORKSHOP**

**5R**

**Cognitive Acceleration Program and the Script Concordance Test: a new learning model centered on clinical reasoning**

Carlos Braiovsky*, Eduardo Pleguezuelos*, Eduardo Hornos* (Instituto Practicum de Investigación Aplicada a la Educación en Ciencias de la Salud, Serrano 16 - 8ta., Madrid 28001, Spain)

**Background:** For educational programs to have a real impact on physicians’ behavior in their daily work routine is a major challenge these days for continuing medical education. In this workshop we present an innovative teaching approach, which is based on the resolution of clinical problems and is centered on the development of competencies. It uses the Script Concordance Test as an evaluation instrument, and at the same time, as a tool for training the reflexive abilities of professionals using a Program of Cognitive Acceleration. The model is based on a mixed strategy of learning that combines introductory workshops, which the participants must attend, with a cycle of annual distance training containing daily reasoning and decision making exercises concerning clinical cases of each specialty, using a learning technology platform.

**Intended outcomes:** The workshop will offer participants the opportunity of getting to know an innovative learning model. Through hands-on as well as online exercises which have as objective the strengthening of clinical reasoning abilities, attendees will conceptualize the main aspects of the program as well as its implementation at an international level in different specialties with the support of a multilingual web site.

**Structure:** (1) Theoretical foundation of the Cognitive Acceleration Model derived from educational sciences, neurosciences and cognitive psychology. (2) An interactive exercise to demonstrate the practical side of the model through the resolution of the Script Concordance Test performed by participants. (3) Presentation of the web platform for distance training activity, www.script.md. (4) Discussion.

**Intended audience:** All teachers and medical educators

**Level of workshop:** Intermediate

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**WORKSHOP**

**The role of a utility approach in the assessment and evaluation of Interprofessional Education**

Brian Simmons*, Ann Jefferies**, Scott Reeves*, Susan J Wagner** (*Dept Paediatrics. Division of Newborn Medicine & Office of Interprofessional Education, **Dept Paediatrics. Division of Newborn Medicine, Li Ka Shing Knowledge Institute of St Michaels Hospital, Dept of Speech Language Pathology & Office of Interprofessional Education, Faculty of Medicine, University of Toronto, Ontario, Canada)

**Background:** Interprofessional education (IPE) is a high priority for government and education providers. Such education and learning should promote collaborative practices, prepare students for effective team working and improve patient care. However, work is still required to define appropriate assessment and evaluation (A&E) methods in IPE.

**Intended outcomes:** Research suggests that improved patient outcomes in IPE can be achieved by engaging in interprofessional learning and education. The use of appropriate A&E methods will be critical to determine if learning has occurred. Participants will develop an understanding of A&E in IPE related to the use of different methodologies and the development of an A&E IPE blueprint framework. This will include the understanding of the concept of reliability, validity, feasibility and educational impact (utility/usefulness) as applied to A&E and IPE.

**Structure:** Using interactive lectures and small group discussion: we will address the importance of A&E when A&E should be undertaken; what A&E methods should be employed; and how to use A&E, with particular reference to reliability, validity, educational impact and feasibility (utility of A&E related to IPE); all with the use of practical examples.
**Intended audience:** This workshop is aimed at health care providers with an interest in IPE and A&E at all levels of learners.

**Level of workshop:** All

### 5T WORKSHOP

**Enhancement of interpersonal communication skills for effective team working: an alternative approach for tutors**

McHattie, L.W.*, Diack, H.L.* (The Robert Gordon University, The School of Pharmacy and Life Sciences, Schoolhill, Aberdeen AB10 1FR, United Kingdom)

**Background:** Interpersonal communication skills for effective team-working are required by all employees working in a professional capacity and contribute to the mobility of the workforce. Many undergraduate students find aspects of communication, such as team-working skills difficult. A challenge for teaching staff is to raise the awareness of employability skills, in a relaxed environment, allowing students the opportunity to explore techniques for future practice.

**Intended outcomes:** To explore the use of a quiz show format to teach skills for effective team-working. To consider the Buzz Lightyear effect ‘…‘into the workplace and beyond’

**Structure:** A short presentation introducing the session will be followed by several team tasks, as carried out with undergraduate students at The Robert University MPharm programme. Following each task, there will be a team de-briefing session, illustrating the strengths and weaknesses of teams’ approaches to the task. This will be interspersed by video footage of sessions which took place with undergraduate students. The session will use a quiz show format.

**Intended audience:** Staff involved in teaching undergraduate students, irrespective of discipline.

**Level of workshop:** All

### 5U WORKSHOP

**Building online communities: From social to professional networking**

Tim Cappelli*, Alisdair Smithies* (University of Manchester, 186 Waterloo Place, Oxford Road, Manchester M13 9PL, United Kingdom)

**Background:** This workshop will explore the use of social networking technologies in HE and how they can be enhanced and modified to provide an environment to support an effective online community. This builds on work carried out by the University of Manchester to create an online community of teacher-practitioners. The bespoke Web2.0 based system created provides a space for tutors to network, but also to use those networks to carry out meaningful tasks. Participants will be invited to create and use profiles in an ‘offline’ environment in order to demonstrate the value and issues of doing so, before carrying out the collaborative review and editing of an online paper. This will allow them to experience the system and how it supports the principles of community development. Participants will be invited to discuss these principle and how Web2.0 social networking applications can effective support professional networks.

**Intended outcomes:** An understanding of the problems inherent in using social networking applications in HE and an insight into how reconfiguration of these applications, or provision of additional features can move a community from a social to a professional network.


**Intended audience:** Teacher-practitioners, healthcare professionals, students, education managers

**Level of workshop:** All
Facilitating reflection by playing cards

Veronica J Selleger*, José JS van de Kreeke*, Benno Bonke*  (VU university medical center, Department of Medical Psychology, Van der Boechorststraat 7, Amsterdam 1081 BT, Netherlands)

**Background:** Reflection on personal values and emotionally charged experiences is essential for medical students’ professional growth, but resistance to reflection often occurs. At VUmc, Amsterdam, and Erasmus MC, Rotterdam, sets of cards with surprising reflection questions are used to facilitate reflection on sensitive topics. These questions pertain to cultural background, religion, experience with death, dissection room experiences, taboos, and ‘cross-cultural’ communication. For AMEE 2009 the most challenging questions were selected, categorised, and translated into English and Spanish.

**Intended outcomes:** Participants will experience working with reflection cards in small groups, with special attention to safety, respect for each one’s personal boundaries, and to questioning techniques. They will receive a trilingual set of cards to take home.

**Structure:** 1. Introduction and rules of the game. 2. English and Spanish speaking subgroups work with the cards. 3. Discussion on relevance. 4. Sharing of other approaches to reflection.

**Intended audience:** Educators and students interested in making reflection relevant.

**Level of workshop:** All
Session 6: Plenary

6A  Moral panic, political imperative and what the profession knows about developing its new generations
Janet Grant (Open University Centre for Education in Medicine, Milton Keynes, UK)

A central and key feature of medical education is its link with health care provision. This means that questions of probity, service management and delivery, and patient safety are important at all stages. This very fact of the inextricable relationship between medical education and health care delivery means that the public, employers, politicians and, inevitably, the media take an interest in commenting on and in influencing the way doctors are trained. That commentary is often informed by current social, political and economic values. At the same time, the profession’s own interest in producing its new generations effectively, has given rise to the ‘specialty’ of medical education as a discipline in its own right. So educationalists, whether medically trained or not, also regularly comment on and influence the ways in which doctors are educated and trained. To add to the array of interested parties, governments must be in control of the increasingly expensive health service and are also threatened in this by the professional autonomy of doctors. Political imperatives are therefore brought to bear on medical education in its workforce development role. This produces a crowded arena in which the voice of practising clinicians and the profession as a whole can be lost. It is a mixture which can easily produce moral panic, fuelled by politicians and the media, about the safety, autonomy and values of doctors. The changes made to medical education as a result of moral panic or political imperative, sometimes seems to contradict what the profession knows about the effective production of the next generation of doctors. So how will we resolve the tension between moral panic, political imperative and what the profession knows about developing its new generations?

6B  Clinical learning: the missing acronym
David Prideaux (School of Medicine, Flinders University, Adelaide, Australia)

Acronyms abound in medical education. Yet very few apply to the apex of the discipline, clinical learning. Problem-based learning (PBL) has revolutionised learning in the early years medical courses. Objective structured clinical examinations (OSCEs) have revolutionised clinical assessments. But what has revolutionised clinical learning? Many of the models of clinical education remain unchanged and are based on apprenticeships in academic medical centres and acute care teaching hospitals. However, much patient care takes place outside these settings in primary care or ambulatory contexts. Furthermore it is from these contexts that students can learn from patients with undifferentiated illness. This plenary presents a model of symbiotic clinical education where medical school and the health services maintain a reciprocal relationship for mutual benefit. Research from some of the more recent community-based programs is presented to illustrate the key relationships in symbiotic education and their wider application considered.

6C  SEDEM Miriam Friedman Memorial Lecture
Evolution of Clinical Skills Assessment: Miriam would be proud!
James Hallock (Educational Commission for Foreign Medical Graduates (ECFMG), Philadelphia, USA)

Miriam Friedman was Co-Director of the ECFMG, Clinical Skills Assessment (CSA) program and a leader in the field of clinical reasoning. She was responsible in a major way for the evolution of the ECFMG CSA and her many contributions will be reported. The ECFMG CSA served to evaluate the clinical skills of International Medical Graduates (IMGs) seeking to enter post-graduate medical education in the US from 1998-2004. In 2004, a collaboration (CSEC) between the NBME and ECFMG was created whose purpose was to administer a high quality, high stakes clinical skills evaluation. This collaboration formed the basis for the USMLE Step 2 Clinical Skills (CS) examination. Since 2004, over 100,000 candidates have been evaluated and a great deal of information has been learned about this type of assessment. Data will be presented on performance of candidates, lessons learned and the value of this form of assessment. Miriam would be proud indeed!
Session 7

7A LARGE GROUP SESSION: Competency-based postgraduate education
Chairperson: Alistair Thomson (UK). Presenters: David Gordon (Association of Medical Schools in Europe (AMSE), care of World Federation for Medical Education (WFME), University of Copenhagen, Faculty of Health Sciences, The Panum Institute, Blegdamsvej 3, DK-2200 Copenhagen N, Denmark); Jason Frank (Royal College of Physicians and Surgeons of Canada, 774 Echo Drive, Ottawa K1S 5N8, Canada); Olle ten Cate (University Medical Center Utrecht, Universiteitsweg 98, Utrecht 3584 CG, The Netherlands)

7A1 Postgraduate Medical Education – who is responsible? And who should be?
David Gordon

There is no consistency within Europe, and more widely, about the point in postgraduate education where responsibility for the doctor in postgraduate medical training is handed by the medical school to the healthcare system. This question will be examined at the Association of Medical Schools in Europe annual conference in Zagreb, June 2009, and the consensus from that meeting will be discussed.

7A2 CanMEDS and outcomes-based education
Jason Frank

Contemporary medical education systems are rapidly adopting an outcomes-based model of education. This transition requires new knowledge and skills for medical educators, curriculum designers and clinician teachers. The challenge of this transition involves explaining the rationale for this new model and implementing it within the teaching and assessment of learners. The CanMEDS 2005 Framework is an influential example of an outcomes-based education system that has been implemented across 60 specialties in Canada.

7A3 Competency-based postgraduate training and the concept of entrustment
Olle ten Cate

Postgraduate training for a medical specialty requires a balance between (a) sufficient new responsibilities to establish a steep learning curve when acquiring new competencies, and (b) avoiding the risk of inexperienced practice, affecting patient safety. These Skylla and Charibdis facets of clinical training are influenced by four groups of factors: the nature of critical tasks that are entrusted, the perceived ability of the resident, the strictness or leniency of the supervisor and local circumstances, including the time of the day. There is a need to explore the variables that determine entrustment decisions in residency training. This paper explores some of the theoretical issues around entrustment decisions and provides some research findings in this field.

7B LARGE GROUP SESSION: Improving patient safety through team training: an interactive live demonstration of a full-scale simulation and video-assisted debriefing
Marcus Roll (TuPASS - Center for Patient Safety and Simulation, Tuebingen University Hospital, Tuebingen, Germany); Doris Østergaard, (Danish Institute for Medical Simulation, Herlev University Hospital, Capital Region of Denmark), Walter Eppich (kidSTAR Simulation Program, Children’s Memorial Hospital, Chicago, IL, USA); Ignacio Morale (Santander, Spain); Juan Chavez, David Riley (iAVANTE, Granada, Spain)

The literature shows that up to 70% of errors in medicine are due to “human factors”, meaning deficiencies in applying the theoretical knowledge in the real world of patient care. Realistic simulation training has the potential to reduce the frequency of patient safety events caused by “human factors”. To achieve this goal, we must involve complete healthcare teams in modern simulation training and integrate relevant aspects that reflect the complexity of today’s patient care environment. The live demonstration of a simulation session will allow attendees to see a modern simulation scenario followed by a team debriefing. Session faculty will play the roles of the healthcare team members; using an audience response system, the audience will interpret data points as they become available during the simulation and “vote” on the next best step. In the subsequent debriefing using brief video clips, we will focus on “why did it go wrong” instead of
"who made the mistake". The faculty, leading experts in simulation-based training, will highlight key topics for effective simulation-based team training and debriefing and its advantages compared to traditional megacode type mannequin training sessions. This interactive Large Group Session will be relevant to participants interested in patient safety, integration of non-technical skills and the use of simulation-based training.

7C SYMPOSIUM: Teaching basic science to students and residents: the impossible dream?

Organised by: International Association of Medical Science Educators (iAMSE) (iAMSE, 626 Main Street, Barboursville, WV 25504 USA)

Medical curricula have traditionally been segregated into “preclinical” and “clinical” phases, with one being required before the other can start. In practice, this has made clinical medicine inaccessible to students early in their training, and has made basic science seem irrelevant to more senior students and to medical residents. Yet many of the best clinicians rely on scientific reasoning and basic science principles to inform their medical decisions. In an increasingly overfilled curriculum, how can we incorporate science teaching into the training of students and residents undergoing their clinical training? This seminar will demonstrate specific models and stimulate discussion on strategies for accomplishing this goal.

7D RESEARCH PAPERS: Assessment

7D1 Lessons from the Great Exhibition: The role of regression towards the mean in OSCE standard setting – implications for borderline and resit candidates

Godfrey Pell*, Richard Fuller, Matt Homer (Medical Education Unit, Medical Education Unit, School of Medicine, University of Leeds, Leeds LS2 9NL, United Kingdom)

Introduction: Research Question: Resit/borderline candidates are not a homogenous group, and considerable difficulty persists in accurately identifying and profiling these ‘at risk’ students, despite improved methods of standard setting. The purpose of this work was to profile OSCE fails, and model regression towards the mean to examine the impact on these students.

Context: During the Great Exhibition (1851) Francis Galton persuaded visitors with fully grown children to be measured. He found that comparing the heights of extreme groups (e.g. tall or short parents) and mean heights of their offspring, demonstrated that the offsprings’ heights were closer to the population mean. This phenomenon is called regression towards the mean, and within standard setting theory, can help us examine borderline candidates more closely. It suggests some failing candidates may pass on a different day/different range of questions, and other just passing students would, if retested, fail. Using OSCEs with multiple stations and the standard error of measurement (SEM) reduces this concern, but identifying and dealing with resit students remains contentious in high stakes assessments (Pell 2008).

Methods: The performance of all Leeds Medical School students failing OSCEs across a 5 year testing span (2004-8) was analysed. 769 failed assessments were used to derive a series of profiles. Regression towards the mean analysis (Bland 1994) was performed upon the data to determine potential movements of borderline students across pass/fail boundaries.

Results: Three major profiles were identified; repeated OSCE failure (29%); single failure & otherwise marginal pass profile (35%); single OSCE failure with otherwise satisfactory performance (36%). Modelling based on regression towards the mean showed the mean shift of the failing subgroup was at least 50% greater than the SEM.

Discussion and conclusion: The size of the regression towards the mean effect indicates that reliance on a single SEM in addition to the aggregate passing score, as practiced in current standard setting, is insufficient to overcome the significant likelihood of unsatisfactory students passing as a result on an uncharacteristically good assessment. To overcome this, a suggested model, would therefore, be to add two standard errors of measurement to the station pass scores. Sequential testing could be used for these failing students as soon as possible without remediation, particularly to deal with those students with an
uncharacteristic fail with other satisfactory performance. The marks from these additional stations would be added to those of the first sitting giving an assessment of both high reliability and fairness.

References:

7D2 Quality enhancement of oral examinations in specialty accreditation: acceptability, focus, and reliability
Mei Ling Denney*, Richard Wakeford*, Melanie Whitehorn (University of Cambridge / RCGP, Centre for Research in Assessment in Medical Education and Training [CRA MET], c/o Dept. of Social and Developmental Psychology, Free School Lane, Cambridge CB2 3RQ, United Kingdom)

Introduction: Despite a generally bad press as “orals” or “vivas”, face-to-face interrogatory examinations are still widely used in postgraduate medical assessment. Often, they are found under an alias (“Case Discussions”) or inside another testing modality (eg oral questioning within clinical examination). A variety of quality enhancement techniques (selection; training; analysis and examiner feedback; job aids) were employed to improve a national postgraduate specialty oral examination. We report a) its developing reliability over 12 years, b) candidates’ perceptions of its value, and c) the principal competency deficiencies identified by examiners therein. We list recommendations towards effective neo-oral assessments.

Methods: Between 1993 and 2008, the Membership of the Royal College of General Practitioners exit examination oral comprised two twenty-minute sessions (five four-minute topics in each). The exam ran in twice-yearly “diets”. The focus was decision-making skills in clinical practice, and underpinning professional values. (A). Examiners reported candidate grades independently on a nine-point scale. The mean correlation (rx) between the four examiner grades—two pairs, each assessing different performances—is an estimate of the internal consistency of a diet of the orals, reported annually. (B). In December 2004, two-thirds of candidates (limited by cost considerations) were asked to complete a seven-item questionnaire on their perceptions of the examination. We summarize these. (C). Content analyses were conducted of examiners’ reasons for failing candidates, and an 18-item checklist constructed. We report the prevalence of these items for failing candidates in 2004.

Results: (A). rx increased progressively from .77 to .86 over the period 1993-2005. (B). Candidates were overwhelmingly positive about the clarity (78%), relevance (82%) and level (83%) of the orals. 92% said they had a positive educational value, and 84% that preparation had been helpful to their daily work. (C). The most prevalent reasons for failure were lack of justification in decision-making (71% of 322 failing candidates), slowness (68%), failure to see options (65%), and difficulty in recognising any dilemma (60%).

Discussion and conclusion: Oral assessments can be reliable and acceptable, identifying competency deficiencies which other forms of assessment seem unlikely to. As they seem set to continue, mutatis mutandis, our conclusions may be useful to assessment planners. Selection against listed job-competencies excluded the probably untrainable; regular videoing and associate small-group training, with statistical feedback enhanced many individuals’ skills; detailed grade descriptors were found very helpful.

7D3 Measuring team performance in simulation-based training of intensive care teams
Rob Frengley, Jennifer Weller*, Boaz Shulruf, Jane Torrie, Kaylene Henderson (Centre for Medical and Health Sciences Education, University of Auckland, Building 530, Ferncroft St, Grafton, Private Bag 92019, Auckland 1142, New Zealand)

Introduction: Patient simulation is widely advocated for team training. However, the rating scales used to assess teamwork focus on the individual rather than the team. (1)
This study aimed to develop and validate a measurement tool for team performance in simulation training of intensive care, and to evaluate the effectiveness of a simulation-based intervention on team performance.
Methods: The Team Behaviour Scale, based primarily on the Mayo Clinic High Performance Teamwork Scale (2), was developed following a systematic literature review, and refined by seven experts watching videoed scenarios until items were comprehensive, observable and clearly understood. Items addressed technical and team behaviour aspects of performance using a 5-point rating scale with descriptors. Ten intensive care teams (one doctor, three nurses) participated in a full day of simulations and debriefs, skills stations and tutorials training, including two tightly scripted and standardised baseline and post-training assessment scenarios (cardiac resuscitation/emergency airway management). We used a METI patient simulator in a recreated intensive care environment. Three trained assessors independently rated the video-taped forty assessment scenarios. Scenario order was randomised, and assessors were blinded to pre/post training status.

We use the G coefficient to measure reliability of the assessment tool, and paired T-test to measure improvement.

Results: The G coefficients for the technical skills of cardiac resuscitation and emergency airway management were high (0.87 and 0.92 respectively). G coefficient was lower for team behaviour skills, at 0.44. Within the team behaviour items, those relating to leadership, communication and work co-ordination worked well (.70>G>.88). Items with low G related to mutual performance monitoring, back-up behaviour and feedback. We demonstrated a significant improvement in team behaviour (3.60 to 4.86, p<.001).

Discussion and conclusion: Items measuring clear behaviours, whether technical or behavioural, yielded high G value (> 0.80), but only when the quality or necessity of the skills measured was commonly agreed upon. Some team behaviours appear more difficult to understand and therefore assess. Further item development should focus on single, specific behaviours which are more easily measurable or identifiable. Improved behaviour scores suggest the workshop was effective. Most importantly, we identified the types of observation items that work or need improvement. Further research should continue to refine these items.

References:

7D4 A Script Concordance Test (SCT) to measure clinical reasoning for managing geriatric Urinary Incontinence (UI)
Renuka Tunuguntla1,2, Joseph G. Ouslander2, Stephen Symes2, Francois Phancao3, Bernard Chatlin MD4, Robert Gagnon4, Bernard A. Roos2,3, Jorge G. Ruiz4,5,3 [Miami Geriatric Research, Education, and Clinical Center (GRECC), VA Medical Center1, U of Miami Miller School of Medicine2; Stein Gerontological Institute3, U of Montreal, Canada4, Bruce W. Carter Dept of Veterans Affairs Medical Center, GRECC 11GRC, 1201 NW 16th Street, Miami, Florida 33125, United States]

Introduction: Clinical reasoning, also known as problem solving, is a major domain of clinical competence, comprising a group of cognitive skills involved in patient evaluation and management. The SCT (script concordance test) assesses clinical reasoning in contexts of uncertainty, which are very common in primary care practice including urinary incontinence (UI). Although a relatively new method, the SCT has demonstrated good reliability and validity. Aim: To validate a SCT to measure the clinical reasoning skills of medical trainees related to managing geriatric UI.

Methods: An expert in geriatric UI and 2 board-certified geriatricians developed 155 SCT questions related to geriatric UI. After a review of the questions by an urologist and a geriatrician with expertise in UI, the researchers selected 100 questions covering the major clinical topics in UI. The SCT requires 3 components: (1) a clinical vignette requiring consideration of several options (diagnosis, management, or intervention); (2) a 5-point Likert scale capturing examinee responses; (3) a scoring method that accounts for variation of answers among a group of experts (members of panel of reference) and gives partial credit (in proportion to the number of experts selecting the same response) to candidates.
who choose an answer other than the majority answer. A reference panel of 15 board-certified geriatricians took this test. All items with negative total correlation were discarded; the remaining questions were used to calculate the global score. Differences within and between groups’ means were examined by 1-way analysis of variance (ANOVA). In the next validation phase the SCT was administered to 10 “senior” (beyond 12 months of training) and 9 “junior” geriatric medicine fellows (6 months into their training), 24 internal medicine residents (PGY1-PGY3), and 13 senior medical students (MS3-4).

**Results:** Cronbach’s alpha for the final 70 questions was 0.82. The mean score for the reference panel was 79 ± 7, senior fellows 69 ± 11, junior fellows 66.4 ±7, internal medicine residents 66 ± 6.5, and medical students (MS3 and MS4) 63.6 ± 9.

**Discussion and conclusion:** The initial geriatric UI SCT demonstrated good reliability and construct validity between a reference panel and other trainees and should be a useful tool to assess clinical geriatric UI practice.

**References:**

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### 7E SHORT COMMUNICATIONS: Assessment: Standard setting

#### 7E1 Conceptualizing MCBC for use in Angoff standard setting

Margaret J. Dennett*, Dwight D. Harley, David A. Cook (University of Alberta, Division of Studies in Medical Education, 2-76 Zelier Ledcor Centre, Edmonton, Alberta T6G 2X8, Canada)

**Background:** The Angoff method is the “Gold Standard” of standard setting procedures. It has been thoroughly investigated, is easily explained and is adaptable to a wide variety of testing formats. The Angoff method requires a panel of subject matter experts (SME) to envision a minimally competent borderline candidate (MCBC) and estimate the probability of MCBC answering an item correctly. The mean value of the probabilities assigned by each SME is calculated, and these are summed across items to determine the cut-score. The literature provides little direction for establishing a common vision of MCBC. If SMEs differ in their mental picture of MCBC, the probability estimates, across judges will not be based on the same premise making the Angoff calculation meaningless.

**Summary of work:** This communication will detail a process that was used to develop a common vision of MCBC among 50 SMEs prior to their participation in a lengthy standard setting workshop.

**Summary of results:** Data showed that the process was successful in developing a common vision among the participants.

**Conclusions:** This process could easily be implemented to calibrate MCBC with panels of any size.

**Take-home messages:** The Angoff method is a powerful method of setting cut-scores, but for Angoff to work, care needs to be taken in developing MCBC.

#### 7E2 The effect of a change in grading system on student performance and faculty/learner satisfaction

Norma S. Saks* (Robert Wood Johnson Medical School, 675 Hoes Lane, Room VO-1, Piscataway, New Jersey 08854-5635, United States)

**Background:** Faculty and students were dissatisfied with the long standing 5-point grading system in basic science courses because of increased competition and student focus on grades, rather than learning. But some believed a grading change would decrease student achievement.

**Summary of work:** In 2007-08 the grading system changed from a 5-point to 2-point, pass-fail system. Student progress was tracked throughout 2007-08, and compared to 2006-07. Qualitative data was also obtained.
Summary of results: Mean exam scores in all courses were similar between the two years. The passing grade in each course was kept constant: 6 courses had no change in pass rate, 4 courses a higher fail rate, 4 courses a lower fail rate. Overall, faculty liked the change; fewer students challenged grades. Students reported being able to focus more on the “big picture,” felt they studied just as hard, and reported less stress. Students were generally happy although some wondered if pass-fail grading would influence their acceptance into graduate training.

Conclusions: Pass-fail grading in basic science courses had mostly positive effects and will remain.

Take-home messages: A change in grading system to pass/fail did not negatively affect student achievement; students and faculty evaluated the change positively.

7E3 Outlier examinee profiles across subject areas: do combined test scores really reflect examinee ability?

David E. Blackmore*, Timothy J. Wood (Medical Council of Canada, 2283 St. Laurent Boulevard, Ottawa K1G 5A2, Canada)

Background: Examinations usually include multiple topic areas and a combined total score is used to determine an examinee's pass/fail status. Examinees with the same total scores are treated the same regardless of the different score profiles across different subject areas. Some passing examinees have low enough scores in some areas that they could be described as outliers from an expected profile. How often does this occur? Should it matter?

Summary of work: Subject area examinee profiles from a high-stakes Canadian medical licensing examination were constructed from a two-year data set. Examinees who passed the examination overall, but were low performing outliers within a specific subject area (~2 SEM), were identified and compared to a non-outlier group of passing examinees.

Summary of results: From a total cohort of 7,127, there were 5,454 passing examinees. Of those, 626 were identified as possible outliers in one of four sub-categories.

Conclusions: Even though the standard error within a given subject area may be too large to warrant a fully conjunctive pass/fail decision, extremely low scores in specific content areas may be a concern and could warrant failure even though a passing score was obtained. Theoretical implications of such a policy will be discussed.

Take-home messages: Total test scores need to be interpreted with caution.

7E4 Comparing two methods of setting OSCE pass scores

Dwight D. Harley*, Margaret Sagle (University of Alberta, 2-76 Zeidler Ledcor Centre, Edmonton, Alberta T6G 2X8, Canada)

Background: The Objective Structured Clinical Examination (OSCE) is a commonly used performance based assessment of clinical competency. When an OSCE is used for summative evaluation, determining the passing score becomes vital. The literature reports that several different methods of standard setting have been applied to medical school OSCEs. Although the Borderline Group method has been successfully used for some time a promising modification has emerged in the Borderline Regression method.

Summary of work: We report a comparison between pass scores and success rates that result from using the two methods. An OSCE was administered to the 128 graduating medical students at the University of Alberta. Students were assigned to one of two eight-station tracks. The tracks were congruent in terms of station content. Passing scores were determined for each station using each method.

Summary of results: Our data show that the two closely related methods of standard setting result in appreciably different passing scores.

Conclusions: Although the failure rates from the Borderline Regression method were similar to those of the Borderline Group method they were generally lower. Failure rates remain very dependent upon the method used to set the pass score.

Take-home messages: Further evaluation is required to determine the best method of setting an OSCE pass score.
Introduction of Standard Setting in undergraduate medical education: re-emphasizing the importance of item writing

Jane Holland*, Alice McGarvey, Richard Amett, David Croke (Royal College of Surgeons in Ireland, 123 St Stephen's Green, Dublin 2, Ireland)

Background: While selection and training of examiners are oft remembered fundamentals in the establishment of standard setting procedures, training of examiners in appropriate item writing is also an essential component of this process.

Summary of work: Our medical school used the modified Angoff method to determine the cut-score in a modular (integrated) MCQ examination both before training (2008), and after training (2009) in writing items to NBME standards. The rank correlation co-efficient (rs) between item difficulties and Angoff ratings was assessed to determine what impact this training had on standard setting.

Summary of results: In 2008, there was no significant correlation between item difficulties and Angoff ratings (rs=0.277, p=0.13). There was also little separation observed between the cut-score obtained (58.2%) and the actual class mean (63.6%). In 2009, this correlation significantly improved (rs=0.599, p=0.001), with wider separation between the cut-score and actual mean observed (47.6% vs. 63.0%).

Take-home messages: Increasing modular integration, with mix of disciplines and judges is now frequently encountered while setting and evaluating examinations. A well-structured item, while designed to more accurately assess the candidate’s knowledge, also enables more accurate rating of items while standard setting and is an important consideration when introducing these procedures de novo.

Towards improving the standards in multiple choice examinations – the Aga Khan University experience

Naveed Yousuf*, Rukhsana W Zuberi* (Aga Khan University (AKU), Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan)

Background: Standard-setting makes assessment results more credible, defensible and therefore, acceptable. This study was conducted to: 1. study the error of measurement in Multiple Choice (MCQs) Examinations at AKU; 2. compare the AKU preset passing-score (55%) against scores derived using relative standard-setting methods.

Summary of work: The reliability, standard error of measurements (SEM) and mean difficulty indices of the last five Certifying MBBS Year 1 and 2 MCQ examinations were calculated. Passing-scores using the Wijnen, Mean-1.5 SD and Cohen relative standard-setting methods were identified for each examination. Marker questions were identified and used in subsequent examinations.

Summary of results: Mean scores of examinations varied from 66-76%. Marker questions revealed that the difference in the performance of student cohorts was the major source of variance. The reliability of different examinations ranged from 0.699-0.897 and SEM from 2.54-3.27. Relative standard-setting passing-scores ranged from 47-70%, resulting in student failure-rates of 0–28%. Passing-scores were lowest with the Cohen method (47–54%) and highest with the Wijnen (60–70%).

Conclusions: The relative standard-setting methods produced very divergent passing-scores and student failure-rates.

Take-home messages: Relative standard-setting methods were not useful. It is imperative that we move to absolute standard-setting methods to ensure validity of assessments.
care. Universities, governments, payors, providers and regulatory bodies are increasingly promoting these as best practice methods to provide effective and efficient care.

**Summary of work:** We will share an innovative best practice model for the development of a mandatory IPE curriculum for 1400 students in ten health science professions (i.e., dentistry, medical radiation sciences, medicine, nursing, occupational therapy, pharmacy, physical education and health, physical therapy, social work and speech-language pathology) starting Fall 2009 at the University of Toronto.

**Summary of results:** This longitudinal curriculum includes several key elements: core competencies, learning activities, assessment, evaluation and faculty development. A points for IPE system (PIPEs), based on a modified Delphi technique, was developed that elucidates key components of an IPE session and weights them allowing for session categorization and coverage of the competencies. The process, critical structures, challenges and strategies in developing this comprehensive curriculum will be described.

**Conclusions:** Development of an IPE curriculum is essential in preparing students for collaborative practice to rise with this wind of change.

**Take-home messages:** Development of an IPE curriculum is a complex, but valuable endeavour that requires a comprehensive approach and persistence to realize change.

### 7F2  Interprofessional learning in student teams

Lynda Davray*, Jennifer Todd*, Andrew Høy* (St George’s University of London, Centre for Medical and Healthcare Education, Cranmer Terrace, London SW17 0RE, United Kingdom)

**Background:** For the last four years, St George’s, University of London has been collaborating with NHS partners in South West London to provide interprofessional ward experiences, lasting three weeks, for mixed teams of students from medicine, nursing, physiotherapy and occupational therapy (the latter from Brunel University). Originally only available to graduate entry medical students (MBBS4) and a correspondingly limited number of nursing and other students, it is being extended to include all St George’s medical students (MBBS5) and further professions.

**Summary of work:** The innovation required developing new sites to accommodate the increased number of eligible students. This presentation will disseminate the implementation of a hands-on interprofessional learning experience for final year healthcare students in one of the new settings – a hospice providing end of life and other care. Adapting the model, planning and implementing the initiative required an inclusive approach, staff development and collaboration across the professions.

**Summary of results:** Data from staff, student and patient evaluations will be presented to demonstrate the outcomes.

**Conclusions:** Students on the interprofessional ward demonstrated appreciation for each others’ roles and for collective practice

**Take-home messages:** Interprofessional learning in the hospice setting provides an opportunity for students to learn to work together.

### 7F3  Active student participation in clinical care and its impact on interprofessional collaboration

Scheffer, C.*, Tauschel, D., Edelhaeuser, F. (Integrated curriculum for Anthroposophic Medicine, University of Witten / Herdecke, Alfred-Herrhausenstr. 50, Witten 58448, Germany)

**Background:** Active Student Participation (ASP) in patient care plays an important role in medical education. The aim of our study was to investigate changes on interprofessional collaboration (IC) due student integration in the clinical health care team.

**Summary of work:** We developed a Clinical Education Ward (CEW) for final year medical students at a department for internal medicine. Students were fully integrated in the clinical team acting as house officers under supervision. Quantitative and qualitative methods were used for a 360° Evaluation of the project. 111 patients (responders: 66) and 26 (21) staff members were asked about their view on IC at the CEW. Students (n=12) were asked about their competencies in interprofessional teamwork before and after their 16-weeks rotation.
Summary of results: Compared to a control group of patients of an internal ward without students, the CEW showed a lower problem score concerning IC (p<0.05). Staff members described specific challenges due to teaching, supervising and guiding medical students. Medical students were characterized as highly motivated, open-minded and respectful. Students themselves showed significant progress in interprofessional teamwork according to their self-assessment.

Conclusions: ASP in clinical care faces specific challenges in interprofessional teamwork but may lead to benefits for patients, students and staff members.

7F4 Attitudes to interprofessional practice in out-patient setting – a comparison of students from different health professions
Anne Ericson*, Gunilla Bolinder*, Ann Fridner (Department of Molecular Medicine and Surgery, Section of Orthopaedics and Sports Medicine, Karolinska Institute at Karolinska University Hospital Solna, Department of Psychology, Stockholm Univer, Karolinska University Hospital, Stockholm 171 76, Sweden)

Background: Modern health care education requires interprofessional education (IPE) to develop collaboration skills. At Karolinska University Hospital, IPE is provided in an out-patient setting at the emergency unit for medical, nursing and physiotherapy students in the final stage of their education. The student teams take care of patients under the supervision of tutors from each profession.

Summary of work: We have compared the student groups regarding the attitudes to team training, improvement of own professional skills and overall satisfaction. A standard questionnaire was used and analyzed with Chi-square to investigate differences between the categories.

Summary of results: All students had a high overall opinion of the practice and reported a better understanding of their own professional role in the team, and improved collaboration skills. Physiotherapy students reported significantly less improvement in their own professional skills than the other students.

Conclusions: Interprofessional practice at an emergency unit is an excellent set-up for team training of students from different educational programs. Physiotherapy students, however, did not improve the professional skills to the same degree as nursing and medical students. This needs further investigation.

Take-home messages: Preparing for IPE in out-patient setting, the opportunity for training of the specific professional skills should also be considered and provided.

7F5 Emerging theory to support interprofessional simulation experiences
Claire Walsh*, Robin Lewis* (Sheffield Hallam University, Faculty of Health and Wellbeing, 11-15 Broomhall Road, Sheffield S10 2BP, United Kingdom)

Background: Emphasising the theoretical underpinnings of both IPE and simulation education and research is challenging and essential to improve the quality of the research and practice in this area and other interdisciplinary contexts. An undergraduate interprofessional simulation day for nursing and medical students concerning the safer patient in acute settings is offered at Sheffield Hallam University (SHU) UK, where IPE has been developed over a 12 year period.

Summary of work: This qualitative research study used grounded theory methods and focus group interviews to uncover the students interprofessional experiences occurring during the simulation event.

Summary of results: One core category identified the association between the Contact Hypothesis (Carpenter 1995) and the factors necessary for positive simulation experiences as detailed by the students

Conclusions: The Contact Hypothesis is a particularly useful theoretical framework to address these challenges as well as guide the development of IPE and simulation

Take-home messages: Insights can be gained from emerging theory in IPE to make a positive contribution to simulation education
7F6 Interprofessional education: simulation workshops using high fidelity technology in the undergraduate medical and nursing curricula

Marian Traynor*, Jim Murray, Moira Stewart, Hazel Cuenne-Granddidier (CEIPE - Queen’s University Belfast, School of Dentistry, Grosvenor Road, Belfast BT12 6BP, United Kingdom)

Background: This paper reports on a simulation workshop carried out within an undergraduate-nursing and medical programme where simulation technology was used as the catalyst to support Interprofessional learning.

Summary of work: To develop and evaluate the use of problem-based clinical case scenarios for third year undergraduate nursing students and fourth year medical students using high fidelity technology.

Summary of results: Questionnaires were obtained from all 287 students medical and adult nursing students (100% response rate). The data was subjected to both descriptive and inferential statistical analyses. Four domains emerged from the data: (1) Acquisition of clinical knowledge and skills; (2) Patient safety and risk assessment; (3) Development of Interprofessional skills; (4) Role awareness.

Conclusions: Interprofessional simulation education can contribute to improving the quality and safety of the service to patients by preparing students to be skillful clinical teamworkers.

Take-home messages: Interprofessional simulation workshops are resource intensive and require a large team of trained medical and nursing facilitators. All significant leaders should be fully aware of the requirements for full implementation into the undergraduate healthcare curricula.

7G SHORT COMMUNICATIONS: Best Evidence Medical Education (BEME)

7G1 Review of the evidence linking conditions, processes and outcomes of clinical workplace learning

Naomi Tan*, Beth Wooley, Rachel Isba, Els Boshuizen, Rachel Gick, Karen Mann, Albert Scherpier, John Spencer, Tim Dornan (University of Manchester Medical School, Oxford Road, Manchester M13 9PL, United Kingdom)

Background: The wealth of evidence about undergraduate medical workplace education is fragmented into publications bound to specific contexts (eg primary care), disciplines (eg surgery), or pedagogic approaches (eg ‘teaching’). This review aimed to start from more general assumptions and draw conclusions from a comprehensive corpus of evidence.

Summary of work: A proven sensitive electronic search of 6 databases over 22 years yielded 73,000 titles, which were hand-screened to identify all empirical research pertaining to the topic. Seven researchers coded chosen articles into an on-line database. The analysis was ‘model-driven’, using our ‘Experience-based learning’ model as an interpretive framework. It was ‘constructivist’ in that data were treated as a discourse of clinical teaching and learning, synthesised through convergence in team discussion rather than concordance between isolated coders.

Summary of results: By June 2009, 285 links identified from 129 publications were assembled into a highly structured, mixed quantitative and qualitative dataset; for example, 91 (32%) data items were descriptions of affective learning outcomes (eg emotions, sense of identity) and 105 (37%) were affective conditions for learning.

Conclusions: A model-driven, constructivist analysis of a disparate evidence-base can yield findings of potential value.

Take-home message: Affective learning is as an important theme in the dataset deserving in-depth analysis.
7G2 Updated BEME Systematic Review of early experience: quantity, content and quality of the evidence
Yardley, S.*, Littlewood, S., Margolis, S. A., Scherpbier, A., Spencer, J., Ypinazar, V., Dornan, T. (Keele Medical School, Keele University, and University of Manchester Medical School, Keele Medical School, Keele University, Staffs, ST5 5BG, United Kingdom)

Background: BEME has little experience of updating its systematic reviews.

Summary of work: Using the same methods as in our 1992-2001 review, we identified and coded new evidence published from 2002-2008 to: Re-examine strengths and limitations of the evidence base; determine the value of re-reviewing; set a future research agenda.

Summary of results: Twenty-five new empirical studies of early authentic experience in the basic education of health professionals met the inclusion criteria and yielded 96 outcomes. Sixty-five outcomes were both educationally important and based on strong evidence. Fourteen studies were descriptive and 9 comparative. The cumulated evidence continued to show an impact of early experience on: Motivation for learning, understanding of professional roles, development of communication skills, and understanding of patient perspectives. Publications often failed to link practice with educational theory.

Conclusions: The main findings are unchanged, and there is no evidence of any increase in the quality of evidence. There are still many unanswered questions about how educational interventions result in learning outcomes, and what is essential to make early authentic experience an effective process.

Take-home messages: Future research needs to move away from descriptive studies to in-depth clarification of how and why early experience is effective.

7G3 What features of educational interventions lead to competence in aseptic insertion and maintenance of central venous catheters in acute care?
Cherry MG*, Brown JM, Neal TJ, Shaw NJ (Edge Hill University, Faculty of Health, St Helens Road, Ormskirk L39 4GP, United Kingdom)

Background: This review aimed to determine features of structured educational interventions that impact on competence in aseptic insertion technique and maintenance of CV catheters by healthcare workers.

Summary of work: We looked at changes in infection control behaviour of healthcare workers, and considered changes in service delivery and the clinical welfare of patients involved provided they were related directly to the delivery method of the educational intervention.

Summary of results: 9968 articles were reviewed. 47 articles met the inclusion criteria.

Conclusions: Findings suggest implications for practice: Firstly, educational interventions appear to have the most prolonged and profound effect when used in conjunction with audit, feedback and availability of new clinical supplies consistent with the content of the education provided. Secondly, educational interventions will have a greater impact if baseline compliance to best-practice is low. Thirdly, repeated sessions, fed into daily practice, using practical participation appears to have a small, additional effect on practice change when compared to education alone. Active involvement from healthcare staff, in conjunction with provision of formal responsibilities and motivation for change may change healthcare worker practice.

Take-home messages: Ultimately, it is difficult to determine what, if any features of educational intervention delivery have the greatest impact on healthcare professionals’ practice and behaviour.

7G4 Systematic Reviews within the context of a single institution
Hammick M, Johnson N, Passi V, Pelle E, Spencer S, Williamson T. (Warwick Medical School, UK)

This presentation will introduce two early reviews in progress, to illustrate barriers and enablers to conducting systematic reviews within a single medical school context.

“The influence of previous higher level education on undergraduate medical studies and subsequent performance” is a review initiated by two undergraduate medical students
interested in their learning environment. This review is supported by the former Associate Dean for Teaching and the BEME consultant, working together in the BEME/Warwick collaboration.

“The Influence of Role Modelling in Developing Medical Professionalism in Future Doctors” extends previous review work in this topic area led by a Medical Practitioner PhD student. Her two supervisors are collaborating on the review team, again raising interesting issues which have had to be thought through.

The somewhat atypical make-up of these two groups opens up a wider discussion on the relative advantages of close-knit groups at one centre versus groups which have a broad national or international base.

7H SHORT COMMUNICATIONS: e-Learning: Use of e-portfolios in postgraduate medical education

7H1 Making sense of competency-based assessment in the workplace through the use of an e-portfolio

Govaerts M*, Donkers J, Brackel H, Verhoeven B, Van der Vleuten C, Dornan T (Maastricht University, Department of Educational Research and Development, PO Box 616, Maastricht 6200 MD, Netherlands)

Background: In competency-based training programs, workplace-based assessment (WBA) fulfilling both formative and summative assessment functions is essential. In the clinical workplace, however, meaningful and timely feedback is found to be scarce and decision making non-transparent. Valid interpretation of assessment results is made more difficult due to lack of meaningful benchmarks and the use of a motley collection of rating scale formats.

Summary of work: In collaboration with Manchester University, we developed an e-portfolio with a built-in web-based WBA-support system. The system supports online collection of performance ratings in the portfolio and automatically converts ratings into feedback reports. Numerical and graphical feedback is provided, as well as overviews of all narrative feedback. Computation of competency scores per individual trainee is enabled through a coherent set of competency-based rating forms. Since longitudinal performance data from large cohorts of trainees are collected, individual competence development can be compared to aggregated data from relevant reference groups.

Summary of results: The e-portfolio has been field-tested in postgraduate medical training. User feedback is positive: feedback reports support self-directed learning, guide competence development, and substantiate summative decision making.

Conclusions: The e-portfolio system seems to be a promising tool to increase the usefulness of WBA. International collaboration and further research will result in optimization and evidence-based use of WBA.

7H2 Exploration of the experiences and perspectives of core medical trainees and assigned educational supervisors utilising the core medical training curricula and e-portfolio during 1 academic year

R. Gillies*, JM Brown (Mersey Deanery, Regatta Place, Brunswick Business Park, Summers Road, Liverpool L3 4BL, United Kingdom)

Background: This case study explored the experiences and perspectives of Core Medical Trainees (CMT) and their Assigned Educational Supervisors (AES) in one Deanery utilising the core medical training curricula and e-portfolio of the Joint Royal Colleges of Physicians Training Board during one academic year, 2007-08.

Summary of work: The aims were to assess the opinions and perspectives about and the value of the curricula and e-portfolio; identify emerging themes and challenges; and assessing motivation of the trainees to learn. The objective was to identify recommendations for the future implementation of curricula and e-portfolio. A questionnaire and semi-structured interviews were applied in a bi-phasic manner. Semi-structured interviews involved five matched CMT/AES pairings. Interviews were audio-taped and then transcribed verbatim for
analysis. Analysis of data was referenced to educational theory about: curricula; reflective learning; e-learning; portfolio-based approach to learning; theories of how adults learn; assessment.

Summary of results: There are variable opinions and experiences of the trainees and Educational Supervisors. There is no significant evidence of reflective learning nor of motivation to learn occurring amongst the trainees.

Conclusions: Current relationships between the trainee and educational supervisor generally do not facilitate learning.

Take-home messages: Assumptions should not be made that trainees from a Foundation Programme know how to take a portfolio-based approach to learning.

7H3 Evaluation of the Royal College of Paediatrics and Child Health (RCPCH) e-portfolio at a year of use
Lorna Highet*, Nancy Harding, Deborah Murdoch-Eaton, Tim Lee, Helen Pickworth, Elisabeth Jameson, Philip Holland, Alistair Morris, Christine Cooper, Simon Frazer (Yorkshire School of Paediatrics, Yorkshire and the Humber Deanery, West Yorkshire Locality Office, Willow Terrace Road, University of Leeds, Leeds LS2 9LT, United Kingdom)

Background: We will present the detailed 1 year evaluation of the RCPCH national e-Portfolio for paediatric trainees in the UK.

Summary of work: Thematic analysis of semi-structured interviews with trainees and educational supervisors was used to inform development of a detailed 50-point questionnaire used to quantify the views of users across Yorkshire.

Summary of results: 67% of trainees (63 out of 94) and 59% of educational supervisors (92 out of 155) responded. 76% of trainees find the e-Portfolio personal development plan useful for setting objectives. Users reported that the e-Portfolio stimulated more reflection on education events and critical incidents at work. The ability to log skills and record achievements remains popular. 79% of trainees regularly update their e-Portfolio, and 75% find it easy to quickly make an entry. 81% of trainees find it easier to keep the e-Portfolio up to date compared to a paper portfolio. The e-Portfolio formalises requirement for regular educational supervision, but concerns remain that it can distract from discussing important issues in some settings.

Conclusions: e-Portfolios are a valuable and effective resource in supporting postgraduate medical training.

Take-home messages: 68% of trainees and 73% of supervisors overall prefer the e-Portfolio to a paper portfolio.

7H4 Faculty development programme for GP trainers on mentoring GP trainees in using a new e-portfolio
MLJ Schreurs*, MH Sagasser*, B Maiburg, A Kramer, H Mokkink (Maastricht University, Department of educational development & research, P.O. Box 616, Maastricht 6200 MD, Netherlands)

Background: A faculty development programme was developed to support GP trainers in their new role in supporting GP trainees in using an e-portfolio. This portfolio is mandatory in the newly introduced competence-based specialist training programme.

Summary of work: Based on guidelines derived from the literature, the faculty development programme is tailored to GP trainers' needs and designed to promote experiential learning, reflection and peer evaluation (McLean, 2008; Steinert, 2005). GP trainers receive instruction as to how the e-portfolio is embedded in the curriculum and aligned with the educational approach underpinning the new curriculum.

Summary of results: GP trainers are offered: hands-on-training concerning the purpose and use of the e-portfolio; training in stimulating reflection and supporting professional development. In addition to an information and training session immediately before undertaking their role as e-portfolio mentor, GP trainers are offered additional coaching sessions when the programme is underway to help them deal with emerging problems.
**Conclusions**: In order to ensure effective mentoring of a new e-portfolio, GP trainers need continuous training and support, tailored to their needs.

**Take-home messages**: Continuing professional development of GP trainers promotes adequate support and mentoring of GP specialist trainees.

### 7H5 Refocusing medical learning on chronic illness with a chronic illness portfolio

**Linda Z. Nieman** *(University of Texas Health Science Center Houston Medical School, 6300 Red Cedar Place, Unit 202, Baltimore, MD 21209, United States)*

**Background**: Medical training has not kept pace with the worldwide chronic illness (CI) which was responsible worldwide for thirty-three million deaths worldwide in 2003.

**Summary of work**: Thirty-six residents received a memory stick (i.e., a portfolio) for storing evidence that they had learned to (a) administer and interpret a health related quality of life instrument for CI patients (b) document interventions made with CI patients, (c) provide evidence of reading about and reflecting on the management of CI, (d) present CI cases in PowerPoint format (e) document CI training a professional development. We designed an instrument to measure evidence of CI learning in the portfolio with 0 representing fails to document minimal required exhibits and 5 representing substantial documentation of all required items in > 12 cases. Portfolios with documentation that exceeded expectations in each of the required four categories were awarded the Certificate of Excellence.

**Summary of results**: Thirteen of 21 portfolios submitted in 2008 met criteria for the Certificate of Excellence.

**Conclusions**: The exhibits in and evaluations of the chronic illness portfolio provide objective evidence of learning about and managing chronic conditions.

**Take-home messages**: The chronic illness portfolio provides learners and faculty with a practical tool for monitoring CI learning.

### 7H6 Work-place based assessment: quality management of the ePortfolio

**Jill Edwards**, Fiona Erasmus, Sarah Robinson, Hannah Petra *(Royal College of General Practitioners, 2nd Floor, 31 Southampton Row, Holborn, London WC1B 5HJ, United Kingdom)*

**Background**: In August 2007 a new assessment process (nMRCGP) was introduced for doctors undertaking specialty training in general practice in the UK. It comprises of three components, one of which is Workplace-Based Assessment (WPBA). Deaneries monitor of a trainees’ progress in WPBA through a process of an annual panel review (ARCP Panels). External scrutiny of the panel decisions is provided by a Royal College of General Practitioners (RCGP) External Assessor. WPBA needs to be, for the licensing examination, defensible. This is because it tests highly significant areas of performance that cannot be adequately tested elsewhere. It depends upon educational supervisors making consistent judgements.

**Summary of work**: The RCGP has developed a standard for the completion of the Educational Supervisors Report and this is expressed in a series of descriptors. 315 ePortfolios were examined by the external assessors in January 2009; the panel outcomes and the quality of the educational supervisors’ reports were reviewed.

**Summary of results**: 240 of the panel outcomes on the basis of the evidence available in the ePortfolio were agreed with (76.2%). 165 Educational Supervisor Reports were deemed acceptable (52.4%).

**Conclusions**: The reasons for the above results will be discussed.

**Take-home messages**: Training of educational supervisors should be a priority for Deaneries.
**71** SHORT COMMUNICATIONS: Teaching and Learning: Teaching and learning medicine

**711** What is the optimal number of students for small group teaching? A randomized controlled study.

Deirdre Jenkins*, Ilene Harris, Kevin McLaughlin, Alan Schwartz (University of Illinois at Chicago, 1403 29th Street NW, Calgary T2N 2T9, Canada)

**Background:** Optimal group size for small group teaching (SGT) is thought to be 5-8 students, however empirical data is lacking.

**Summary of work:** Students were randomized to SGT of 6-8 students vs. 16-18 students in a cross over design study. Students and faculty were surveyed 10 times during the course. The survey addressed three “presences”: the teaching presence, the social presence and the cognitive presence, as well as satisfaction and learning. The comments section from the surveys and semi-structured focus group interviews were used for a qualitative analysis.

**Summary of results:** There were 252 responses from students and 92 responses from faculty. A two sample t-test demonstrated a statistically significant difference (<0.005) for all questions in the student and faculty surveys, favoring the smaller group size for all 3 presences, satisfaction and learning. The qualitative data indicated a strong preference by both students and faculty for the smaller group size based on factors in the social presence domain.

**Conclusions:** Students and faculty prefer small group sizes of 6-8 students over 16-18 from a teaching, social and cognitive point of view. The social presence was a strong determinant of preference.

**Take-home messages:** Students and faculty prefer small group sizes of 6-8 students over 16-18 students.

**712** Outdoor camps as teaching and learning activity for personal & professional development

Harlina H Siraj*, Z Ruzanna, I Juriza, M Rohaizak, Z Zukifli, M Shahzi, S Ismail, B Siti Mariam, M Nabishah, S Lakom (Dept of Medical Education, UKM Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, Cheras, Kuala Lumpur 56000, Malaysia)

**Background:** Skills of communication, critical thinking, decision-making, leadership and teamwork are among the important aspects of PPD to be inculcated within the future doctors.

**Summary of work:** Since the academic year of 2005-2006, PPD module has been included in the UKM medical programmes. Three outdoor camps have been scheduled throughout the five-years training. Camp activities include small group discussions (SGD), interactive lectures, role-play sessions, debate, reflection sessions, physical exercises, jungle trekking and games. Lecturers are trained to facilitate the group activities.

**Summary of results:** Up to date, the faculty has organized seven PPD camps. Majority students agreed that the camp activities provided them with the opportunity to enhance basic skills of communication, decision-making, critical thinking, leadership, teamwork and strong bonding among themselves as well as with the lecturers.

**Conclusions:** Outdoor activities serve as an effective experiential learning environment that can be utilised to achieve educational outcomes such as teamwork and leadership.

**Take-home messages:** Outdoor activities for medical students are innovative ways to instil skills in teamwork and leadership.

**713** Learning from errors: Prior knowledge is an important determinant to take advantage of worked examples for improving diagnostic competence

M.R. Fischer*, V. Kopp, R. Stark (Private University Witten/Herdecke, Institute für Teaching and Educational Research in Health Sciences, Alfred-Herrhausen-Str. 50, Witten 58448, Germany)

**Background:** Learning from worked examples is an effective learning method in well-structured domains. The approach’s effectiveness can be enhanced through providing erroneous examples, but only if students understand the errors (Kopp et al. 2008).
Understanding errors is supported by prior knowledge (Große & Renkl, 2007). We investigated the role of prior knowledge for the acquisition of diagnostic competence in a computer-based learning environment.

**Summary of work:** 74 medical students from the two Munich medical faculties worked through six erroneous worked examples on arterial hypertension. Additionally, a schema was provided, from which students could reconstruct the right answer and correct the error. Students were divided into three groups dependant on their prior knowledge. Diagnostic knowledge was operationalized using an MC-test, key features, and problem-solving tasks.

**Summary of results:** Results showed that in all three tests prior knowledge was favourable for diagnostic knowledge acquisition.

**Conclusions:** Learning environments should be adapted to students' learning prerequisites. For this learning environment, students with poor prior knowledge should get additional feedback which explains the respective errors. Computer-based learning environments are suited to meet these requirements.

**Take-home messages:** Learning environments should be adapted to students' learning prerequisites to improve learning form erroneous worked examples in complex medical domains.

### Effectiveness of concept mapping in medical education

Rohith Puthan Veettil*, Maninder Kaur Heir, Ellen Jones, David Wall (Heart of England NHS Foundation Trust, Birmingham Heartlands Hospital, Bordesley Green East, Birmingham B9 5SS, United Kingdom)

**Background:** Concept mapping has gained in popularity as an educational technique since its introduction by Novak and Gowin. Concept maps help students to divide knowledge into small parts, re-arrange and link individual concepts enhancing their analytical and critical thinking.

**Summary of work:** This study looks at the effects of concept mapping on knowledge acquisition. A cohort of 56 students at one hospital are being taught using concept maps and will be compared to a control group at another hospital, where traditional teaching methods are being used. Assessments at the beginning and end of their 13 week attachment will be used to measure any differences in theoretical knowledge and performance. This study is being done in conjunction with the Birmingham Medical School and the West Midlands deanery. The local ethical committee raised no ethical issues with this study.

**Summary of results:** This study is still in progress, but preliminary student feedback from the interventional group has been encouraging. Calculated results will be available by July 2009.

**Conclusions:** Concept maps help students to externalize their medical knowledge (Bruchner et al, 2004) and support metacognitive activities (Novak, 1990). Hence this form of learning should be encouraged in medical schools.

**Take-home messages:** Students may benefit from concept maps being introduced in their curriculum.

### The role of the tutor in the case method

Gudrun Edgren* (Lund University, Faculty of Medicine, Centre for Teaching and Learning, P.O.Box 157, Lund SE-221 00, Sweden)

**Background:** The case method, originally from Harvard Business School, has recently been applied to medical education. It has been claimed to share with problem-based learning the active learning with peers but larger groups can be accommodated. The tutor leads, facilitates and summarizes results on a board with the focus on solving problems.

**Summary of work:** This work was initiated to study the role of the tutor in the case method in a problem-based medical program. Eight tutors, all content experts, were observed while facilitating groups of students in the case method. The process was analyzed according to theories of active learning.
Summary of results: In most groups the tutor dominated speaking time. The input from the students was mostly by answers to questions from the tutor with limited interaction between students. Some students were active and others totally passive. The tutors directed the cases and added a lot of information. No evaluation of process or group work was performed.

Conclusions: The application of the case method has lead to a role of the tutor as very active on the content level, whereas tutors in problem-based learning in this program have often been passive.

Take-home messages: Teachers need training in facilitation of groups.

The use of audience response systems for medical education in a clinical presentation about chest pain guidelines

Luis Patrao*, Miguel Castelo Branco (Faculty of Health Sciences - University of Beira Interior, Faculdade de Ciências da Saúde - Medicina, Rua Infante d. Henrique, Covilha 6200-506, Portugal)

Background: Guidelines about chest pain (CP) management including target door to ECG time (TDTET) are still an issue in Hospital of Covilha’s Emergency Room as a recent study showed – 34 minutes was the average triage to first executed procedure time in CP episodes.

Summary of work: In a clinical session broadly announced throughout the hospital these and other background facts were presented in a PowerPoint® slideshow (PPS) to health care professionals (HCP), mainly doctors and medical students. Using audience response system (ARS) TurningPoint® integrated with PPS they were invited to reveal their knowledge about CP guidelines and their answers were drawn immediately, in graphics, as questions were asked.

Summary of results: Knowing that this was going to be a different session where HCP could actively participate, they appeared in greater numbers than in previous bimonthly sessions. On the other hand, analyzing their answers was the only way to know if they needed more information about the subject.

Conclusions: ARS attracted HCP attention before and during the session improving their active participation in learning process.

Take-home messages: Active participation with ARS is very important not only because HCP learn better but also because the presenter has an instant feedback on the audience.

SHORT COMMUNICATIONS: Education Management: Training for leadership

Values of doctors and healthcare managers: implications for education

J D Nawrocki* (Brighton & Sussex University Hospitals NHS Trust, Royal Sussex County Hospital, Eastern Road, Brighton BN2 5BE, United Kingdom)

Background: There has been large increase in interest in the UK in the education of doctors in management and leadership. A significant number of education and training opportunities have arisen, however it is arguable whether anything resembling a curriculum has been developed.

Summary of work: In this context, an inquiry was undertaken into the “professional values” of doctors and healthcare managers, as such values would be the foundation of any curriculum.

A qualitative methodology was used to investigate these professional values in a teaching hospital setting by means of a case study. Doctors and healthcare managers of varied background and seniority participated.

Summary of results: The findings suggested that the espoused professional values of both doctors and managers were similar. Both groups aspired to make the patient their primary concern. However, the perceived values of each others groups were sometimes different. It was apparent that in both groups there were times when the espoused and enacted values differed.

Conclusions: A curriculum for doctors in the subjects of healthcare management and leadership should be founded on the professional values of doctors. Although the espoused
values of healthcare managers may be similar to that of doctors, the perception by doctors that it is otherwise is likely to be counterproductive if such a curriculum is viewed as being founded on the values of "healthcare managers" or external bodies outside of the medical profession.

**Take-home messages:** A curriculum for doctors in leadership and management should be founded on the professional values of the medical profession.

### 7J2 Women and medical leadership

Elizabeth Crolla*, Helen O’Sullivan, Jan Bogg (The University of Liverpool, Centre Excellence Teaching and Learning [CETL], School of Medical Education, Cedar House 4.15, Ashton Street, Liverpool L69 3GE, United Kingdom)

**Background:** Medical school intake is 60% female (UCAS), yet women holding positions of medical leadership is disproportionate i.e. 28% of consultants are women (DOH).

**Summary of work:** The study focuses on perceptions of leadership, informed by NHS guidelines ‘Medical Leadership Competency Framework’. The qualitative phase involved semi-structured interviews with six women in senior medical positions. The quantitative phase gathered the views of 469 undergraduate medical students studying at a UK Medical School by online questionnaire.

**Summary of results:** Differences exist in views on leadership. Almost double the amount of males at 42%, strongly agreed that they could become a future leader, in comparison to only 22% of females. The majority of students (68%) felt they would benefit from further leadership training in the curriculum. Further research findings will be detailed in the presentation.

**Conclusions:** Quantitative findings indicate gender differences are apparent in views on medical leadership. Furthermore, stereotypes and prejudice are still prevalent in medical students in terms of women’s potential for leadership roles. Qualitative findings indicate problems and opportunities in gaining leadership positions.

**Take-home messages:** Greater inclusion of women in leadership roles in the medical workforce requires more work to remove stereotypical views.

### 7J3 Stepping up to a Consultant: managerial learning experience of senior trainees

Taruna Bindal*, David Wall, Helen Goodyear (West Midlands NHS Workforce Deanery, St Chad’s Court, 213 Hagley Road, Edgbaston, Birmingham, B16 9RG, United Kingdom)

**Background:** Managerial experience is an important higher specialist training competency preparing trainees for a consultant post.

**Summary of work:** UK regional 18-item questionnaire study to senior paediatric specialist registrars (SpRs).

**Summary of results:** 87% responded (39/45). Reliability of the study was good (Cronbach’s alpha 0.845). All SpRs participated in clinical managerial activities with 44% (17/39) doing 4 hours per week. Popular activities were teaching and development of treatment guidelines. Non-clinical managerial experience, mainly rota management and teaching programme organisation, was limited with 64% (25/39) doing ≤ 30 minutes per week and 10% (4/39) having no experience. Clinical and non-clinical management training was rated as important by majority of SpRs, although only a third felt confident in managing projects or leading change management. Factors which inhibited management learning were shift patterns and being too busy. SpRs suggested the best ways to provide managerial training were rostered sessions and mandatory formal teaching courses.

**Conclusions:** Institutions need to support trainees in undertaking managerial training. Inhibiting factors will have a greater impact as European Working Time Directive enforces the 48 working week in August 2009.

**Take-home messages:** Managerial skills are essential for trainees to have a smooth and successful transition to a consultant post.
**7J4 Partnership for Leadership in Practice: deanery, university and workplace**

Zoe Playdon*, Pam Shaw* (KSS Deanery, University of London, 7 Bermondsey Street, London SE1 2DD, United Kingdom)

**Background:** Uniquely KSS Deanery, Brighton Business School and South East Coast Local Education Providers have created a full-time one year leadership programme offering an MSc in Clinical Leadership and competence assessment [NHS Institute for Innovation and Improvement framework]. We work in partnership.

**Summary of work:** Recognizing the contact zone between medicine and management as potentially problematic because of ethical imperatives of clinical practice and organisational needs, we occupy a middle space offering growth and sustainable development for leadership in clinical settings. We (1) established 8 Clinical Fellowships; (2) jointly manage an MSc Clinical Leadership; (3) are partners with work-based supervisors / Deanery Leadership Specialists / University Business School; (4) offer dual accreditation: MSc and national leadership competence; (5) protect professional and academic post-graduate standards of leadership.

**Summary of results:** (1) a new MSc in Clinical Leadership; (2) Partnership in Practice Steering Group who manage the programme; (3) the development of a School of Leadership; (4) Development of assessor network.

**Conclusions:** Partnership in Practice between Deanery, University and Local Education Providers essential for: (1) embedded understanding and practice of leadership in clinical settings; (2) sustainability and local professional accountability in LEPs.

**Take-home messages:** MSc in leadership and leadership competence together offer a creative synergy for leadership when embedded in a partnership model / offered as dual accreditation.

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**7J5 Leadership Residency – suitable and skilled leaders in health care**

Isabelle Cehlin*, Mattias Bjaneagård*, Daniel Carlzon*, Louise Bentley*, Helena Hognert* (Sahlgrenska University Hospital, Gothenburg, Inter/Resident Council, Torggatan 1A, Möndal 43135, Sweden)

**Background:** Increased complexity in the health care system creates new challenges for the leadership. We believe that medical doctors have an important role to play as leaders in this development. With education and training in leadership the medical doctor will fulfil the high requirements of the future health care system.

**Summary of work:** Sahlgrenska University Hospital has introduced a pilot group of Leadership Residents. The program includes identification of suitable candidates and high quality leadership training. Five residents, from different areas of specialization, prolong their residency equivalent to 60 ECTS. These residents both form a tutorial group and have personal mentors. After a guiding assessment the individual resident is dedicated to deeper studies within areas such as leadership, pedagogy, communication and health care improvement. The training is completed with relevant practice.

**Summary of results:** The pilot group has been running for less then a year and the effects hereof remain to be studied.

**Conclusions:** We can establish that five trainees have been identified and given the opportunity to develop their skills in a way we are convinced will have positive outcome for the assigner in terms of highly skilled and suitable leaders for future tasks.

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**7J6 Medical Leadership training – new MSc**

Robert Palmer*, John Clark, Peter Spurgeon (Institute of Clinical Leadership, Warwick Medical School, The University of Warwick, Coventry CV4 7AL, United Kingdom)

**Background:** The importance of doctors as leaders in the NHS has been highlighted by both Darzi and Tooke in their recent reports concerning the development and future of the NHS in the UK.

**Summary of work:** A new MSc in Medical Leadership has been developed at Warwick Medical School to which 30 ‘students’ have enrolled. The course commenced February 2009 and will last 3 years. The students are all senior doctors who aspire to or are already in senior
leadership roles, including clinical and medical directors. 26 are hospital consultants and 4 are GPs.

Summary of results: The 5 core modules are 'Leadership for doctors,' NHS strategy, policy and organisation,' 'Systems approach to patient safety,' 'Clinical systems improvement' and 'Comparative health care systems.' The new Medical Leadership Competencies Framework (NHS Institute and Academy of Medical Royal Colleges) is used as a theme throughout. Students also choose 2 of several optional modules and write a professional project of 10,000 words. The focus of learning relates to the place of work. Early evaluations are very favourable.

Conclusions: This may be one of the first MSc of its kind in the UK. The challenges faced with its development and delivery together with feedback and evaluation will be shared and discussed

Take-home messages: Medical leadership training is important in the NHS. This can be successfully delivered as an MSc.

7K  SHORT COMMUNICATIONS: Postgraduate education: Training to be a surgeon

7K1  A critical review of a postgraduate surgical curriculum in the UK
Ajo Kureekattu John* (Frimley Park Hospital NHS Foundation Trust, Portsmouth Road, Frimley, Surrey GU16 7UJ, United Kingdom)

Background: The new surgical curriculum produced by the Intercollegiate Surgical Curriculum Programme (ISCP) is designed to develop competent Consultant Surgeons. The values and standards in curriculum are according to those laid in the UK- General Medical Council’s Good Medical Practice document and CanMEDS 2000 framework, and apply modern educational principles.

Summary of work: A review of the curriculum with reference to curriculum theories and current evidence on state of postgraduate training following implementation of changes in the National Health Service (NHS) such as working time regulations and service management.

Summary of results: The planned educational process in the curriculum is based on work-based experiences and learning collaboration with the trainer is characteristic of the process concept of education (Stenhouse (1975). Self-directed learning exercises and reflective practice in the curriculum are to promote the research concept, but the overall character is more as a process. The expected outcomes are compromised due to problems in implementation such as service delivery – training conflict, employment regulations, lack of insight in trainees and trainers about principles of education and inadequacy of resources.

Conclusions: The problems in implementation cause delivery of a curriculum that is planned with process concept of education as with product concept and potentially defeat the objective.

Take-home messages: Separate training from service provision, include quality of education in the criteria for assessing hospitals, educate trainees and trainers in principles of adult education, and robust criteria for identifying training units are important for creating good educational environment.

7K2  Effect of the ACGME work-hour restrictions on surgical residents, faculty and patients: a systematic review
Mohammad H. Jamal*, Mathieu Rousseau, Sarkis Mettirissian, Linda Snell (Centre for Medical Education and Division of General Surgery, McGill University, 3700 McTavish Street, Montreal H3A 1Y2, Canada)

Background: In July 2003, the Accreditation Council of Graduate Medical Education (ACGME) restricted residents’ work hours for all training programs in the USA. The purpose of this study was to evaluate the impact of the ACGME reduction in work-hours on surgical residents, faculty and patients.

Summary of work: We searched for English language articles studying the impact of work hours restriction on surgical residency programs. We used the following databases from
2000-2008: Medline, Embase, Cochrane Central Register of Controlled Trials and ERIC. We retrieved 1048 abstracts, and included every paper looking at the effect of the work-hour limits on surgical training. All papers underwent quality scoring and thematic analysis by at least 2 reviewers.

**Summary of results:** Sixty studies were included. Positive and negative outcomes on residents’ education, resident lifestyle, patient care and surgical faculty were compiled. Overall the effects were positive in the first three but negative on surgical faculty. The papers with the highest quality scores had 37 positive themes and 11 negative themes.

**Conclusions:** This is the largest and most current review of the literature addressing the effect of the ACGME work hour limitations on surgical training. These limitations had a positive effect on residents and patients, but a negative effect on faculty.

**Take-home messages:** The ACGME restriction on work hours had a positive impact on surgical training.

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### 7K3

**The effect of computer based video instruction in orthopaedic higher surgical trainees**

Anna Prasthofer*, Giles Pattison, Juul Achten, Nick Parsons, Peter Hull, Matthew L Costa (University Hospitals Coventry and Warwickshire NHS Trust, Clifford Bridge Road, Coventry CV2 2DX, United Kingdom)

**Background:** Computer based video instruction (CBVI) is increasingly used as an adjunct to traditional methods in surgical training.

**Summary of work:** A randomised controlled trial was performed to establish the effectiveness of CBVI on the self-directed learning of complex technical skills in higher surgical trainees (HSTs) in orthopaedic surgery. 20 HSTs were randomised into two equal groups for three practical skills sessions. Both groups received an instructional manual describing a given surgical technical technique two weeks prior to a practical skills session. One group was also given a CBVI to enhance their self-directed learning prior to the session. Both groups were then assessed on their ability to perform the procedure using validated assessment tools.

**Summary of results:** There was no statistical difference between the two groups.

**Conclusions:** This trial provides no evidence that CBVI improves surgical technique in this group of learners. However, CBVI may nevertheless help the learner to 'conceptualise' the procedure. This group of learners have prior surgical experience and therefore an educational tool that aids conceptualisation may have a less profound impact upon performance than CBVI used by a novice learner.

**Take-home messages:** Although this study found no benefit in the use of CBVI over traditional self-directed learning methods, we would suggest that the benefits gained from CBVI may be greater in learners with less experience or they may be more subtle than a quantitative assessment of technical skill.

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### 7K4

**Scenario simulation to reduce workplace stress for new resident A&E doctors**

Cristina Peláez*, José Angel Villén, Ana González, Rocío Ruiz (Fundación iAVANTE, Parque Tecnológico de Andalucía. C/ Marie Curie, 16. Edificio Possibilia 2005 - 1º Planta. Campanillas, Málaga 29590, Spain)

**Background:** An old disused hospital A&E area which was intact, was used as a scenario to train resident doctors before starting their first day at work.

**Summary of work:** Main objective: To lower the stress levels of first day resident doctors incorporation into the A&E dept workplace using simulation. More realism achieved by using actors as simulated patients. This aspect, coupled with the realism of the building, made the experience truly immersive and highly realistic.

**Summary of results:** Repeated during 3 consecutive years. Over 200 residents trained. Seven different modules in each course: Advanced Life Support, Clinical Interview, ECG interpreting for emergencies, Communication skills and functional organisation.

**Conclusions:** First day at work for first year resident doctors in an A&E department is very difficult and stressful. Their main worry is if they will be able to solve emergency situations
effectively, coupled with lack of training in the day to day activities of the department. This course gives them self assurance, improves effectiveness when facing real cases, and significantly reduces the stress level perceived during the first few days at work.

**Take-home messages:** Very useful to have a realistic setting to train residents and practice typical tasks in the A&E dept, one of the most stressful areas to work in a hospital.

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### 7K5

**The effect of a Team Resource Management focussed emergency simulation course (CRISES) on junior surgeons’ ability to deal with surgical emergencies**

S Mercer*, A Guha (Cheshire & Merseyside Simulation Centre, University Hospital Aintree, Training & Development Building, Longmoor Lane, Liverpool L9 7AL, United Kingdom)

**Background:** The importance of non-technical skills like Team Resource Management [TRM] in managing medical emergencies is recognized. Most curricula lack such training. TRM skills learnt in simulated anaesthetic emergencies can be retained long term and transferred into routine work. We examined the effect of a TRM course using patient simulator manikin on junior surgeons’ management of emergencies.

**Summary of work:** A responsive patient manikin was placed in clinical environments. Post-scenario video debriefs were conducted by TRM trained faculty. Pre and post course questionnaires completed with 5 rank options were statistically analysed. Questionnaires sought opinions on: 1. Course usefulness for teaching emergencies; 2. Realism of scenarios; 3. Environment for learning management of emergencies; 4. Confidence in management of emergencies; 5. Increased effectiveness; 6. Improved team working; 7. Improved communication; 8. Teaching beyond ‘crisis’ management.

**Summary of results:** 45 candidates were included. Statistically significant difference between means was observed across all domains post course (p < 0.05). Cohen’s d values indicated large effect and r values were close to no linear relationship.

**Conclusions:** The CRISES course measurably increased trainees’ confidence, communication, and team working skills. Effectiveness of managing surgical emergencies was perceived to have increased beyond clinical management alone.

**Take-home messages:** TRM focussed simulation courses augment management of clinical emergencies.

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### 7L

**SHORT COMMUNICATIONS: Themes: Themes to include in the curriculum**

#### 7L1

**How medical students learn law: an exploration of the teaching, learning and assessment of law at a UK medical school**

Susan F Smith*, Judy McKimm, Wing May Kong, Michael Preston-Shoot (Imperial College London and University of Bedfordshire, Delivery of Respiratory Health Care Research, NHU at Charing Cross Campus, Fulham Palace Road, London W6 8RF, United Kingdom)

**Background:** Doctors’ legal responsibilities are defined by regulatory bodies but the specific nature of law learning is subject to interpretation by medical educators. Medical students typically learn law alongside ethics (Consensus Group Teachers Medical Ethics and Law, J Med Ethics 1998; 24:188), opportunistically in clinical placements or in postgraduate specialty training (Ashtekar et al, Child Care Health Dev 2007; 33: 631).

**Summary of work:** A national study explores student understanding, skills and perceptions of law relating to medical practice. This paper reports results from a 2008/09 survey of 1st, 2nd and final year medical students at one medical school.

**Summary of results:** Students perceive law as positive, endorsing and supporting values; understanding law is essential. Knowledge of legal powers, duties, case law and skills for practising law increased as a result of law teaching. Students are anxious about remaining current, applying legal knowledge and feel that law encourages defensive practice. Confidence in applying law in practice, and understanding of specific legal rules remains low.

**Conclusions:** Results confirm other studies. Further research is needed to evaluate law learning and assessment and define a ‘law curriculum’ for students and trainees.
**Take-home messages**: Doctors need to learn legal knowledge and skills to apply law appropriately in complex clinical situations but specific content, approach and learning methods are ill-defined at various stages of training.

**7L2**

**More training in emergency medicine: a recurrent request by final year UCL medical students over a 3-year curriculum review study**

Claire de Burbure*, André Geubel, Véronique Godin, Dominique Vanpee (Université catholique de Louvain UCL, Medical Faculty, 10 avenue Hippocrate, 1200 Brussels, Belgium)

**Background**: Concluding a 3-year study concerning final-year medical students’ internships, curricular reform at UCL Brussels aims to take both students’ suggestions and Bologna process into account.

**Summary of work**: For the past three consecutive years, seventh year medical students were invited for one afternoon to complete various questionnaires about their one-year full-time internships.

**Summary of results**: Students discussed in small groups then presented orally the various strengths, weaknesses, opportunities and threats they encountered. Turnout was high, as in December 2006, 2007 and 2008 respectively 116/161, 119/157 and 118/177 students came (72.05, 75.80, 66.67%). Each year 100% written questionnaire sets were retrieved and analyzed. In December 2008 digital voting devices (n = 115) were furthermore introduced for detailed interactive questioning.

**Conclusions**: Although unaware of previous results, students made recurrent suggestions such as more training in general medicine, internal medicine, and smaller specialties for shorter periods of time. However, the predominant request for about 85% of students (87.07% (101/116) in 2006, 81.98% (91/111) in 2008) was to introduce compulsory training in Accidents & Emergency (A&E), reasons for which will be further discussed.

**Take-home messages**: All students’ suggestions were taken seriously and in particular, compulsory training in A&E is about to be introduced in the curricular reform for 2009-2010.

**7L3**

**How prepared are our medical students to take on prescribing responsibilities upon graduation?**

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**Background**: This study investigated medical students’ and new graduates’ perceptions of their prescribing competency upon graduation and factors affecting their learning.

**Summary of work**: The study was conducted in three stages. First was a nominal group discussion with nine University of Malaya (UM) Year-5 medical students to obtain a consensus response regarding the factors that affected their learning of prescribing skills. Next were two self-report questionnaires – one targeted at UM Year-5 students and another was developed to obtain nationwide responses from Malaysian housemen regarding their current prescribing practices and their previous undergraduate training.

**Summary of results**: The Year-5 students’ discussion identified 17 factors that affected their learning of prescribing skills. The survey of UM students confirmed that there was insufficient integration in the teaching of basic and clinical pharmacology and a lack of opportunities for practising prescribing skills in the clinical years. Responses to the nationwide housemen survey generally supported the UM students’ perceptions of adequate pharmacology knowledge but inadequate supervised practical training on prescribing. At least 25% of new graduates felt ill-prepared to prescribe at the point of graduation but most appeared to have acquired safe prescribing behaviours by the end of their housemen year.

**Conclusions**: The findings of this study confirmed the need for a structured practical training programme on prescribing skills.

**Take-home messages**: Our new medical graduates felt ill-prepared to prescribe at the point of graduation and wanted more supervised practical training on prescribing skills during clinical years.
**7L4 A positive response to Health Promotion in undergraduate medical core curricula: a reflection on health promotion teaching and experiences**

Ann Wylie* (King’s College London School of Medicine, Department of General Practice and Primary Care, 5 Lambeth Walk, London SE1 6SP, United Kingdom)

**Background:** Health promotion (HP) is now a core component of the curriculum at Kings College London School of Medicine (KCLSM). A number of indicators highlight the positive response to the introduction of HP teaching over the last three years. Previous to this change, interest in HP related special study modules (SSMs) was limited. Bursaries and awards were linked to clinical projects with few students considering health promotion related applications. Students keen to have publications rarely saw HP as an obvious choice.

**Summary of work:** A review of indictors and demands for teaching in this field was undertaken.

**Summary of results:** The number of students doing HP SSMs has increased 5 fold, assessors and students have praised the HP core content. Seven students have been successful with competitive bursaries for elective HP projects, three papers have been published, three book chapters written and a number of conference presentations conducted. A recent GMC visit commended the work in this field.

**Conclusions:** Despite early resistance, HP teaching is accepted as relevant by the students, this relevance was the guiding principle for curriculum development.

**Take-home messages:** HP is a marginal aspect of curricula so care is needed to introduce and sustain it. Gaining student interest has been paramount in our experience.

**7L5 Research opportunities in the undergraduate curriculum – real or imagined?**

Sarah Drewery*, Deborah Murdoch-Eaton, Sarah Etton, Catherine Emmerson, Michelle Marshall, John Smith, Patsy Stark, Sue Whittle (Northern Medical Schools SSC Consortium, Leeds Institute of Medical Education, School of Medicine, University of Leeds, Leeds LS2 9NS, United Kingdom)

**Background:** Students increasingly recognize the value for future employability of developing research skills within their undergraduate career. A nationally funded study involving 5 medical schools has evaluated opportunities to develop research skills within project work in their undergraduate curricula.

**Summary of work:** Documentary analysis of project descriptions was performed. Projects were coded, identifying research skills development opportunities using published criteria.

**Summary of results:** 907 projects were undertaken by third or fourth year students across the five schools during academic year 2006/7. Differences between schools were observed in the proportion of projects identifying opportunities to develop specific research skills, i.e. research methods, information gathering, data processing, and critical analysis. Variation in clarity of project descriptions which addressed potential skills development opportunities offered was also detected.

**Conclusions:** There are significant differences between schools in the opportunities available through student projects for research skills development. Lack of clear guidance regarding the skill development opportunities available within projects may hinder informed student choice.

**Take-home messages:** Medical schools may wish to audit and address the availability of projects which develop students’ research skills, in view of the increased student interest and GMC requirements. Project descriptions should explicitly state the skill development opportunities available.

**7L6 Research training in medical education**

A Murt*, on behalf of European Medical Students Council (European Medical Students’ Council 6, Cerrahpasa Tip Fakultesi, Ingilizce Tip Bölümü, Istanbul 34098, Turkey)

**Background:** Should every future physician receive a thorough education in the basic principles of medical educational and clinical research, both in medical schools and during residency training? Would that training enable future physicians to evaluate medical research?
Summary of work: By combining the opinions of medical students with experience of pioneers in the field, we came up with answers to the background question.

Summary of results: Teaching medical educational and clinical research in medical schools will help future physicians keen to do research and will help them to implement the results of their research in their medical educational and clinical experience.

Conclusions: The useful method which will help to reach our aim may be providing basic information to medical students and trainees on how to systematically enter into the early stages of research.

Take-home messages: If we keep on talking about the importance of research not only for clinical experience but also for medical education, then it is really time to start those trainings in undergraduate education.

7M SHORT COMMUNICATIONS: Students: The student in difficulty

7M1 Ethnic differences on psychological and demographic factors – can they explain the academic underperformance of medical students from ethnic minorities?

Katherine Woolf*, I Chris McManus, Henry W W Potts, Jane Dacre (Academic Centre for Medical Education, UCL, UCL Division of Medical Education, 4th Floor Holborn Union Building, Whittington Campus, Highgate Hill, London N19 5LW, United Kingdom)

Background: Research from numerous medical schools has shown that ethnic minority students underperform academically compared to white students. There is however little evidence to explain why this gap exists, although various reasons have been suggested. This study aimed to investigate factors mediating the relationship between ethnicity and examination performance.

Summary of work: A questionnaire measuring demographic and psychological factors was administered to all first year preclinical and all first year clinical students at a London Medical School over two years (total n=1441). Results were correlated with end-of-year examination scores.

Summary of results: Response rates were >80%. Ethnic differences on variables such as graduate status, first language, having doctor parents and study habits were found. The personality factor Conscientiousness predicted examination scores in both years. Multivariate path models showed minority ethnicity directly negatively predicted preclinical and clinical exam results, but this relationship was virtually unmediated by the other questionnaire variables.

Conclusions: Ethnic minority medical students obtained lower examination results, but this was not due to differences in language, personality, study habits or having doctor parents. Future research should investigate other possible reasons.

Take-home messages: Ethnic differences in medical student attainment were not due to differences on several previously suggested psychological and demographic factors, indicating future work would benefit from concentrating on different areas.

7M2 Well-being and help-seeking behavior in a medical student group

Patrícia Lacerda Bellodi*, Paula Bertozzi, Milton de Araújo Martins (University of São Paulo Medical School (FMUSP), Center for the Development of Medical Education (CEDEM), Rua Luiza Júlia, 12, apto 62, São Paulo 04542020, Brazil)

Background: Studies suggest the low interest of many medical students in seeking help even when undergoing difficulties during the medical course.

Summary of work: Psychological and academic needs, anxiety and depression symptoms, quality of life and help-seeking behavior were investigated in senior year medical students through a questionnaire, Beck Anxiety and Depression scales and WHOQOL-bref.

Summary of results: Most of the students (95%) had low values of anxiety/depression symptoms and good quality of life (68%). Only 30% of the students recognized psychological needs but 51% reported needs of academic support. Participation in the school mentoring program was not associated with anxiety and depression levels nor related to quality of
life. Those that recognized need for psychological support used the school mental health service more often, but did not participate more in the mentoring program. Students with academic needs prefer to seek help from friends.

Conclusions: Perceived psychological needs apparently are an important factor in the use of specific mental health services, but do not necessarily result in student involvement in mentoring relationships.

Take-home messages: Friends are a privileged source of support among medicine students undergoing academic difficulties. School initiatives should consider this in their development of support actions. Mentors should be more aware of students’ daily academic needs.

7M3 A method for the identification of students poorly prepared for clerkships in the early years of medical school
Ana Correia, Miguel Porfela, Pedro Oliveira, Manuel João Costa* (School of Health Sciences, University of Minho, Campus de Gualtar, Braga 4710-057, Portugal)

Background: In order to proceed to clinical clerkships, undergraduate medical students should demonstrate an adequate preparation. We are interested in generating a methodology that identifies the pre-clinical specific courses in which underperforming achievements predict poor clerkship performances. If these are relatively few, this may prove useful to flag and timely remediate such students.

Summary of work: We tested: 1. whether GPAs of all preclinical courses could predict performance in a comprehensive clinical clerkship - Internal Medicine; 2. whether a restrict number of preclinical courses, identified by cluster analysis (using the variance of marks), would retain that predictive ability. Logit regression was applied to assess associations of the individual courses GPAs vs the aggregate GPAs of all preclinical courses.

Summary of results: A relatively little number of specific courses − 3 or 5 − were identified in which the predictive power of a combination of student performances, was found to be as high as that of all pre-clinical courses. Odds ratio, number of courses were respectively: 3 courses: 28.6; 5 courses: 46.5; all courses: 38.6.

Conclusions: The results suggest this method may help medical schools in predicting which courses flag students which are likely to show difficulties in clerkships.

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7M4 The effectiveness of remedial interventions for medical students is influenced by the intensity of the intervention
J A Cleland*, H Sinclair, A J Lee, A Adhami-Al, R K MacKenzie (University of Aberdeen, Division of Medical and Dental Education, Polwarth Building, Foresterhill, Aberdeen AB25 2ZD, United Kingdom)

Background: Previous studies examining the impact of remediation on performance have been small scale and lacked adequate sample sizes. This study aimed to identify if remedial interventions linked to formative assessment were effective in terms of improving performance in subsequent degree examinations.

Summary of work: This was a retrospective, observational study of anonymised databases of student assessment outcomes. Data was analysed for 1st year students due to graduate in 2007-12 and 4th year students due to graduate in 2005-2009. The main outcome measures were, respectively, first and fourth year summative degree examination marks.

Summary of results: Chi-square indicated that 1st year students who received an additional Advisory Interview went on to perform significantly better in two of the three subsequent degree examinations than those who only received the class-ranking e-mail (p=0.102; p=0.039; p=<0.001). In the 4th years, after adjusting for cohort, gender, funding source, previous degree and previous performance, students receiving the remedial intervention were significantly more likely to obtain an improved mark on end-of-fourth year summative written (p=0.005) and OSCE (p=0.001) exams.

Conclusions: Our results indicate that different remedial interventions are effective at different points in a medical degree.
**Take-home messages**: Our findings suggest that remediation must include face-to-face contact with staff: electronic communication is insufficient.

**7M5  What do medical students know about their health?**

A Kúimov*, K Popov, D Yakimenko, O Prokhodskaya, I Pitymak, I Kuímov (Novosibirsk Medical University, Krasny Prospekt, 52, Zaleskiogo, 6, Novosibirsk 630091, Russia)

**Background**: Health Educational Programs for population mean the future doctors are to be educated in this field very well. Every student should prepare himself to be healthy person and advance this knowledge to population.

The aim of this study is to assess: 1) the health of the medical student community, 2) the student’s knowledge of their own health, 3) the student’s responsibility and care of their health.

**Summary of work**: 168 questionnaires from 168 year 4 students of university (119 females and 49 males) were analyzed.

**Summary of results**: The students consider the main health risk factors as following: alcohol (21%), smoking (20%), stress-life (11%), obesity (9%), low physical activity (6%), hereditary (6%), environment pollution (4 %), other (23%). Nobody points out arterial hypertension and dislipidemia(!). 90% students don’t know their serum cholesterol level; 86% students don’t know their serum glucose level; 50% students don’t know their body mass index. 2/3 students have following risk factors: 63% are regular alcohol consumers, 60% don’t have regular physical activity, 40% are smokers, 28% have familial cardiac risk factors, 15% have overweight. But 70% students consider themselves as absolutely healthy persons(!).

**Conclusions**: The medical year 4 students don’t know their health. They don’t take care of their life style and elimination of risk factors. They are not ready to manage the problems of the health in the population.

**7N  SHORT COMMUNICATIONS: Themes: Ethics and attitudes**

**7N1  Practical ethics; the development of a new clinical ethics consultation service for medical and healthcare students**

Daniel Sokol*, Deborah Bowman, John Spicer (St George’s, University of London, Centre for Medical and Healthcare Education, St George’s, University of London, Cranmer Terrace, London SW17 0RE, United Kingdom)

**Background**: Clinicians are regularly faced with moral dilemmas, and so too are medical and healthcare students. It is not clear, however, how students handle these real-life ethical problems. To support students confronted with ethical issues, the ethics and law academics at St George’s, University of London, set up a clinical ethics consultation service.

**Summary of work**: We describe the origins and logistics of the service, from its establishment to its tracking and evaluation. We will also introduce findings on consultation activity, content of referred cases and student evaluations for the first 6 months of the service. Finally, we situate this novel intervention within the literature on the ethical erosion of medical students.

**Summary of results**: An ethics consultation service can: (1) facilitate the resolution of ethical problems by providing students with clinical ethics support and education; (2) help medical students apply their ethical knowledge to real-life situations and contribute to their intellectual and moral development; (3) allow the creation of a database of student ethics cases that can be used in future teaching; (4) create an organisational culture in which acting ethically is actively encouraged and supported.

**Conclusions**: A clinical ethics consultation service for healthcare students can provide numerous benefits to the wellbeing and moral development of students.

**Take-home messages**: Consider offering a clinical ethics consultation service for students in your institution.
7N2 Moral judgment competencies in medical students – is medical education out of balance?  
Sunčana Kukolja Taradi*, Milan Taradi, Mladenka Vrcić Keglević, Darko Antičević (University of Zagreb School of Medicine, Salata 3, Zagreb 10000, Croatia)

Background: Although medical doctors face moral dilemmas every day and presumably have higher requirements for morally competent professional behavior than any other profession, medical students are mostly trained only to handle the scientific and technical aspects of the profession but not the moral. A number of studies world wide found a troublesome phenomenon: students’ moral judgment competences decline during their medical education.

Summary of work: Lind's Moral Judgment Test (MJT) was used to assess moral judgment competences of medical students (1st, 3rd, and 5th year) at University of Zagreb Medical School.

Summary of results: Results from our cross-sectional study revealed that the MJT Competence-score (C-score) of tested medical students (N=182) showed a decline tendency, indicating a regression in their moral judgment competences. Students’ C-score: 1st year = 21.27; 3rd year = 16.39; 5th year = 17.12.

Conclusions: Medical students get a highly sophisticated technical training but not the moral education needed to cope with dilemmas they will be confronted with in their professional life. It seems like there is a hidden curriculum in the structure of medical education that prevents rather than fosters the development of moral judgment competencies.

Take-home messages: For holistic development of medical students a change of the curriculum and organization of medical education is needed that will create an academic atmosphere fostering students' moral development.

7N3 An online community of practice for medical school ethics teachers  
Al Dowie* (University of Glasgow, Section of General Practice & Primary Care, House, 1 Horselethill Road, Glasgow G12 9LX, United Kingdom)

Background: Communities of practice are a well-established means of knowledge transfer and co-construction among practitioners in any sector. They differ from a network or interest group by virtue of their collaborative activity in a joint enterprise such as medical education.

Summary of work: Under the auspices of the Scottish Deans there is a common set of educational themes in ethics that form the basis for an online community of practice hosted on The Scottish Doctor website. This facilitates web-based interchange among teachers from the five Scottish medical schools in the joint endeavour of ethics education. The shared virtual space has been operational since last summer via user name and password, and is comprised of three principal tools: a wiki resource, discussion board, and virtual patient bank using the Labyrinth authoring and delivery platform.

Summary of results: The community is beginning to discuss and document practice, compare experiences, arrange site visits, and share materials. Areas still to develop include mapping out knowledge, identifying gap areas, collaborating creatively, and solving problems.

Conclusions: Communities of practice can benefit faculty significantly, and develop gradually as members assume ownership.

Take-home messages: Adoption and uptake begins with members' needs; support in using the tools is essential for members to populate the space with their own content.

7N4 An ethical reasoning model: contributions to medical education  
Tsuen-Chiuan Tsai*, Peter H. Harasym (Department of Pediatrics, Taipei Medical University Wan Fang Hospital, 111 Hsiong-Long Rd., Section 3, Taipei 116, Taiwan)

Background: Teaching “ethical reasoning in medicine” has been considered challenging. This paper creates a model to help teachers and learners communicate what should be taught or assessed when resolving a specific ethical problem.
Summary of work: A reasoning model was created by first examining different models described in the literature, creating a draft model based on synthesizing the perceived positive aspects described in other models, and then refining the draft model by think-aloud interviews of ethical experts.

Summary of results: Subjects consisted of 16 voluntary ethics experts. The reported ethical reasoning models in the literature were divided into two types: justification- and task-based models. Neither of the two types represented the “whole picture” of ethical reasoning in medicine. The think-aloud interviews revealed multi-dimensional factors that experts used when resolving ethical dilemmas/problems. The final model is called the Medical Ethical Reasoning (MER) model and it reflects an interaction within 3 domains: medical/ethical knowledge, cognitive reasoning processes, and attitude.

Conclusions: MER accurately reflects how physicians solve ethical dilemmas and is seen to be helpful in identifying what and how educators should teach, what students need to learn, and what assess tools would be helpful in guiding educational decisions.

Incorporating Bioethics teaching in undergraduate medical curriculum of a Pakistani School
Bushra Khizar*, Mobeen Iqbal, Tara Jaffery (Shifa College of Medicine, Shifa College of Medicine H-8/4, Pitis Bulhari, Islamabad 44000, Pakistan)

Background: Skills for moral reasoning are highly desired in routine clinical practice to handle ethical dilemmas increasingly encountered in modern day practice. We report our experience of incorporating ethics teaching at undergraduate level.

Summary of work: We introduced Foundation modules for our undergraduates going through system-based integrated curriculum. The concepts of bioethics were introduced during Case based discussions utilizing themes such as patient confidentiality, end of life issues, informed consent, resource allocation and physician-pharmaceutical interactions. In addition, role plays, small group assignments and students presentations were other learning strategies. Students were asked to submit reflective piece of writing and self-rated knowledge/perceptions were also recorded.

Summary of results: The results showed significant improvement in self-rated knowledge and perceptions about different aspects involved in identifying and analyzing ethical dilemmas. Reflective writings were analyzed on a rubric. Most reflections were limited to various levels of ‘description’ but several incorporated analysis of the experience, evaluation and an action plan regarding use of skills for moral reasoning in patient interactions.

Conclusions: Foundation modules were successful in sensitizing and creating awareness amongst medical students. This effort resulted in development of a longitudinal curriculum incorporating bioethics in our curriculum.

Take-home messages: Ethics teaching should start early in medical education and can be successfully implemented in developing world.

Assessing the written communication skills of medical school graduates
Thomas Rebbeck*, John Boulet* (Educational Commission for Foreign Medical Graduates, 3624 Market Street 2nd Floor, Philadelphia 19104, United States)

Background: The ability of physicians to communicate with other healthcare workers, especially in writing, is a fundamental skill. In 1998, the Educational Commission for Foreign Medical Graduates (ECFMG) began administering a clinical skills assessment (CSA) as part of the certification requirements for graduates of international medical schools. Included within the CSA was a post encounter patient note (PN) exercise. The output from the PN exercise was scored holistically by physician raters.

Intended outcomes: Participants will have an understanding of how a holistic evaluation of written patient summaries can provide reliable and valid assessment scores. Participants will become familiar with the development of rating scales and associated scoring criteria.
**Structure:** Following a review of the content of a typical standardized patient case, and the general guidelines for holistic rating, participants will develop applicable holistic scoring criteria. These ‘performance standards’ will be based on the presenting patient complaint and what, ideally, should be documented. Several written notes will then be reviewed and rated based on the proposed rubric and scoring guidelines. These ratings will be tabulated and discussed.

**Intended audience:** Medical educators responsible for the assessment and evaluation of medical students and/or graduates.

**Level of workshop:** Intermediate

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**7P WORKSHOP**

**Getting published**

Kevin W. Eva*, John Spencer* (McMaster University, 1200 Main Street West, Hamilton, Ontario L8N 3Z5, Canada; University of Newcastle upon Tyne, United Kingdom)

**Background:** Survival in academia and advancement in training depend, at least in part, on publication, 'publish or perish' providing a mantra that is possibly more accurate now than ever before. The positive side of this is that publication is the lifeblood of academic life, providing the main medium for dissemination of ideas and advancement of knowledge, both of which are defining features of the scientific process. The last few years have seen a significant increase in submissions to health professional education journals, making publishing ever more competitive. Adding further to the challenge is that such journals are slowly ‘raising the bar’ in terms of standards for publication.

**Intended outcomes:** With this in mind the goals of this workshop will be to provide authors (or potential authors) with a better understanding of what makes a good paper, where the common pitfalls lie with respect to writing and submitting papers, and what goes on ‘behind the scenes’ of the publication process.

**Structure:** Facilitated discussion.

**Intended audience:** Anyone who writes, or is intending to write, papers for publication.

**Level of workshop:** All

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**7Q WORKSHOP**

**“The Swiss Experience” – chances and pitfalls with Bologna in the medical curriculum**

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**Background:** In Switzerland the implementation of the Bologna declaration in the medical curricula started in 2006.

**Intended outcomes:** After the workshop the participants will: (1) have an insight into curriculum development steps associated with the bachelor, the master cycle as well as the doctorate cycle and their relevance for medical curricula; (2) be aware of some important areas of discussion during the Bologna reform regarding the coexistence of a federal examination and a university master degree, the creation of elective modules as well as the concept of specialized master programmes and their implications for the postgraduate training; (3) recognize the importance to consider the student’s perspective towards the changes to be able to develop a bottom up strategy; (4) be sensitized to the development of doctoral programmes with Bologna.

**Structure:** (1) Input with short communications presenting 3 years of experience in reforming medical curricula according to Bologna; (2) Small group work on curriculum planning activities with respect to bachelor- and master programmes and elective modules; (3) Plenary discussion of results and perspectives for the continuum between pre- and postgraduate medical education in the near future.

**Intended audience:** Medical teachers and educators mainly from European countries.

**Level of workshop:** Intermediate
Raising awareness of the impact of disability – experiential and reflective learning

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Background: The population of the UK and Europe is aging with an associated rise in disability. European legislation prohibits disability-based discrimination however the impact of even relatively minor disability on normal activities can be difficult to understand. Raising awareness of how disability can affect access to a variety of services is an important element in preparing students for their future professional roles.

Intended outcomes: By a process of experiential learning and reflection, delegates will be encouraged to develop a fresh understanding of the physical and psychological consequences of disabilities, and to help students understand these consequences.

Structure: The conference workshop will expose delegates to an ‘instant disability’ experience. Delegates will then consider societal as well as discipline-specific issues related to the effects of living with a disability. Vision will be impaired by the wearing of safety goggles smeared with petroleum jelly and hearing by the use of earplugs. Finger dexterity will be reduced with the use of heavy-duty household gloves. Individuals will record their own feelings and if they wish, share them with a small group. The whole group will consider how this experience may be used in Higher Education Institutes to raise student awareness of the effects of living with a disability.

Intended audience: Medical and healthcare professional educators and students

Level of workshop: All

Frequently Asked Questions (FAQ) about facilitating small-group teaching

Gitte Wichmann-Hansen*, Birgitta Dahl Pedersen* (Centre of Medical Education, Aarhus University and Centre for Clinical Education, Copenhagen University Hospital, Rigshospitalet, Aarhus University, INCUBA Science Park, Brendstrupgaardavej 102, Building B, Aarhus N. DK-8200, Denmark)

Background: Many teachers find working with small groups more difficult and exhausting than lecturing. Some teachers worry about student behaviour and often ask what to do if students become too challenging, disruptive or unfocused. Others worry about managing time effectively or being too didactic and controlling. This workshop addresses the most common difficulties experienced when teaching small-groups, and offers suggestions to how they can be reduced.

Intended outcomes: Participants should improve their abilities to 1. Recognise and respond to student behaviour that threatens constructive group discussions and interactions, 2. Use facilitation techniques that enhance dialogue.

Structure: After a brief introduction, participants work individually followed by group work. Each group agrees upon a list of FAQ based on their personal experiences with small group teaching. In response to this, the other groups find solutions, which are finally discussed in plenary. The workshop facilitators contribute with strategies recommended in the literature. Tips and tricks worked out during the workshop will be printed as a handout complemented by suggestions from the literature.

Intended audience: Teachers, supervisors and educational developers. Participants are expected to have some experience as teachers since the workshop will draw upon participants’ own teaching practice.

Level of workshop: All

Teaching CanMEDS at the bedside

Linda Snell*, Saleem Razack* (The Royal College of Physicians and Surgeons of Canada, 774 Echo Drive, Ottawa, Ontario K1S 5N8, Canada)

Background: The CanMEDS framework has been adopted in many jurisdictions, at all learner levels. Clinical teachers need to match CanMEDS competencies with effective teaching and learning
Strategies in the clinical context. This workshop will demystify CanMEDS (What is CanMEDS, how it developed, what are the roles, why they are important); discuss teaching/learning strategies used to foster the development of the competencies; outline how to teach more than one competency during the same clinical encounter; and practice the strategies.

**Intended outcomes:**
1. Define and describe the CanMEDS framework, competencies and roles;
2. Outline effective strategies for teaching and learning the CanMEDS competencies;
3. Discuss teaching the competencies in an integrated manner (integrated with each other and into a clinical encounter);
4. Demonstrate how the roles can best be taught in the clinical context.

**Structure:**
1. Introduction of participants, goals;
2. Interactive lecture: CanMEDS framework;
3. Discussion: teaching strategies useful for each role;
4. Small groups (using worksheets): Observation of bedside teaching 'vignettes'; Identify 'teachable moments' specific to each CanMEDS role; Discuss strategies to enhance learning from these teachable moments; Practice teaching with group feedback;
5. Discussion on integrating multiple competency teaching in same clinical encounter.

**Intended audience:** Clinical Teachers; Curriculum Planners; Faculty Developers

**Level of workshop:** All

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**7U WORKSHOP**

**Improving medical communications skills through web-based simulations**

Cathie Smith*, L.J. Nelles*, Leila Lax, Lynn Russell (University of Toronto, Biomedical Communications, Institute of Medical Science, Faculty of Medicine, Medical Sciences Bldg, Room 2356, 1 King's College Circle, Toronto M5S 1A8, Canada)

**Background:** Increasingly, electronic media are used to augment or even replace live interaction between teacher and student. Dissemination of content material is the most obvious use of this medium. Application of electronic media in simulated processes or experiential learning to teach medical communication skills is less frequent. Using the Communication & Cultural Competence Website, we will explore how traditional experiential educational methodologies can be translated into a reflective, real-time Web-based learning environment. Workshop participants will experience how simulations of authentic behaviour can be used to scaffold knowledge building of professional physician communication skills that might be assumed to be difficult or impossible to acquire through electronic learning.

**Intended outcomes:** Participants will: 1. Learn experientially through simulations; 2. Explore how experiential learning can be translated into a Web-based environment to scaffold the development of medical communication skills; 3. Self-reflect on the possible applications for use of this website to individual practice.

**Structure:** Introduction, session aims; Self-reflective exercise to focus learning needs (5 mins); Large group presentation and discussion of website (20 mins); Small group interactive exercises using simulation examples from website (45 mins); Debrief, take home points (10 mins); Workshop evaluation.

**Intended audience:** Healthcare educators who teach communication to trainees

**Level of workshop:** All

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**7V WORKSHOP**

**Integrating workplace-based assessment into medical training**

David C. Thomas* (Mount Sinai School of Medicine, One Gustave Levy Place, New York 10029, United States)

**Background:** Accurate assessment of a trainee's knowledge, skills and attitudes presents a significant challenge to educators. In addition to preparation and faculty development, the use of multiple assessment methods is imperative to a rigorous and defensible evaluation program. Workplace-based assessments allow for direct observation of practice followed by feedback to change behaviors. This interactive workshop is designed for an international audience of educators interested in incorporating workplace-based assessments into their training programs.
Intended outcomes: By the end of the session, participants will 1) become familiar with methods such as the mini-CEX, multisource feedback, blinded patient encounters, video case review, and direct observation of procedural skills, 2) discuss the reliability, validity, feasibility and acceptability of these methods, 3) incorporate one or more methods of workplace assessment into their current evaluation program, and 4) share strategies to trouble-shoot and overcome challenges.

Structure: We will use a variety of instructional methods including small group practice, facilitated discussions and large group presentation during this workshop.

Intended audience: It is intended for intermediate level educators with some prior experience in evaluation methods.

Level of workshop: Intermediate

7W WORKSHOP
Facilitating medical education in developing countries
Trevor Gibbs* (Ukraine National Medical Academy of Postgraduate Education (NMAPE), 9 Dorogozhytska St, 04112 Kiev, Ukraine); Michelle McLean* (University of the United Arab Emirates, FMHS, PO Box 17666, Al Ain, United Arab Emirates)

Background: Medical education moves on with vigour and at an inexorable pace in the developed countries and despite the worries expressed by its leaders in the difficulties encountered with manpower, finances and resource allocation, they are miniscule when compared to the difficulties experienced by partners in developing countries. For several years, the Presidential address has highlighted the need to support our colleagues in less fortunate regions: sentiments that have been echoed at each of the AMEE Executive, Medical Teacher Editorial Board and AMEE General Assembly meetings; to date these thoughts have not been turned into a guided, structured activity. The recent series "Medical Education around the World" in Medical Teacher has also highlighted some of the major discrepancies, difficulties and gaps that occur between countries trying to achieve the same goals in medical education. Defining which countries require help, deciding who could help and discovering how that help may be given are major discussion points that need to be brought to an interested group. Purpose and guidelines need to be focused and a way forward discussed and implemented.

Structure: The workshop will highlight some of the difficulties in delivering first class medical education in developing countries. This will be achieved through a series of short presentations. The workshop will then discuss at length a possible way forward.

Who should attend: Medical educators from all over the world, both in countries in which medical education is a relatively new discipline, and where it is well-established. It is proposed to start a Special Interest Group to carry on discussions on this topic following the workshop.

Level of workshop: All

7X POSTERS: Curriculum integration

7X1 Does early clinical experience have effects on the attitudes of medical students about basic science courses?
Mansoor Ranjbar*, Kourosh Vahidshahi, Mitra Mahmoudi, Mehdi Ahangari, Sara Ehteshami (Education Development Center, Mazandaran University of Medical Science, Vah-Asr Boulevard, Mazandaran, Sari 4815733971, Iran)

7X2 Introducing early clinical experience activities at Udonthani Hospital, Thailand
Kitt Chuapetchcharasopon* (Udonthani Hospital, Medicine Department, 33 Pohniyom Rd., Margkiang Muang, Udonthani 41000, Thailand)

7X3 Early clinical exposure in the medical undergraduate curriculum at Sapienza University of Rome: ten years experience model
G. Familiari*, G. Miciti, P. Falaschi, M. Relucenli, R. Hoyin, R. Benvenuto, L. Carini, G. Nati, G. Grasso, V. Ziparo (via di Grottarossa 1035, Second Faculty of Medicine, Sapienza University of Rome, via di Grottarossa 1035, Rome 00189, Italy)
7X4 How is the students’ anatomy performance in an integrated curriculum?
Pedro Morgado*, João José Cerqueira*, Rui Cerqueira, Nuno Sousa, Manuel João Costa (Health Sciences School, University of Minho, Campus de Gualtar, Braga 4710-051, Portugal)

7X5 Evaluation of curricular integration between physiology and semiology: faculty point of view
Ieda Aleluia*, Luiz Soares, Marta Menezes (Escola Bahiana de Medicina e Saúde Pública, R. Frei Henrique, nº8, Nazaré, Salvador/Bahia 40050-000, Brazil)

7X6 Longitudinal and cross-sectional analysis of six years experience with the multidisciplinary course on Biopathology (Portuguese medical undergraduate curriculum)

7X7 Horizontal integration in basic science curriculum at the Yerevan State Medical University
Astghik Markosyan* (Yerevan State Medical University, 2 Koryun st, Yerevan 0025, Armenia)

7X8 Doing tendon reflexes improves neuroscience MCQ scores
Philip Cooles*, Liris Benjamin, Kamal Malaker (Portsmouth, Ross University Medical School, Portsmouth DOM, Dominica)

7X9 Vertical integration in some basic courses
Zahra Moosavi*, Mahmood Orazi Zadeh (Ahvaz University of Medical Sciences, Imam Hospital, Department Of Dermatology, Ahvaz 61335, Iran)

7X10 Students and faculty perceptions on the present integrated modular curriculum at SCM Pakistan: Emerging issues, challenges and alternative methods
Syed Shoaib Shah*, Ahsan Hameed, Waseem Ullah Khan, Muhammad Sabir (Shifa College of Medicine, Sector H-8/4, Pitrus Bukhari Road, Islamabad 44000, Pakistan)

7X11 Learning endocrinology and reproduction in an integrated modular curriculum
Sameena Ghayur*, Mobeen Iqbal, Shahid Rafi (Shifa College of Medicine, Pitrus Bukhari Road, Sector H-8/4, Islamabad 46000, Pakistan)

7X12 Integrated Learning: An experience with renal module
Riffat Shafi*, Waseem Ahmed, Nayer Mahmud, K.H.M.Quadri, Mobeen Iqbal (Shifa College of Medicine, Pitrus Bukhari Road, Sector H-8/4, Islamabad 46000, Pakistan)

7X13 Lessons from 7 years of experience with a multidisciplinary course on organic and functional systems: longitudinal and cross-sectional analysis
Sousa JC*, Costa MJ, Sousa N, Patha JA (University of Minho, School of Health Sciences, Campus de Gualtar, Braga 4710-057, Portugal)

7X14 Knowledge integration in medical education
Agustin Vicedo* (Higher Institute of Medical Sciences, Avenida 17 No. 19402, Siboney, Playa, Havana 10800, Cuba)

7X15 Developing an assessment framework for longitudinal integrated community clerkships
Marc Broudo*, Joan Fraser (University of British Columbia, Second Floor - 1678, 2211 Westbrook Mall, Vancouver V6T 2B5, Canada)

7X16 Impact on knowledge acquisition of transition from a conventional to an integrated contextual medical curriculum
Jos Van der Veken*, Martin Valcke, Anselme Derese, Jan De Maeseneer, Lambert Schuwirth (Ghent University - Direction of Educational Affairs, Department of Educational Quality Assurance, St Pietersplein 7, Ghent 9000, Belgium)
7X17 Learning improvement after integrating the clinical and basic science subjects
Behnoosh Miladpoor*, Mohammadhasan Moshkibaf, Fahimeh Majidi (Fasa University of Medical Sciences, AVE SINA square, Fasa 746168668, Iran)

7X18 The quality of conceptual understanding concerning the cardiovascular system among first-year undergraduate medical students
Johanna Hoffen, Miijamaa Mikkilä-Edmann, Pelikä Kääpä* (Medical Education Research and Development Centre and Faculty of Education, University of Turku, Klinikkyväkiatu 13, Turku FIN-20041, Finland)

7X19 Refinement of the interdisciplinary foundation phase in an undergraduate health sciences curriculum based on initial perspectives of students and lecturers
AJ Louw*, J Bezuidenhout, B van Heerden, M van Heusden (Stellenbosch University, PO Box 19063, Tygerberg 7505, South Africa)

7X20 Multidisciplinary programmes in education
Berit Rostad* (MTFS, Faculty of Medicine, Trondheim N-7489, Norway)

7X21 Integrated assessment: a methodological proposal
Maria Viviane Lisboa de Vasconcelos*, Renato Santos Rodrigue, Célia Maria Silva Pedrosa (College of Medicine, Alagoas Federal University, Macelio, Brazil)

7Y POSTERS: Curriculum themes (2)

7Y1 Save Our Lives – implementation of pre-hospital emergency care to undergraduate medical education
Adela Michalová, Jan Precek*, Daniel Kvačil, Christopher Redelsteiner, Eva Dorazilová, Pavel Kurfurst (Palacky University, Faculty of Medicine and Dentistry, Tr. Svobody, Olomouc 771 26, Czech Republic)

7Y2 Emergency medical care for students of dentistry: Evaluation of a pilot project
Beckers S*, Sopka S, Biermann H, Skorning M, Bergrath S, Roertgen A, Rossaint R (AIKTRA – Aix-la-Chapelle Centre for Training in Medical Education, Medical Faculty RWTH Aachen University, Wendingweg 2, D-52074 Aachen, Germany)

7Y3 Analysis of pharmacology and therapeutics knowledge by means a test administration to students, residents and physicians
Marín-Campos Y*, Nájera-Tijerina BM, Saldivar-González JA, Mendoza-Patín Nicandro, (Departamento de Farmacologia, National Autonomous University of Mexico (UNAM), Ciudad Universitaria, Deleg. Coyoacán, Distrito Federal, Mexico 04510, Mexico)

7Y4 Are nurses in South Africa prescribing medicines judiciously?
Enoch Nkwizera* (Faculty of Health Sciences, Department of Pharmacology, Walter Sisulu University, Nelson Mandela Drive Campus, Mthatha 5117, South Africa)

7Y5 Introduction of an online prescribing module provides a time-efficient and effective method of improving undergraduate prescribing competence
Spooner M, Branagan P, Meagher F, Gunaratnam C, McElvaney NG* (Education and Research Centre, Department of Medicine, Royal College of Surgeons in Ireland, Beaumont Hospital, Beaumont Road, Dublin, Ireland)

7Y6 Interns’ knowledge and attitudes regarding cancer pain and cancer pain management
Sasikaan Nimmaanrat*, Chatthai Prechowai (Hatayi, Department of Anesthesiology, Faculty of Medicine, Prince of Songkla University, Songkhla 90110, Thailand)

7Y7 Palliative care: attitudes of medical students towards palliative symptom control
Charan Wattanamongkol* (Division of Respiratory and Critical Care Medicine, Prapokkloao Hospital, 515 Tachalab Road, Talad, Muang District, Chanthaburi 22000, Thailand)
7Y8 Law in the curriculum – essentialia every physician should know
Hartmut Riehn*, Antonia Pelz, Jörg Pelz, Mortz Gebauer (Charité Universitätsmedizin Berlin, Schumannstr. 20 - 21, Berlin 10117, Germany)

7Y9 ‘Psychobabble’: development of a formal peer support program for medical students studying psychiatry
Emily Woolnough*, Ruth Cameron Jeffs* (Faculty of Medicine, Nursing and Health Sciences, Monash University, Wellington Road, Clayton, Melbourne 3800, Australia)

7Y10 From “Grand Theft Auto” to “Love of Siam”
Anupong Suthamnirand*, Sitinadda Panyapas (Chonburi Hospital, Chonburi Medical Education Center, Muang, Chonburi 20000, Thailand)

7Y11 Teaching psychosomatic medicine at the Medical Faculty of University of Szeged: an integrative, problem-oriented approach
Katalin Barabás*, Margit Keresztes (Dept. Behavioural Sciences, Szentháromság u. 5, Szeged 6722, Hungary)

7Y12 Teaching basic psychiatric concepts in an integrated PBL-based curriculum
T.O. Neild* (Department of Human Physiology, Flinders University, GPO Box 2100, Adelaide 5001, Australia)

7Y13 Promoting brief psychological counseling to medical undergraduates
Weng Yee Chin* (Family Medicine Unit, The University of Hong Kong. 3/F, Ap Lei Chau Clinic, 161 Main Street, Ap Lei Chau, Hong Kong)

7Y14 Three-week psychiatry clerkship: recipe for disaster or price of innovation?
Bostwick JM* (Mayo Clinic, 200 First Street SW, Rochester, MN 55905, United States)

7Y15 Structured role play in undergraduate psychiatry teaching – one success story
Daniel S Furmedge*, Sarah Stingler (King’s College London School of Medicine, Guy’s Campus, 2nd Floor Henriette Raphael House, London SE1 1UL, United Kingdom)

7Y16 Learning public health advocacy through community action: ten-year impact assessment of an undergraduate module
Janice M Johnston*, Lisa Lo, Tai Hing Lam, Gabriel M Leung (The University of Hong Kong, School of Public Health, 21 Sassoon Road, Pokfulam, Hong Kong)

7Z POSTERS: Portfolios

7Z1 Inventarisation of the use of portfolio in the Faculty of Medicine and Health Sciences of Ghent University
Leen Aper*, Sebastiaan Koole, Anselme Derese (Ghent University, De Pintelaan 185, 3K3, Gent 9000, Belgium)

7Z2 Portfolio as an instrument to identify the weakest link in the curriculum
Danan Wongsatewarakul, Parunyou Julayanont*, Jittada Deerojanawong, Nuanchan Praphai, Sophon Napathorn (The Faculty of Medicine, Chulalongkorn University, 1873 Rama IV Road, Patumwan, Bangkok 10330, Thailand)

7Z3 Peer review system increases knowledge in the physiotherapy programme
Birgitta Nordgren*, Cecilia Fräden, Annette Heijne, Maria Hagströmer (Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, 23100, Huddinge 141 83, Sweden)

7Z4 Electronic learning portfolio in undergraduate medical studies
Kaisa Vehmas*, Outi Jääskeläinen, Antti Tarponen, Peikka Kääpä (Medical Education Research and Development Centre, University of Turku, Klinikamyllynkatu 13, Turku 20520, Finland)

7Z5 Training implementation portfolio in Gynaecology and Obstetrics
G. Dirksen-de Tombe*, R. Dulliemond, M. ten Kate-Boelij, G. Kooi, M.Lagro, J. v.d. Swaluw, A. Zanting (Erasmus Medical Centre, dr. Molewaterplein 50, Postbus 2040, room F1225, Rotterdam 3000 AC, Netherlands)
7Z6 An ePortfolio implementation to evaluate the CanMEDS Scholar Role in Residency: What features do residents value?
Rodrigo Cavalcanti, Shippa Ginsburg, Heather McDonald-Blumer, Kenneth Locke* (Department of Medicine, Faculty of Medicine, University of Toronto, Suite RFE 3-805, 190 Elizabeth Street, Toronto, ON M5G 2C4, Canada)

7Z7 Online case discussion among interns in different hospitals
Dorien Sels*, Bram De Wever, Danny De Loove, Anselme Derese (Ghent University, Faculty of Medicine and Health Sciences, De Pintelaan 185 - 3K3, Ghent 9000, Belgium)

7Z8 Electronic portfolios for tutor and resident training evaluation in Andalusia

7Z9 Competency-based electronic learning portfolios for trainees in gastroenterology: survey of perceptions after 18 months
Elie Aoun,* David A Brokl, Miguel D Regueiro, James B McGee (University of Pittsburgh School of Medicine, Division of Gastroenterology, PUH, C Wing, M Level, 200 Lothrop Street, Pittsburgh 15213, United States)

7AA POSTERS: Team-based, lectures and other approaches to teaching and learning

7AA1 Long term memory in team-based learning compared with lecture-based learning among clinical-year medical students
Tamon Thongst† (Buddhachinaraj Hospital, 90 Sthamatripidok Road, Ampur Muang, Phitsanuloke 65000, Thailand)

7AA2 A study on students’ perception of team based learning experience
Sun Kim*, Joo Hyun Park, Ara Cho (Dept. of Medical Education, The Catholic Uni. of Korea, School of Medicine, Seoul 731-107, Republic of South Korea)

7AA3 Effective teaching in case-based education: the impact of teacher behaviours and interventions on the students’ reasoning strategies and learning
S.P.J. Ramaekers*, J. van Keulen1, W.J. Cremer2, A. Piloto, P. van Beukelen2 (IVOS Educational Institute, P.O. Box 80127, 3508 TC Utrecht; Utrecht University, Faculty of Veterinary Medicine, Utrecht 3508 TC, Netherlands)

7AA4 Student decisions about lecture attendance
T Hosseini, M Hosseini* (Jahrom University of Medical Sciences, Motahari Street, Fars, Shiraz 71946-67894, Iran)

7AA5 Virtual lectures can substitute for conventional lectures improving student-professor interaction
Francisco Sendra*, Oscar Torales, Manuel Martinez-Morillo (Departamento de Radiologia, Facultad de Medicina, Campus de Teatinos s/n, Malaga 29071, Spain)

7AA6 Applying enneagram to enhance self awareness in communication class
HyeRin Roh*, Yang Hee Kim, Hee Jeong Son, Jeong Hee Yang (Clinical performance center, School of Medicine, Kangwon National University, Chuncheon 200-701, Republic of South Korea)

7AA7 An easy way to teach medical students during verbal telephone report
Anurak Amornpetchsathaporn* (Sawanpracharak Hospital, Atthakawee Road, Paknampho District, Muang, Nakhonsawan 60000, Thailand)

7AA8 The autopsy – making the surreal real? Students’ experiences of autopsies in medical education
Maria Weurlander**, Max Scholja, Håkan Huff** & Annika Wernerson† (Centre for Medical Education, Dept of Learning, Informatics, Management and Ethics [LIME], Karolinska Institutet, Dept of Education, Stockholm University, Dept of Laboratory Medicine, Division of Pathology, Stockholm S-17177, Sweden)
7AA9 “Don’t Just Look”! The design and evaluation of a Perception in Art Module
Moore-McCann B*, Patterson A, Hennessy M, McCann S (School of Medicine, University of Dublin, Trinity College, Dublin 2, Ireland)

7AA10 An in class activity to increase meaningful learning of metabolic regulation
Rodrigues F, Salgueira A, Costa MJ, Ludovico P* (Life and Health Sciences Research Institute (ICVS), School of Health Sciences, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal)

7AA11 “Out of box” thinking lesson
 Wichai Thantummaraj* (Hatyai Hospital, 182 Raffarkan Road, Songkhla 90110, Thailand)

7AA12 A survey of final year medical students’ motivations for attending commercial revision courses
Glover Alexandra*, Parson Philippa*, Blundell Adrian* (City Hospital Campus, Nottingham University Hospitals NHS Trust, UK, Hucknall Road, Nottingham NG5 1PB, United Kingdom)

7AA13 Self directed learning: challenges and obstacles among premedical students at Thammasat University, Thailand
Chittinad Havancnd* (Rungsit Campus, Faculty of Medicine, Thammasat University, Prathumthani 12120, Thailand)

7AA14 Medical students’ views on knowledge and knowing

7AA15 Do learning styles change during medical study?
H G Kraft* (Medical University of Innsbruck, Schöpfstr. 41, Innsbruck 6020, Austria)

7AA16 Identifying threshold concepts in medical education
Christopher Beevers*, James Catroppa, James Grogan, Mark Hernandez, Gerhard Meisenberg, David Sacks, Aidi Yin (Ross University School of Medicine, Suite 500, 630 US Hwy 1, North Brunswick 08902, United States)

7AA17 Learning by Asking - Inquiry Based Learning
Christina Gummesson*, Eva Nordmark, Pia Strand, Gudrun Edgren (Lund University, Faculty of Medicine, Centre for Teaching and Learning, Sweden)

7BB POSTERS: Formative assessment, progress tests and final exam

7BB1 Formative assessment utility in integrative clinic courses: initial experience
Labarca Jaime, Figueroa Catalina, Huidobro Bárbara, Wright Ana Cecilia, Romero Maria Inés, Moreno Rodrigo* (Department of Medicine, Pontificia Universidad Católica de Chile, Students of Medicine, Department of Public Health and Medical Education Office, Santiago 8331010, Chile)

7BB2 Nurses’ self-assessment about their competencies
Momennasab M*, Moattary M, Nojafi S, Besharat A, Jahngoharan P (School of Nursing & Midwifery, Namazi Square, Shiraz University of Medical Sciences, Shiraz 71936-13119, Iran)

7BB3 Self-assessment of competencies: what does it mean?
Johannes Forster*, Silke Biller, Marianne Giesler, Götz Fabry (St. Josefkrankenhaus and University of Freiburg, Sauterstr. 1, Freiburg 79104, Germany)

7BB4 Multisource feedback utilising patient, self, student and clinical feedback in undergraduate assessment
Willcock H*, Lyons O, Archer J, Rees J (Guy’s Hospital Campus, King’s College London School of Medicine, London SE1 9RT, United Kingdom)

7BB5 Assessing undergraduate medical students using 360° assessments
Mandip Kaur Heir*, Rohith Puthan Veettil, Ellen Jones, David Wall (Heart of England NHS Foundation Trust, Bordesley Green, Birmingham B9 5ST, United Kingdom)
Progress testing in a traditional medical school
Maffei, CM*, Troncon, LEA (Faculdade de Medicina de Ribeirão Preto -USP, Av. Bandeirantes, 3900 - Comissão de Graduação, Ribeirão Preto - São Paulo 14049-900, Brazil)

Student success in final clinical exam at graduation can be predicted early in progress tests
Timo Kuusi*, Tom Pettersson (Biomedicum Helsinki, Haartmaninkatu 8, Research and Development Unit for Medical Education, University of Helsinki, Helsinki 00290, Finland)

What do medical school newcomers know about ECG?
Castelo-Branco, M*, Piçarra, B (Faculdade de Ciencias da Saude, Universidade da Beira Interior, Avenida Infante D. Henrique, Covilhã 6200-506, Portugal)

Longitudinal assessment of practical surgical skills in undergraduate students – the balance between motivation and evaluation in daily practice
Achim Braunbeck*, Miriam Rüsseler, Felix Walcher, Ingo Marzi (Johann Wolfgang Goethe-University Frankfurt Department of Trauma, Hand and Reconstructive Surgery, Theodor-Stern-Kai 7, Frankfurt 60590, Germany)

Assessment – the engine that drives learning: a case study of the Nelson R Mandela School of Medicine (NRSM)
Jacqueline van Wyk* (University of KwaZulu Natal, Nelson R. Mandela School of Medicine, Private Bag 7, Congella, Durban 4013, South Africa)

Assessment of modules - first experiences with continuing assessment
Maren März*, Andreas Möllner, Gerhard Oechtering, Fritz R. Ungemach (University of Leipzig, Faculty of Veterinary Medicine, An den Tierkliniken 17, Leipzig 04103, Germany)

Behavioral contracts: similar results using either face-to-face or blended learning strategies
Adolfo Aracil*, Juana Gallar (Universidad Miguel Hernández de Elche, Avda. de la Universidad, s/n, Elche 03202, Spain)

How to increase the chance of passing the National Licensure Examination
Chote Werawong*, Somkit Wattanasirichalngoon (Faculty of Medicine, Srinakharinwirot University, 62 M.7 Rungsit-Nakhon-Nayok Road, Ampur Ongkhara, Nakhon-Nayok 26120, Thailand)

An analysis of Prince of Songkla University (PSU) medical student preparation for the Thai National Medical Licensing Examination (TNMLE) Step II
Chatchai Preechawai*, Nattapa Preechawai, Passom Preechawai (Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla 90110, Thailand)

Is a mock best option MCQ a valid measurement of student performance in final clinical medicine?
M. Shuhaibar*, A. Patterson*, M. Hennessy, S. McCann, C. O’Morain (School of Medicine, Trinity College Dublin, Dublin 2, Ireland)

The assessment of humanized health care practice in final year medical students
Jiratha Budkaew* (Khon Kaen Hospital, Khon Kaen Medical Education Center, Khon Kaen 40000, Thailand)

Does a one-day campus-based computerized exam leak out information to affect the exam results?
Kalle Romanov* (Research & Development Unit for Medical Education, Helsinki University, POB 63, Helsinki 00014, Finland)

Frankfurt Medical Summer School: A successful training course model to prepare medical examination
Stefan Kiess*, Frank Bonzelius, Frank Nürnberger, Werner Müller-Esterl (Office of the Dean, Medical Faculty, Goethe University Frankfurt/Main, Institute of Biochemistry II, Medical Theodor-Stern-Kai 7, Frankfurt/Main 60590, Germany)
7BB19 Examination anxiety among students of University of Medical Sciences
Shahrzad Yektatalab*, Majid Dehghani (Nursing College, Shiraz University of Medical Sciences, Shiraz 81989, Iran)

7CC POSTERS: Problem solving, clinical reasoning, reflection and research

7CC1 Attitudes to cooperative learning and reflective thinking are correlated
Consorti F.*, Milazzo F., Potasso L. (*F. Durante* Univ. “Sapienza” of Rome, Viale del Policlinico, Dip. of Surgery, Rome 00161, Italy)

7CC2 Reflection on clinical skills training and learning outcomes
Masami Tagawa*, Hityoyuki Imanaka (Center for Innovation in Medical and Dental Education, Graduate School of Medical and Dental Sciences, Kagoshima University, 8-35-1 Sakuragaoka, Kagoshima 890-8544, Japan)

7CC3 Teaching developmental biology based on clinical reasoning
Donato Saldívar-Rodríguez*, Norberto López-Serna, Myrna Leticia Montemayor-Flores, Santos Guzmán-López (Facultad De Medicina, U.A.N.L., Cat. Francisco I. Madero Y E. Aguirre Pequeño, S/N, Col. Mitras Centro, Monterrey 64460, Mexico)

7CC4 Mindfulness as a model for teaching clinical reasoning to medical and veterinary students
L Clare V Allen* (The Ohio State University College of Veterinary Medicine, Room 125L, Veterinary Medicine Academic Building, 1900 Coffey Road, Columbus OH 43210, United States)

7CC5 Assessment of diagnosis without asking about diagnosis
Nancy Fernandez-Garza*, Diana Montemayor-Flores, Donato Saldívar Rodríguez (Universidad Autonoma de Medicina, Medicine School, Madero y Gonzalitos S/N, Col. Mitras Centro, Monterrey, Nuevo Leon 64620, Mexico)

7CC6 Teaching clinical reasoning in a developmental biology course
Diana Montemayor-Flores*, Nancy Fernández-Garza, Donato Saldívar Rodríguez (Universidad Autonoma de Medicina, Medicine School, Madero y Gonzalitos S/N, Col. Mitras Centro, Monterrey, Nuevo Leon 64620, Mexico)

7CC7 The science underpinning medical decision making by junior doctors
Stephanie Bull*, Julian Archer, Karen Mattick (Peninsula College of Medicine and Dentistry, St Luke’s Campus, Heavitree Rd, Exeter EX1 2LU, United Kingdom)

7CC8 Defining and assessing Critical Thinking Skills (CTS)
Alan Castle* (University of Portsmouth, School of Health Sciences and Social Work, James Watson West, 2 King Richard 1st Road, Portsmouth PO1 2FR, United Kingdom)

7CC9 Critical thinking in the undergraduate curriculum – a combined initiative of students and faculty
Jacqueline Pinnow*, Jens Wessel, Jörg Pelz (Charité Universitätsmedizin Berlin, Prodekanat Studium und Lehre, Fegerstudengang, Schumanstraße 20 - 21, Berlin 10117, Germany)

7CC10 Critically literate physicians: the way forward
Blye Frank*, Karen Mann* (Dalhousie University, Division of Medical Education, Clinical Research Centre, 5849 University Avenue, Halifax, Nova Scotia B3H 4H7, Canada)

7CC11 Place of problem-building in clinical reasoning: a qualitative study in medical students and in experts
Pierre Pottier*, Bernard Planchon, Jacques-Henry Barlier, Michel Fabre (Centre de Recherche en Education de l’Université de Nantes (C.R.E.N), Département des Sciences de l’Education, UFR Lettres et Langages, Chemin de la Censive du Terre, BP 81227, Nantes Cedex 3 44312, France)
7CC12 Comparison of critical thinking among first and last trimester baccalaureate midwifery students
Seyedeh Taherreh Mirmolaei*, Hassan Shabani, Gholamreza Babaei, Zahra Abdelehaghi (Tehran University of Medical Sciences, Nursing and Midwifery Faculty, Nosrat St., Tohid Sq., Tehran 1413513614, Iran)

7CC13 Teaching research methodology in the medical undergraduate curriculum at Sapienza University of Rome: a two-year experience model
M. Salvetti, G. Palmieri, F. Grassi, F. Pontieri, A. Stoppacciaro, S. Di Somma, G. Familiari, V. Zicaro* (Second Faculty of Medicine, Sapienza University of Rome, via di Grottarossa 1035, Rome 00189, Italy)

7CC14 “I try to see for myself in a clinical sense” – Learning for clinical application
Wendy McMillan* (Faculty of Dentistry, University of the Western Cape, Tygerberg Campus, Private Bag X1, Tygerberg 7505, South Africa)

7DD POSTERS: Selection for medical studies

7DD1 Admissions criteria: humanities vs sciences?
Eskander G*, Bee D, Marshall M, Bax NDS (The University of Sheffield, Western Bank, Sheffield S10 2TN, United Kingdom)

7DD2 Medical students’ motivation to study medicine
Adrian Blundell*, Richard Harrison (Sherwood Forest Hospitals NHS Trust, Mansfield Road, Sutton-in-Ashfield, Mansfield NG17 6JL, United Kingdom)

7DD3 The relationship between medical school applicants’ personality characteristics and admission interview rating
Eun-Kyung Chung*, Sun-A Oh, Young-Jong Woo, Jung-Ae Rhee, Hyun-Chul Lee, Sam-Yong Lee, Jong-Hee Nam, Young-II Koh, Jung-Chul Kim (Department of Medical Education, Medical School of Chonnam National University, 5 Hak-Dong, Dong-gu, Gwang-ju 501-746, Republic of South Korea)

7DD4 Admission criteria and educational success of medical students in Frankfurt
Syed Ali A*, Seibert-Alves F, Dittrich W, Hentschke V, Nuernberger F (Office of the Dean, Medical Faculty, Johann Wolfgang Goethe-University, Theodor-Stern-Kai 7, Frankfurt/Main D-60590, Germany)

7DD5 Effectiveness of academic camp for One District One Doctor Project
Waldiporn Euanontat* (Medical Education Center, Thammarat Hospital, 198 Rajchadumnern Road, Nimuang, Muang District, Nakhonsithammarat Province 80000, Thailand)

7DD6 The relationship between admission variables and academic achievement at Gachon Medical School in Korea
Kwi Hwa Park*, Du Ho Hong, Wook Jin Chung, Seon Tae Kim, Eak Hyun Shin (Department of Medical Education, Gachon University of Medicine & Science, 1198 Kuwo-dong Namdong-gu, Inchon 405-760, Republic of South Korea)

7DD7 The lasting effects of secondary school achievements on progression in medical programme
Boaz Shultu*, Melinda Smith (University of Auckland, Private Bag 92019, Auckland Mail Centre, Auckland 1142, New Zealand)

7DD8 The Pipeline Initiatives Project: building a university-wide collaboration to enhance minority student access to a medical education
Carol Elm* (Office of Medical Education, University of Kentucky College of Medicine, 138 Leader Avenue, Room 107, Lexington, KY 40506-9983, United States)
7DD9  Student evaluation: Do medical students on the 4 year Graduate Entry Program (GEP) and traditional 5 year program have contrasting perspectives?
Katherine Stewart* (Centre for Medical Education, Institute of Health Sciences Education, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Room 210, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)

7EE  SECRETS OF SUCCESS  (4)

7EE1  Jeopardy!©: An innovative approach to teaching psycho-social aspects of Pediatrics
Jirasevijinda T* (Weill Cornell Medical College of Cornell University, 525 East 68 Street, Box 139, Dept of Pediatrics, New York 10065, United States)

Short description of innovation: Medical educators have used Jeopardy!© game for teaching, esp. for medical knowledge. We piloted the format to teach psycho-social aspects of Pediatrics to residents.

What will be demonstrated: Bronx-Lebanon Hospital is located in one of the most diverse and underserved areas in the US. Its Interactive Workshops On Communication & Cultural Sensitivity Program trains residents in cross-cultural communication using interactive and peer-education models. We piloted “Bronx Jeopardy!©” as part of the program, focusing on various aspects of the community. Mirroring the popular game, ours explored five areas: Roots (history), Lay of the Land (geography), Educational & Cultural Institutions (resources), Famous Places (resources), and Health of the Borough (challenges/opportunities). Participants provided feedback on both content and format.

What is particularly interesting about the innovation: Feedback was collected from 30 participants. Most (88%) reported learning new information. Almost all (92-97%) reported 1) increased understanding of diversity of the community; 2) desire to learn more about it; 3) raised awareness of its challenges and resources. They also believed the game helped dispel stereotypes of the Bronx. Most (97%) reported the format 1) built collegiality; 2) stimulated interest; 3) was fun and effective; and 4) helped retain information.

How could It be implemented: Jeopardy!© is an “edutainment” tool that is fun and effective for teaching psycho-social aspects of Pediatrics.

7EE2  Using interactive, video web cases to teach evidence and context based clinical skills
Aaron S*, Ma E, Hayward R. (Faculty of Medicine, University of Alberta, 562 HMRC University of Alberta, Edmonton T6G 2S2, Canada)

Short description of innovation: The availability of web programs which are interactive, and into which it is easy to upload pictures and videos, prompted us to create realistic cases that model clinical decision making and physical exam.

What will be demonstrated: We shall have the audience try the cases, demonstrate the use of the platform to develop new cases with branched outcomes, and show evidence that this innovation improves learning.

What is particularly interesting about the innovation: In these cases, there is a short introductory history, and then students are required to choose which parts of the physical exam to perform. They are shown pictures and videos of these choices, and then asked to choose diagnostic tests or make diagnoses based upon their findings. The consequences of their choices may include resolution of the patients’ problems, delay in treatment, or even death. The students then have a chance to do the cases again, and improve their outcomes.

How could It be implemented: Evidence indicates that physical examination is best taught, and best performed in practice, in the context of a clinical presentation or history. However, teaching in real context is hindered by increased medical school enrolments and by the shortage of patients with common problems in hospitals. Simulated cases provide an alternate way of teaching.
### 7EE3 Aligning a virtual curriculum library with targeted natural language search - tomorrow’s answers to today’s challenge of improving teaching and learning

Gail Morrison, Michael Feldman, Paul Edelblut*, Alan Rosenquist* (University of Pennsylvania School of Medicine, Penn Medicine, Suite 100, Stemmler Hall, 3450 Hamilton Walk, Philadelphia, PA 19104-6087, United States)

**Short description of innovation:** A collaborative effort the Penn Medicine Virtual Curriculum 2000 and Vantage Laboratories iSEEK linguistic search has resulted in a powerful resource providing access to more than 50GB of presentations and lecture materials.

**What will be demonstrated:** The partnering of Virtual Curriculum 2000 resources and the iSeek creates an authoritative targeted discovery platform for the dissemination of medical knowledge. Using advanced linguistic, conceptual, and artificial intelligence technologies to allow meaningful information retrieval with natural language rather than keywords or algorithms, information is intelligently and dynamically organized into iViews for actionable results. Pulling only from authoritative resources, the SearchBlade produces relevant, meaningful, responses to medical queries.

**What is particularly interesting about the innovation:** The technology is so powerful as to bring a searcher to the exact page or slide of a resource relevant to the query. The curriculum search is optionally supplemented with deep search of selected PubMed, Cochrane, CDC, Clinical Trials, FDA, and NIH resources to allow for broader, more comprehensive searches of medical content.

**How could it be implemented:** See how this technology allows seamless integration of Penn Medicine's materials (lectures, notes, syllabi, laboratories), with other materials to create a continuum of learning for our students through all four years of our curriculum. Future directions will integrate streaming media and mobile platform support allowing students access to these curricular sources at all times and from all locations.

### 7EE4 Promoting the utility of patient video-recordings in clinical education

Richard Harrington*, Emily Adams, Caroline Rodgers, Aravinthan Varatharaj (Medical School, University of Oxford, Medical Sciences Office, John Radcliffe Hospital, Oxford OX3 9DU, United Kingdom)

**Short description of innovation:** An increasingly crowded curriculum and changes in working practices conspire to hamper the delivery of effective clinical education. Video recordings of real patients have enormous potential to optimize effective learning.

**What will be demonstrated:** A collection of patient videos has been compiled in primary care. This flexible resource can be applied across a range of educational domains including knowledge, communication skills and attitudes. This resource has been effectively used in a variety of educational contexts, both postgraduate and undergraduate, including tutorials, seminars and lectures.

**What is particularly interesting about the innovation:** Videos of patients promote narrative medicine and can enhance student engagement in problem-based learning and case-based presentations. Videos augment teaching in curriculum areas to which students have limited exposure. Serial recordings over time of the same patient demonstrate many aspects of the longitudinal care of patients with chronic conditions. Patients are willing to consent to be videoed for educational purposes even when distressed, acutely unwell or terminally ill.

**How could it be implemented:** Patient recordings are a potent educational tool. Developments in recording and playback techniques now make video materials a rich and interactive resource in both traditional and e-learning environments.

**Why participants should come to the demonstration:** Medical educators should consider video-recording their patients for educational purposes.
Session 8

8A SYMPOSIUM: The Bologna Process

Chairperson: Madalena Patrício (University of Lisbon, Faculty of Medicine, Lisbon, Portugal; and Association for Medical Education in Europe (AMEE)) and Ronald Harden (Association for Medical Education in Europe (AMEE)). Panel: H Davies (EUA - European University Association); CH Schilho (University of Zurich, Faculty of Medicine, Office of Medical Education); R Duvivier (IFMSA); N Davaris (IFMSA); A Murt (EMSA)

No development has caused greater interest in education in recent years than the Bologna Process. It has been the most important focus for higher education policy in Europe over the last ten years, with significant reverberations in other parts of the world. Elements of the process have attracted controversy in medical education, particularly the two cycle model, and the implementation of the Bologna Process across Europe in the different professions has varied considerably. This symposium will look at the progress made in relation to the implementation of the Bologna Process in medical education across Europe. It will examine the conclusions from the Ministerial Conference in Leuven in May 2009. The preparation of an AMEE 2009 Position Paper on the Bologna Process will be informed by the symposium presentations and by the contributions and views of the conference delegates participating.

8B SYMPOSIUM: A new perspective on faculty development: from workshops to communities of practice

Chairperson: Yvonne Steinert (Faculty Development Office and Centre for Medical Education, Faculty of Medicine, McGill University, Montreal, Canada). Panel: J Donald Boudreau, Peter J McLeod (Centre for Medical Education, McGill University, Montreal, Canada)

The BEME review of faculty development reported that workshops, seminars and longitudinal programs were the most common formats of professional development. This review also highlighted the following key features as contributors to effectiveness: the use of experiential learning; the provision of feedback; effective peer and colleague relationships; well-designed interventions following principles of teaching and learning; and a diversity of educational methods within single interventions. More recently, a series of interconnected studies have highlighted the importance of social aspects of faculty development, including intrinsic values and extrinsic recognition of teaching and staff development, notions of situated and work-based learning, and the role of peer mentorship and ‘communities of practice’ in promoting personal and professional development. The goal of this symposium is to highlight the findings of these inter-related studies and examine a new conceptual lens by which to consider the formation of medical educators.

8C SHORT COMMUNICATIONS: e-Learning: Effective mobile learning

8C1 Mixed Reality – to apply for “urgent education/performance” or for rehearsal only?
Camilla Eide*, Greger Storn, Torbjörn Gustafson, Per Carleberg, Lars Lundberg. (Swedish Armed Forces Centre for Defence Medicine, Box 5155, Västra Frölunda 42605, Sweden)

Background: The Swedish Armed Forces are in a new suit concerning peacekeeping missions abroad. In the future the Forces may have less Medical specialists that are conducive to the use of more Technical supporting system. Here we suggest a Mixed Reality supporting system for convoluted medicine technical performance. Mixed Reality involves the merging of real and virtual worlds. The user utilizes a head mounted or a handheld visual display presenting texts, virtual objects, animation sequences, audio and environmental features as incorporated into the real environments.

Summary of work: We conducted an evaluation study in which ten participants used Mixed Reality technology, compared to written instructions with a picture as support for executing tasks. The tasks were to perform the procedures of “power up” and to unitize a ventilator circuit assembly for the LSTAT® (Life Support for Trauma And Transport, a Platform for medical evacuation of a patient/wounded soldier.)

Summary of results: The Mixed Reality technology was in general considered beneficial and there were favourable reactions in these tasks, compared to the written instructions.
Conclusions: With some further development and adjustment, the Mixed Reality system may be usable in emergencies requiring personnel and as a tool for rehearsal of handling procedures.

8C2  Bring a web-based LMS to the small screen for US and India: lessons learned and next steps
Anand Zachariah, Rashmi Vyas*, Susan Albright, Mary Lee (Tufts University School of Medicine, 136 Harrison Ave, Boston 02111, United States)

Background: Mobile learning provides an essential means to reach learners in the developed and developing worlds in educational and clinical settings where access to “just in time” information and feedback can maximize learners’ experiences. Tufts University has been sharing TUSK, the Tufts University Sciences Knowledgebase, developed for health sciences education (medical schools, schools of public health, etc.) in the United States, Africa, and India. Mobile devices (including cellular phones, smart phones, personal digital assistants or PDAs and laptops) are important lower-cost, accessible means for delivering educational content and programs.

Summary of work: Tufts surveyed users on their use of TUSK as well as other mobile sites, designed interfaces based on survey results of most desired content for mobile, and tested the designs ultimately implementing one design for a mobile TUSK. The efficacy of these designs were then tested.

Summary of results: The challenges faced during design, testing and implementation will be described as well as next steps - including the addition of new applications.

Conclusions: Wireless phone networks provide ubiquitous access to information exchange in a way that wired or wireless internet networks cannot.

Take-home messages: Building on existing mobile uses such as lecture recordings on mp3/ audio files, preceptors can provide student access to videos on handheld devices before undertaking activities in the clinical setting, or engage in discussion groups around difficult topics.

8C3  iPod is effective in self-learning orthopedic physical assessment
Noriko Okuyama*, Toru Sato, Takahiro Amano (Department of Musculoskeletal Reconstruction and Regeneration Surgery, Keio University School of Medicine, 35 Shinanomachi, Shinjuku, Tokyo 1608582, Japan)

Background: It is difficult to achieve competency in taking physical examinations from didactic lectures.

Summary of work: iPods containing short moving images of orthopaedic physical examinations are used. After four day use of iPods during clerkship, 6th grade students took advanced OSCE. Subsequently, their responses to the questionnaire about the iPod were analyzed.

Summary of results: 69 students replied. 82.6% of the students used iPod frequently. 86.9% found iPods useful and 75.4%, helpful for self-learning. The main reasons for using iPod are that it is effective to acquire knowledge and skills than to modify their behaviors. All students passed the OSCE, and 85.5% found iPods worth continuing use.

Conclusions: To learn clinical skills, simulators are useful and widely used. However, learning with iPod is less bound by specific occasion. iPods can contain various motion images which are more comprehensible than still images and texts without losing portability. Although it takes time to film and edit, digital motion images can be used repeatedly. Therefore, using iPods is efficient not only for the learners but also for teachers in the long run.

Take-home messages: iPod enables effective, ubiquitous self-learning of orthopaedic physical examinations.
8C4 Video podcasting can supplement clinical skills teaching
Clement R*, Longman C*, Coughlin T*, Lund J (University of Nottingham Medical School, Queens Medical Centre, Derby Road, Nottingham NG7 2UH, United Kingdom)

Background: Clinical skills can be difficult to teach and the mainstay of learning is ward-based sessions in small groups or on a one to one basis. Clinicians have busy schedules and are often delayed to scheduled teaching sessions. Students find carrying textbooks with them on the wards can be cumbersome and so we have developed a system that allows students to utilize the waiting period to better effect by utilizing video podcasts.

Summary of work: We have produced video podcasts of clinical examinations that students can access over the internet at any time and play on personal media players to supplement clinical teaching in the ward environment.

Summary of results: We have had overwhelmingly positive feedback from students who have requested an expansion of available material.

Conclusions: Video podcasting is a cheap and effective method of enhancing clinical skills sessions and bedside teaching.

Take-home messages: Podcasting can be used to supplement and improve upon traditional teaching methods.

8C5 Rivalry or Synergy: Is learning with podcasts an effective addition or alternative to face-to-face-lectures with respect to performance in written examination scores?
Thomas Brendel*, Matthias Holzer, Mona Bartl, Martin R. Fischer (Munich University Hospital, Medizinische Klinik Innenstadt, Medical Education Unit, Ziemssenstraße 1, Munich 80336, Germany)

Background: Podcast-technology has high potentials in medical education. However, its role as a substitute for or add-on to face-to-face-teaching is not clear yet.

Summary of work: In 2008 a total of 52 lectures in internal medicine were held face-to-face at Munich University. 25 of these were provided as podcasts. All 240 third-year medical students were free to attend the face-to-face-lectures, download the podcasts or use both opportunities to prepare for their written end-of-term-examination, which consisted of 70 questions. 35 questions referred to podcasted lectures.

Summary of results: Cluster-analysis yielded four groups of students. No significant difference in examination scores (max. 35 points) was found between students using predominantly podcasts (mean 28.8), those mainly attending lectures (mean 29.3) and those using both delivery modes (mean 29.9). However, only the last of these three groups scored significantly higher (p<0.01) than those who did not use any of the two learning opportunities (mean 26.9).

Conclusions: Learning with podcasts seems to be an effective alternative to attending face-to-face lectures with respect to written examination-scores. Additional usage of podcasts nevertheless is advantageous.

Take-home messages: Future efforts should focus on strategies to create more synergistic effects amongst the two learning modes.

8C6 Using anatomy 'Potcasts' for undergraduate medical education
Andrew Wood*, Susie Whiten (Bute Medical School, University of St Andrews, St Andrews KY16 9TS, United Kingdom)

Background: The Bute Medical School has a large collection of anatomical specimens preserved in pots. They consist of excellent dissections with considerable pedagogic value which tend to be neglected by students. We resolved to add educational value to these specimens and bring these pots back to life.

Summary of work: Pots showing clinically relevant dissections were selected. Each was described in detail by a senior anatomist and the clinical implications discussed in a 'potcast.' The audio files were made freely available for first year medical students to download and listen to whilst studying the pots.
**Summary of results:** 'Potcasts' combine the use of historical specimens with technology that is part of popular student culture. Preparation of the MP3 files was quick and easy both to produce and deliver. Students were surveyed and the findings of the feedback will be discussed.

**Conclusions:** We are encouraged to produce a library of 'potcasts' to facilitate flexible independent learning. By bringing the potted specimens to the attention of students, we can now use the dissections as additional resources in assessment.

**Take-home messages:** Potcasting provides a satisfying link between traditional anatomical resources and student centred learning. Potcasting is an effective learning resource that greatly appeals to today's undergraduate medical students.

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**8D RESEARCH PAPERS: Professionalism**

**8D1 Exploring the relationship between professionalism and conscientiousness**

John McLachlan*, Gabrielle Finn, Marina Sawdon, Jane Macnaughton, Laura Clipsham, Sarah Douglass (Durham University, Queen's Campus, Stockton on Tees TS17 6BH, United Kingdom)

**Introduction:** Concerns about undergraduate student performance are a risk factor for disciplinary referral in later clinical practice (1). However, these concerns are difficult to quantify objectively. A theme which emerges in undergraduate and post-graduation adverse reports is that of conscientiousness. We have therefore (2) gathered objective quantitative data on student conscientiousness consistently throughout three academic years. An index was constructed in which students were awarded points for each occasion on which they demonstrated conscientiousness. Occasions included compulsory submission of data (such as immune status or Criminal Records Bureau information), attendance at clinical and patient oriented sessions, compliance with assessment requirements, and attending appropriate staff consultations. The information was routinely collected by support staff. Data collection costs are therefore low. Advance ethical approval was obtained. The research questions were: 1. Does the Conscientiousness Index (CI) show concurrent validity with professionalism as estimated by expert staff and by peers? 2. Does the CI show reliability?

**Methods:** With regard to validity, staff familiar with the students on a day to day basis were asked to rate them for their approach to professionalism. These staff were blind to the CI score. In addition, fellow students were asked to rate their peers for their approach to professionalism.

**Results:** The Conscientiousness Index (CI) shows good scalar properties, acting as a clear discriminator between students, and showing stable patterns over the three years. Its validity as a component of the construct of professionalism was explored by two means. Statistically significant relationships were observed between staff concerns about professionalism and low CI scores, and between peer concerns about professionalism and CI scores, as measured by chi squared tests (p < 0.05). Significant correlations were observed in split year and year on year tests. Correlations were explored between CI scores and assessments of knowledge, skills and behaviours. Interestingly, the strongest correlations were observed with knowledge.

**Discussion and conclusion:** The low cost and objective nature of the CI suggest that it is a practicable assessment tool, and there is evidence of both validity and reliability, as one of the 'Big 5' psychological traits. We are considering formative and summative uses of the CI. It may well be a useful tool for identifying students requiring remediation, and in comparing CI scores with future performance.

**References:**
8D2 The attitudes toward disclosure of medical errors: the perspectives of different occupational backgrounds
Ju-Chuan Yen*, Tsuen-Chuan Tsai, Min-Huei Hsu (Taipei City Hospital, 87 Tong-Der Road Taipei City, Taiwan; 111, 3rd Section, Hsin-Long Road, Taipei City 114, Taiwan)

Introduction: Since the promulgation of “To Err Is Human”, patient safety movement has become a hot topic internationally. People have demanded full disclosure and transparency of information about medical errors for justice and the subsequent medical care while medical error happens. However, it was believed that most medical professionals hesitated to disclose full information of errors due to unexpected legal suits and credential punishments and not master in disclosing errors. This study aimed to understand the attitudes of various occupational backgrounds toward disclosure of medical errors in Taiwan.

Methods: A hypothesizing case with a medical error was used to trigger a think-aloud and a semi-structured interview. The voluntary subjects were divided into four groups, each composed of 4-5 people of various occupational backgrounds (including nurses, physicians, lay people, and administrative officers of medical institutes in Taiwan). The audio-taped interviews were transcribed to verbatim data for analysis. Immersion and crystallizations method was used for qualitative analysis.

Results: The decisions and the underlying reasons to medical error disclosure were different among the four groups. Physicians and laypeople were two “extreme” groups that demonstrated opposite attitudes. Physicians would not disclose medical error, while laymen demanded this medical error disclosed fully to the patient and their families and believed the “offender” should take full responsibilities. The bad experiences from medical practice and from prior/ pending medical errors were closely related to the willingness to medical error disclosure. When dealing with the medical error disclosures, the medical professionals of physicians and nurses would carefully avoid medical legal suits and amends; lay people demanded full information regarding the error and requested prevention strategies; administrative officers concerned about the ways to disclosing error and the prevention strategies, they also extended the care for both the patients and the “offender”.

Discussion and conclusion: As for the attitudes toward medical error disclosure, this study unveiled a great gap between health care providers and laymen. The reasons and main concerns underlying the disclosure decision varied with people’s background. To enhance the willingness to disclosure, the research findings would provide valuable information that can be applied on teaching ethics, cultural sensitivity and communication, and finally to cultivate an environment that encourages medical error disclosure.

References:

8D3 The processes and dimensions of self-assessment
Joan Sargeant*, Heather Armson, Benjamin Chesluk, Tim Doman, Kevin Evo, Eric Holmboe, Jocelyn Lockyer, Elaine Loney, Karen Mann, Cees van der Vleuten (Dalhousie University, 5849 University Ave, Halifax B3H 4H7, Canada)

Introduction: Self-directed learning and self-regulation are long-standing pillars of the medical profession. However, such activities depend upon accurate self-assessment and recent research calls this capacity into question. Self-assessment, especially when individuals rely solely on their own judgements, can be flawed. External factors and practice context can influence self-assessment accuracy and capability. This leads us to use the term “directed” self-assessment to refer to self-assessment activities informed by external sources. The objectives of this research study are to: a. understand how learners (students, residents) and clinicians perceive and use directed self-assessment within their clinical practice; b. determine activities comprising directed self-assessment and factors that influence their use.
Methods: We used a qualitative approach guided by the principles of grounded theory. We first conducted an informal review of structured self-assessment activities for undergraduate and postgraduate learners and physicians within our own programs and others accessible to us. Programs were assessed for the degree of structure and rigour of structured self-assessment activities. Using purposive sampling, we invited participants in 8 programs in 5 countries to participate in focus groups, representing the continuum of structure of self-assessment activities, and of medical education. Focus groups were audio-recorded and transcribed. All members of the research team participated in the analysis in an iterative and interactive manner, guided by the principles of qualitative analysis and interpretation.

Results: We conducted 17 focus groups, 2 for each program except for one having 3, with 85 student learners and 49 physician participants. Themes emerging from the data describe the processes of and dimensions for informing self-assessment. Processes and dimensions are conceptualized as being internal; e.g. sense of self-confidence, and external; e.g. quality of external feedback. Individual internal cognitive and affective processes and influences interact with external feedback and environmental influences in a dynamic, ever-changing manner, to inform self-assessment. Further, self-assessment appears to be a multifaceted balancing act characterized by ongoing tensions between new information and maintaining and/or developing self. This balancing act seemed to be evident across the continuum of medical education and practice, although individual factors, influences and responses may vary.

Discussion and conclusion: We conceptualize self-assessment as a dynamic, intricate balancing of internal and external data and tensions. Analysis reveals complex internal and external processes and dimensions. We propose that understanding these processes and tensions more fully may contribute to an appreciation of the variability and frequent lack of utility of self-assessment, and guide educational interventions.

8E SHORT COMMUNICATIONS: Assessment: Workplace-based assessment

8E1 Evaluation of the ECO feedback model to support multi-source feedback use in medical education and practice

David Bruce*(), Elaine McNaughton(), Patricia Sullivan(), Stewart Mercer(), Joan Sargeant(), Douglas Murphy() (NHS Education for Scotland, The Mackenzie Building, Kirsty Semple Way, Dundee DD2 4BF, United Kingdom; General Practice & Primary Care, 1 Horselethill Road, Glasgow G12 9UX; Dalhousie University, 5849 University Ave, Halifax, NS, Canada B3H 4H7, Canada)

Background: Multi-source feedback (MSF) is a component of the UK Foundation Programme and some registrar-training programs, and is proposed for all doctors for revalidation. However, participants’ experiences of MSF are variable and feedback delivery may be crucial to promoting learning and change.

Summary of work: The ECO feedback model (Emotions-Content-Outcomes) was developed from evidence and theory to provide a structured approach to MSF facilitation. We tested the model with GP Registrars and GP Trainers in two UK deaneries. Trainers participated in workshops on the ECO model and 13 trainee / trainer dyads were recruited. Evaluation comprised post-workshop questionnaires, focus groups and follow-up interviews with trainees and trainers.

Summary of results: Trainers valued the ECO model’s formalized process. Exploring trainees’ emotional responses to MSF appeared key with trainers often surprised by trainee responses, even to positive feedback. Trainees found the ECO model helpful in exploring potential for change and dealing with negative feedback.

Conclusions: The ECO model may be a useful tool to facilitate MSF and minimise potential negative effects of MSF.

Take-home messages: Acknowledging emotional responses to MSF is important. The ECO model can help in structuring feedback and promoting learning and change.
**8E2** A retrospective analysis of a multi source feedback program
Jocelyn Lockyer*, Claudio Volato, Herta Fidler (University of Calgary, Continuing Medical Education, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 0L1, Canada)

**Background:** Multi source feedback (MSF) in which patients, physician colleagues and other health care professionals provide feedback has been used to assess residents and physicians in practice and guide professional development.

**Summary of work:** Between 1999 and 2008, the College of Physicians and Surgeons of Alberta developed a MSF program to provide data from 25 patients, 8 other health care professionals, and 8 medical colleagues to all 6500 physicians in Alberta. Surveys assess physician communication, collaboration, professionalism, and patient management. Seven sets of instruments have been developed and tested for general practice, medical specialties, surgical specialties, anesthesiology, episodic care practice, diagnostic radiology, and laboratory medicine. An examination of 20 peer-review publications was undertaken to examine the instruments and the program.

**Summary of results:** 5347 physicians have participated in the program (1530 participated twice). Examinations of participation rates, 'unable to assess rates' on items, distribution of scores, confirmatory factor analyses, self-peer comparisons, and G-studies demonstrate the instruments provide evidence of validity, reliability, acceptability and use of the feedback to change practice.

**Conclusions:** MSF instruments can be developed for all clinical disciplines.

**Take-home messages:** Attention to instrument design, psychometric properties, physician acceptance, and communication are needed for successful MSF programs that span multiple disciplines.

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**8E3** Application of a theoretical framework to the utility of workplace based assessment tools – a qualitative study
Setna Z*, Jha V, Higham J, Boursicot K, Bodle J, Kaufmann SK, Norcini JJ, Roberts TE (Leeds Institute of Medical Education, Level 7 Worsley Building, University of Leeds, Leeds LS2 9NL, United Kingdom)

**Background:** Workplace based assessment (WPBA) is increasingly being used in medical education incorporating Piaget's educational concepts of equilibrium, accommodation and assimilation. Recognised difficulties in evaluating WPBA include variations in patient encounters, lack of standard measures and subjectiveness during evaluation. There is a body of literature on the psychometrics of WBPA tools; however, evidence on their validity, practicality and acceptability in the real world is limited.

**Summary of work:** This study used assessment tools from the Royal College of Obstetricians and Gynaecologists as an example of WBPA in practice. College tutors, consultants and trainees across two deaneries (London & Yorkshire), were interviewed on their views and experiences of WPBA tools. The interview schedule was designed using the utility framework of Van der Vleuten. Thematic content analysis of the interview transcripts was carried out.

**Summary of results:** Four themes emerged each with positive and negative elements: (1) Culture of workplace based learning; (2) Structured learning/assessment; (3) Reductionist model of complex skills assessment; (4) Impact of feedback on learning.

**Conclusions:** WBPA is an acceptable method for assessment of training. Its limitations in terms of validity and practicality need to be addressed.

**Take-home messages:** Effective incorporation of WBPA in practice needs robust evaluation of the validity and educational impact.

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**8E4** Finding a level or going off track: Postgraduate work-based assessments in the UK
Stephen Brigley, Lesley Pugsley*, Lynne Alley, Janet MacDonald, Suzanne Phillips (Cardiff University, School of Postgraduate Medical and Dental Education, Neuadd Meironnydd, Heath Park, Cardiff CF14 4YS, United Kingdom)

**Background:** Workplace based assessments have crucial formative and gatekeeping functions in UK postgraduate training. This study builds on interviews in Wales (2008) revealing specialty trainees' concerns about work-based assessments in surgery.
Summary of work: In semi-structured interviews with 20 specialist registrars (SpRs) from different specialties, SpRs discussed the assessments: standards, validity and reliability, impact on training, the learning assessed, and integration with service and training structures.

Summary of results: Colleges differ in systems and levels of development; some embrace assessments (e.g. Anaesthetics), others do not (e.g. Palliative Medicine); The assessments assist monitoring of trainee achievement and progression in posts; Standards are vague and interpreted subjectively ('What was expected of me at that stage'); Assessments identify 'below average' performers, but for a narrow range of clinical skills and procedures; Assessment is reduced to form filling - completed punctiliously by some and casually by others; Formative impact of assessments weakened by timing ('last minute'), trainee opposition to recording 'development needs' and pressure on trainers to assess summatively (some are reluctant to 'fail' trainees).

Conclusions: Adoption of a 'one-size fits all' work-based assessments across postgraduate training requires revision; intended benefits have yet to be realised and their usefulness limited to identification of failing trainees.

Take-home messages: Trainers and trainees require deeper induction and training on the aims, purposes and methods of workplace-based assessments in postgraduate training.

8E5 Delivering work based assessments via mobile technology: changing the way medical students are assessed?
Viktoria Joynes, Ceridwen Coulby*, Christopher Carney, Sue Kilminster, Richard Fuller (University of Leeds School of Medicine, Worsley Building, University of Leeds, Leeds LS2 9JT, United Kingdom)

Background: Work based assessment tools have an increasing role in undergraduate medical education programmes. Building on successful pilot work, this communication reports the impact of delivering mini CEX to a cohort of final year medical students using personal digital assistants (PDAs).

Summary of work: 40 students used PDAs containing Mini-CEX and additional learning resource such as e-books (e.g. e-BNF) throughout their final year. The remaining 200 students used paper-based Mini-CEX. Questionnaires were completed after each placement by the PDA group, and once during the year and in the final placement by the paper-based group.

Summary of results: Initial results indicate that 'PDA' students find the assessment experience more helpful than 'paper based' students. Possible reasons include training provision, immediacy of PDA assessment and concurrent use of e-books. Irrespective of the delivery method, the more assessments students complete, the more helpful they have rated the Mini CEX to their learning.

Conclusions: Using Mini-CEX during clinical placements helps students’ learning. Delivering these via mobile devices to trained students provides additional learning resources and personal benefits.

Take-home messages: Outcomes of this project have key relevance to those considering implementing formative and mobile assessment.

8E6 Disseminating mini-CEX in Taiwan and mini-CEX.tw
Walter Chen*, Ming-may Lai, An-chyl Chen, Pei-ying Pai, Tzung-chang Tsai, Chiu-shong Liu, Shi-yann Cheng, Hsin-shui Chen (School of Medicine, China Medical University; CMU Hospital; and CMU Beigang Hospital, 91 Hsueh-shih Road, Taichung 40402, Taiwan)

Background: The mini-CEX has been implemented in Taiwan since 2004. The instruction manual and booklet with evaluation form were translated into Chinese after getting permission from ABIM.

Summary of work: We developed a 4-hour workshop which comprised an introduction lecture, small group discussion using 3 videotapes, mock test using another 3 videotapes, and feedback questionnaire to disseminate mini-CEX.
Summary of results: A total of 48 workshops were held for 2755 participants from teaching hospitals nationwide during 2005 to 2008. The results of a survey of 123 teaching hospitals showed that mini-CEX was used by 49% hospital in Taiwan. For those hospitals using mini-CEX, 97% used it in medical departments (e.g. internal medicine, family medicine, pediatrics et al.) and 45% in surgical departments and 32% made modifications or changes to the classic mini-CEX form. Based on the results of the survey and in-depth discussion with experienced evaluators and trainees, we developed Taiwan version’s mini-CEX and named it mini-CEX.tw which include procedural skills to replace overall clinical competence.

Conclusions: The high acceptability in Taiwan indicates that mini-CEX is feasible, convenient, low time commitment, inexpensive, and has positive educational impact not only on trainee but also on evaluator.

Take-home messages: A training program like mini-CEX workshop for faculty, resident and medical student is needed.

8E7 Evaluator’s perception on the mini-clinical evaluation exercise in postgraduate training
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Background: The mini-clinical evaluation exercise (mini-CEX) is a performance-based evaluation method that is used to assess selected residents on clinical competencies (e.g. patient charts and physical examination, also communication and interpersonal skills) within a medical training context through feedback on their performance.

Summary of work: To illustrate evaluators’ perception on the Mini Clinical Examination Exercise as an assessment tool, recognise their implementation strategies, and its influence on rating strategies and feedback delivery. A phenomenographic approach was applied. Seventeen evaluators from a cardiology training program in Buenos Aires were included.

Summary of results: The results show that in all cases teachers perceived mini-CEX as a useful assessment tool that promotes direct observation and constructive feedback. Regarding implementation strategies, they found it easy to implement during their daily activity. Regarding their rating strategies, teachers perceived difficulties at the time of defining pass or fail, tending to keep residents from failing.

Conclusions: Evaluators’ perceptions reflect that mini-CEX is a useful formative assessment tool. They were able to define thresholds to pass and would not be sound enough to fail a resident.

Take-home messages: Mini-CEX is a useful formative assessment tool. It is not easy for evaluators to define thresholds to pass and would not be sound enough to fail a resident.

8F SHORT COMMUNICATIONS: Curriculum: Understanding PBL

8F1 Understanding the functionality of dysfunctional groups
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Background: Ensuring the effectiveness of the small-group tutorial learning is critical for the success of a PBL programme. A phenomenon of PBL-related ‘ritual’ behaviour, i.e. where students put on an appearance of being actively involved in the group work, is described in the literature and is a risk factor to learning for understanding. To understand more fully, dysfunctional tutorial groups the influence of motivational and cognitive factors on group learning was investigated at the Nelson R. Mandela School of Medicine (NRMSM). PBL modules are part of the first 3 years. Each student group represents a mix of socio-cultural backgrounds and meets twice a week to discuss a PBL case. Groups are reconfigured for every new module (5-9 weeks).

Summary of work: A survey consisting of open and closed questions was administered to 586 Y1-3 undergraduate medical students. Qualitative data was coded and clustered into themes. Quantitative data was analysed using SPSS.
Summary of results: Several themes emerged encompassing a variety of advantages and disadvantages of group learning. Significant correlations were found between the motivational and cognitive factors and group productivity.

Conclusions: Deep understanding of group learning processes is needed to develop comprehensive strategies to diagnose, revitalise, and improve the quality of student learning in PBL.

8F2 The factors that determine student satisfaction with Fixed Resource Sessions (FRS) in the first two years of a Problem Based Learning (PBL) based medical curriculum

Nana Sartania* (Wolfson Medical School, Faculty of Medicine, University of Glasgow, Glasgow G12 8QQ, United Kingdom)

Background: FRSs supplement our curriculum with labs, seminars and workshops and are provided to augment core learning, impart basic research skills and foster evidence based learning. Students judge these sessions routinely in web-based questionnaires. Despite the satisfactory evaluation of FRSs, there is a perception that students shy away from laboratory sessions, especially those involving open-ended experiments. So, we aimed to evaluate these sessions in order to investigate what constitutes a successful FRS and what guides students’ feedback.

Summary of work: Four semi-structured focus groups have produced a series of statements on different aspects of FRSs and rank them in order of importance. The entire 1st and 2nd years validated the findings by means of online questionnaires.

Summary of results: 51% of students from year 1 and 55% from year 2 have identified the relevance, guidance and length of sessions, enthusiasm of staff and the handouts as the main contributors to a positive feedback, while non-enthusiastic staff and badly informed demonstrators were judged to affect the learning outcomes negatively.

Conclusions: Based on students’ feedback, we have formed an overview of their opinion and produced a document for the teaching staff with suggestions which were discussed further in a setting of the staff focus group.

Take-home messages: We have produced a document for the teaching staff with suggestions which were discussed further in a setting of the staff focus group.

8F3 Are students in problem-based schools more exhausted?

Kirsti Lonka*, Juha Nieminen*, Kisi Kojonen, Harri Hyppölä (University of Helsinki, Finland, Research Centre for Educational Psychology, PO BOX 9, Helsinki 00014, Finland)

Background: Problem-based learning (PBL) forces students to tolerate ambiguity and uncertainty from the beginning of their studies. The aim of the present study was to see, whether the form of studying is related to medical students’ well-being.

Summary of work: First and fourth year medical students from three Finnish medical schools (N=676) filled in MED NORD questionnaire (Lonka et al., 2008). One of these medical schools followed a PBL curriculum. The questions that measured different aspects of study burnout were included in the present study. The responses of the three schools were compared.

Summary of results: It appeared that the first-year students in the PBL school were significantly more exhausted than the first-year students in the other two medical schools. There were no significant differences among fourth-year students.

Conclusions: The results indicate that PBL may be challenging for the first-year students in terms of their well-being. In the clinical phase of studying, however, this problem disappears.

Take-home messages: Students’ well-being should be taken into account in PBL instruction. It is possible that students who are coming directly from high school need more support in adjusting their study habits to the new ways of learning.
8F4 Impact of PBL tutor characteristics on student outcomes  
Ilse O’Ferrall*, Lynette Isted (University of Notre Dame, Fremantle, PO Box 1225, Fremantle, Western Australia, Perth 6959, Australia)

**Background:** Studies comparing ‘expert’ and ‘non-expert’ tutors have been carried out since the beginning of problem based learning (PBL) tutorials in the 1960s. However, this is a simplistic analysis of tutor performance. The ideal tutor has both sound content knowledge and interpersonal skills.

The School of Medicine, University of Notre Dame, Fremantle, trains its medical ‘expert’ and non-medical ‘non-expert’ tutors to facilitate PBL tutorials in years 1 and 2 of the graduate entry course beginning in 2005.

**Summary of work:** First year tutors were invited to participate in focus groups with the dual purpose of eliciting facilitation techniques as well as sharing experiences in effective PBL groups. Facilitation themes were correlated with student performance at summative examinations over four years.

**Summary of results:** Medical student summative examination results over four years referenced across 13 PBL tutors indicate that medical knowledge of the tutor is less important than tutor training. Ongoing training maintains motivation and adherence to the PBL principles.

**Conclusions:** Action research is a useful tool to enhance PBL tutor skills.

**Take-home messages:** Innovative and motivating training of PBL tutors assists with improving student learning outcomes.

8F5 Student diversity and self-directed learning in a PBL curriculum  
Dianne Manning* (Centre for Health Science Education, Faculty of Health Sciences, University of the Witwatersrand, 7 York Rd, Parktown, Johannesburg 2193, South Africa)

**Background:** Problem-based learning is intended to promote self-directed learning. In a programme with students from many diverse cultural backgrounds, including both school and graduate entrants, it is possible that engagement with the intended learning approaches may not be uniform.

**Summary of work:** A retrospective cohort study investigated the approaches which students have adopted to studying in the PBL programme. Quantitative data was collected using a Likert scale questionnaire. Semi-structured focus group interviews were recorded, transcribed and analysed.

**Summary of results:** Graduate entrants reported a greater tendency than the school entrants for using the scheduled free time effectively and finding additional learning resources. Older students were more likely to access websites, medical journals and focus on the long term goal of medical practice. Differences were also noted between the approaches of students from the various major sociocultural groups represented.

**Conclusions:** After a year in the PBL programme the graduate entrant students displayed a more mature and robust approach to self-directed learning than the school entrants. The study also suggests that established models of learning may be resistant to change.

**Take-home messages:** Socially embedded learning experiences may have a significant impact on the extent to which students engage with self-directed learning.

8F6 Exploring student attitudes towards a problem-based learning programme involving a structured approach and interactive learning resources  
Shihab Khogali*, Martin Pippard, John McAleer (University of Dundee Medical School, Curriculum Office, Level 7, Ninewells Hospital & Medical School, Division of Clinical and Population Science & Education, Dundee DD1 9SY, United Kingdom)

**Background:** The educational effectiveness of problem-based learning (PBL) has been extensively researched. Conventional PBL may place an extra stress on inexperienced learners and tutors, including the need to structure the learning and the need to identify learning resources.
Summary of work: A PBL programme has been implemented in semester-1 of the Dundee undergraduate medical curriculum. The programme preserved the important educational principles of conventional PBL (including problem-oriented, student-centred, collaborative and active learning), but differed from it in two aspects. These were: (i) the use of a more structured approach for small group meetings/tutorials (ii) the inclusion of sessions involving the use of structured interactive learning resources. 166 students were asked to complete an anonymous evaluation questionnaire answering 38 Likert-type items and three open-ended questions.

Summary of results: The response rate from the questionnaire was 96%. About 80% thought their group worked well together using the structured approach. Three-quarters found the tutors helpful in facilitating the learning in the structured tutorials. Students (90%) thought the interactive sessions helped them integrate mechanisms of disease into the context of patient scenarios.

Conclusions: It is possible to implement a PBL programme involving a structured approach and interactive learning resources.

Outcomes assessment in Veterinary Pathology: improving student performance in PBL

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Background: Outcomes assessment provides an instrument for critical analysis and evaluation of efficacy of teaching methodology and design for Veterinary Pathology within our Problem-based learning (PBL) curriculum.

Summary of work: Our assessment techniques in veterinary pathology include: part of a comprehensive written exam (2X per semester) based on the “power of the case”- each case carries 10 to 20% of total multiple choice pathology questions; 20% of a practical exam that is based on the image and specimen analysis and application of knowledge; reasoning process within ACT (Assessment of Critical Thinking) exam; descriptive assessment within the Clinical Skills Course; direct student feedbacks.

Summary of results: When the average passing scores for veterinary pathology in combined written and practical exams were compared, timely re-evaluation and improvement of teaching design in veterinary pathology have resulted in an increase of 7.5%.

Conclusions: Multiple outcomes assessment approaches can provide an adequate evaluation and feedback about the efficacy of learning, and suggest need for perpetuate re-evaluation of the PBL-incorporated Veterinary Pathology learning design. In our case, a significant increase in performance was achieved by adding several self-directed teaching methods.

Take-home messages: Based on the comprehensive outcomes assessments, adjustments to teaching design in Veterinary Pathology can increase its score in written and practical exams.

SHORT COMMUNICATIONS: International medical education (1)

8G1 The Thistle and the Maple Leaf: International Collaboration to enhance CPD

Heather Armour*, Ronald MacVicar* (NHS Education for Scotland, Centre for Health Science, Raigmore Hospital, Old Perth Rd, Inverness IV2 3JH, United Kingdom)

Background: Practice-based Small Group Learning (PBSGL) is an established component of CPD for many Family Physicians in Canada (20%). PBSGL was introduced in Scotland in 2006 with the support of NHS Education for Scotland (NES).

Summary of work: A collaborative partnership between the Foundation for Medical Practice Education in Canada and NES has involved an adaptation of PBSGL to meet the needs of Scottish General Practitioners (GPs). Collaboration has included facilitator training, “tartanisation” of learning materials and plans for collaborative research. Implementation strategies, expected and unforeseen challenges and adaptations required to facilitate the ‘fit’ of an existing programme to a different medical environment will be presented.
Summary of results: PBSGL membership in Scotland has grown within three years from 40 members in five groups to approaching 700 members in 75 groups (more than 1:6 of all GPs in Scotland).

Conclusions: The rapid implementation of PBSGL for GPs in Scotland suggests that successful CPD interventions can be successfully translated between different countries.

Take-home messages: Through active collaborative efforts, programmes and materials that have been developed for use in one medical environment can be successfully adapted for use in another country.

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8G2 Observe the difference of learning styles between Chinese and Canadian students and the effect of PBL on learning styles
Zhao Qin*, Liu Qiang*, Zhao Yu-hong*, Sun Bao-zhi* (China Medical University, No. 92 Bei Er Road Heping District, Shenyang, Liaoning province, Shenyang 110001, People’s Republic of China)

Background: We went to University of Washington (UW) from 2004 to 2005 learning Global Minimal Essential Requirement (GMER). We found Kolb’s learning style (divided into four characters: Divergers, Accommodators, Convergers, and Assimilators) very interesting so we do more research about it in our university after coming back.

Summary of work: We translated Kolb’s learning style inventory into Chinese and made a culture adjustment. And we also developed a web-version of that inventory which is convenient for students to fill out. We measured students’ learning style and observed the effect of PBL on students’ learning styles.

Summary of results: Firstly we found that 49.2% Chinese students are assimilators while 19.8% Canadian students have this style. And 10.5% Chinese students are accommodators yet 36.2% Canadian students have this style. Secondly we found that PBL could change students’ characters from divergers to convergers.

Conclusions: Chinese students like listening (character of assimilators) while Canadian students like doing (character of accommodators). PBL could change Chinese students’ learning style.

Take-home messages: Much work should be done if we want to change Chinese students’ style from listening into doing.

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8G3 Partnership between the Bute Medical School, University of St Andrews, UK and the College of Medicine Blantyre, Malawi to develop a new undergraduate medical curriculum for Malawi
Mwapatsa Mipando*, Johnstone Kumwenda, Susan Whiten1, Amanda Fleet2, Julie Struthers2 and Simon Guild*2 (‘College of Medicine Blantyre, University of Malawi, Malawi & ‘Bute Medical School, St Andrews, UK)

Background: St Andrews is collaborating with College of Medicine (COM) Blantyre to assist the College with a major review of the undergraduate medical curriculum. The changes are driven by the need to modernize the curriculum content and its delivery, and significantly increase the number of medical students in training. The Bute Medical School (BMS) has recently undergone its own major curriculum review and redesign for similar reasons and so is able to offer advice based on its own relevant experience.

Summary of work: As a result of two joint conferences in Blantyre, the COM implemented a new, spiral curriculum in January 2009. The content is organised in integrated modules in which the clinical context of basic medical science is established from the beginning. The first turn of the curriculum spiral lays the foundation for a systems-based approach for the remainder of the first two years. The content of the systems-based modules is presented in a recognized cycle of normal structure, followed by normal function, abnormal function and finally by treatment. Assessments are based on published learning outcomes linked to all learning activities. The aim is to create an integrated series of assessments that are valid, reliable and blueprinted to specific appropriate learning objectives.
8G4 Use of web based scenarios for medical acculturation
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Background: The culture of medicine, including its values, expectations, doctor-patient relationships and other elements, varies considerably from one country to another. Becoming aware of these issues is essential to acculturation for physicians migrating into new medical cultures.

Summary of work: The Acculturation Program of ECFMG has produced "The One Dozen Most Important Things You May Not Have Known, Understood or Realized About American Medicine." Each module includes a brief narrative describing the topic and its implications, a video scenario demonstrating model behaviors, inappropriate behaviors, or both, and analysis of the video, along with questions suitable for group discussion. All materials are freely downloadable at http://www.ecfmg.org/acculturation/dozen.html

Summary of results: These materials have been successfully incorporated into orientation programs for newly arriving International Medical Graduates (IMGs) in the U.S. and individual IMGs (over 4,000 webpage visitors) have been able to use the materials for self-study prior to coming to the U.S.

Conclusions: Issues of medical acculturation can be presented in accessible web-based programs to facilitate medical acculturation of IMGs.

Take-home messages: Since medical cultures vary, other countries receiving significant numbers of IMGs might provide similar resources.

8G5 Factors impacting on choice and location of residency amongst Emirati graduates and students
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Background: The Faculty of Medicine and Health Sciences (FMHS), United Arab Emirates University currently offers residency training in most major specialties (previous only Family Medicine), now providing opportunities for male and female graduates to specialise locally. Previously, male graduates generally specialised abroad, while most females became family practitioners.

Summary of work: During Phase 1 of this study, practising Emirati specialists, residents, interns and senior students are being interviewed to ascertain factors impacting on their choice (specialty and location or residency). These data will inform Phase 2, an online survey that will canvas all FMHS senior students and graduates regarding residencies choices.

Summary of results: Preliminary results suggest that despite several local residencies now available, males generally still prefer to specialise abroad. They perceive that the international certification is more widely recognised than the Arab Board certification. The recent local offering of several residencies has, however, allowed female graduates, often restricted from studying abroad by socio-cultural factors, to choose specialisations other than Family Medicine.

Conclusions: Newly developed local residency programmes provide female graduates with opportunities to specialise in disciplines previously not available to them.

Take-home messages: cultural contexts where female medical graduates may not have the same social freedom as their male counterparts, local residencies should be developed.

8G6 Influencing factors on migrating of Iranian health care professionals from medical sciences students' view
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Background: The subject of brain drain or intellectual migration has received more attention recently. However, the influencing factors on this process have not been carefully evaluated among health care professionals in Iran. Therefore we have conducted this survey to quantify
the relative contributions of various variables among medical sciences students in Tehran, Iran.

**Summary of work:** A self-administered structured questionnaire using a 5-point scale, including 25 questions, was developed and piloted among under-postgraduate students enrolled at Iran University of Medical Sciences in 2008 year. Additional open-ended questions were included to allow us to capture information not otherwise covered in the questionnaire.

**Summary of results:** Findings of this study showed that economic factor was the most important influence factor for students' intention to migrate in abroad (mean 4.3). The second factor stated by students was educational and administrative issues (mean 4.2), professional (mean 4.0), globalization (mean 3.4), social (mean 3.3) and cultural (mean 3.2) issues were other factors which perceived by students as influencing factors for migration.

**Conclusions:** The findings of this survey indicate that Iranian policymakers and researchers must begin to look into the conceptual, methodological and interpretational issues surrounding migration metrics while considering the causes, consequences, and solutions of health-worker migration.

**Take-home messages:** Findings of this study showed that economic factor was the most important influence factor for students' intention to migrate in abroad.

**8H SHORT COMMUNICATIONS: e-Learning: Development and sharing of virtual patients**

8H1 **vpSim – A new standards-based, online virtual patient authoring system**

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**Background:** Virtual patients (VP) are computer-based medical simulations for education and assessment. Recognized barriers to development of VPs include high cost, complex authoring software, difficulty in visualizing complex paths, and a lack of standards compliance.

**Summary of work:** The Laboratory for Educational Technology recently developed a web-based, virtual patient authoring application called “vpSim.” Our objective was to create an authoring environment for educators that requires minimal training and stimulates creative interactive case writing. We used agile programming techniques to rapidly prototype and test throughout development.

**Summary of results:** vpSim includes the most desired features for both teaching and assessment including branched and gated logic, scoring, money spent and time consumed. It has a Flash-based drag-and-drop visual interface to map the steps and decision branches. Patient and educational data is added using dynamic web forms that approximate the playback appearance. vpSim exports XML based on the MedBiquitous VP standard.

**Conclusions:** vpSim met the perceived needs of a range of authors including complex decision-making and adaptive learning. Initial testing with authors and students shows that vpSim is an attractive tool for most virtual patient applications.

**Take-home messages:** vpSim is a new web-based virtual patient authoring application that creates interactive branched cases incorporating an intuitive interface, scoring metrics and exports an XML VP standard.

8H2 **The eVIP Electronic Virtual Patient Programme – cross-cultural exchange of VPs and emerging standards**

Uno Fors*, Chara Balasubramaniam, Inga Hege, Martin Fischer, David Davies, Bas de Leng, Soeren Huwendiek, Valentin Muntean, Irena Roterman, Terry Poulton (eVIP Administrative Office, St George’s, University of London, Centre for Medical and Healthcare Education, Cranmer Terrace, Tooting, London SW17 0RE, United Kingdom)

**Background:** Virtual patients (VPS) are tools for training clinical decision making but they are often time-consuming and expensive to produce. Sharing and repurposing might be
effective ways to solve this problem, once standards and repurposing guidelines have been developed and validated.

**Summary of work:** The European Electronic Virtual Patient Programme (eViP) is a nine-partner collaboration working with issues of streamlining repurposing workflows, implementing common technical standards to share VPs between systems, implementing VPs into partners’ respective curricula, evaluating repurposed VPs, and disseminating outputs of the Programme to the wider community.

**Summary of results:** The outputs of the Programme include guidelines for (1) repurposing VPs to different languages, cultures, disciplines, educational levels, contexts and structures, (2) implementation of technical standards to share VPs between systems, (3) evaluation of VPs by staff and students using published instruments, (4) cross-cultural exchange and implementation of VPs.

**Conclusions:** VPs can now be exchanged between systems, countries and cultures using emerging standards, with an increase in availability of refreshed VPs for the participating universities. A number of other challenges are also to be addressed.

**Take-home messages:** eViP is on course to deliver a bank of 300+ VPs, adapted for different cultures and languages, in 2010.

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### 8H3 Towards multilingual and multinational repurposing and sharing of virtual patients: experiences from a Greek-English case collaboration

Eleni Dafli1, Panagiotis Bamidis1, Arnold Somasunderam2, Chara Balasubramaniam2, Nikolaos Dambros2, Terry Poulton2 (1Medical School, Aristotle University of Thessaloniki (Greece) and 2St George’s University of London, UK)

**Background:** Virtual patients (VPs) are difficult and costly to authors. This has limited their development. Their exchange across institutions might be an effective way to promote their design and implementation. Adopting technical standards makes this sharing more approachable.

**Summary of work:** The current piece of work was a collaboration between St George’s (London, UK) and Aristotle University of Thessaloniki (Thessaloniki, Greece). Its aim was to repurpose Greek VPs to English by taking into account parameters such cultural differences, idiosyncrasy, healthcare system structure and operation, as well as choice of educational methods.

**Summary of results:** The offset of this effort has been performed with the repurposing of a cardiology PBL scenario, developed according to the latest technological standards proposed by MedBiquitous. The scenario was first developed in Greek and fitted to the requirements of the Greek Health System and citizen/patient culture/attitudes. The VP’s branching scenarios were based on a case of “chest-pain”. They were then repurposed to English language and pedagogy. Preliminary evaluation results indicate the potential effectiveness of the approach.

**Conclusions:** Sharing is an effective way to cope with time and cost expensive creation of new VPs. This becomes easier by implementing technical standards. The next step is to investigate the educational result of this repurposing.

**Take-home messages:** Repurposing is an expedient method of reusing VPs but it is necessary to fit to the cultural characteristics and pedagogical needs of the students.

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### 8H4 Language proficiency and VPs cross-cultural use

Valentin Muntean1, Uno GH Fors2, Nabil Zany2, Tudor Callinici2, Tudor Drugan1 (1Department of Surgery, University of Medicine and Pharmacy “Iuliu Hatieganu”, Cluj-Napoca, Romania; 2Virtual Patient Lab, Department of LIvE, Karolinska Institutet, Stockholm, Sweden)

**Background:** Sharing virtual patients (VPs) among medical schools is a way to obtain the hundreds of different cases that might be needed for the undergraduate curriculum.

**Summary of work:** 134 Romanian medical students, with previous training exclusively in Romanian and good understanding of English, were enrolled in a study with VPs. We used three cases developed by our faculty with WebSP player. Every case had two identical
versions, English and Romanian. The students were randomly assigned two different cases, one in English and one in Romanian. We analysed the student performance based on the following variables: time per case, number of history asked questions, number of physical exams ordered, number of lab/imaging tests ordered and correct diagnosis and therapy. The data were analyzed using SPSS 17 and Z test for pears.

Summary of results: We found no significant difference of student performance for the study variables between Romanian and English versions of VPs.

Conclusions: Further studies are necessary to explore our students performance on English VPs developed in English cultures.

Take-home messages: VPs could play a role in addressing the cultural diversity that exists in the society and increased mobility of healthcare professionals, students and patients.

**8H5 Multilingual Virtual Simulated Patient**

David Riley*, Javier Guerrero, Javier Vazquez (Fundación IAVANTE, Parque Tecnológico de Andalucía, C/Marie Curie 16, Edificio Possibila 2005, 1ª Planta, Campanillas, Málaga 29590, Spain)

Background: The project is based on the results of a previous project started in 2006 by the IAVANTE Foundation and the University of Granada, called the “Virtual Simulated Patient” (VSP).

Summary of work: A computational system that behaves and responds as would a real patient during an interview with his or her doctor in Spanish.

Summary of results: The tutor can choose between various “base patients” and modify them adding one or more illnesses. Once defined, the VSP modifies their answers according to their cultural level, emotional state, psychological profile as well as the ongoing situation of the interview.

Conclusions: Based on the existing Spanish VSP, the Multilingual Virtual Simulated Patient (MVSP) Project is aimed at the generation of a MVSP that can interact with a healthcare professional in 7 languages and that also incorporates the cultural differences of the native speakers in these countries realistically simulating the linguistic and cultural differences that make up the social fabric of each country. The project also aims to create a second model of the virtual person that would represent a minority immigrant population of each country. This model will incorporate all the appropriate ethnic cultural responses expected from a real non-native patient.

Take-home messages: This is an ambitious 2 year Project co financed by the European Commission Lifelong Learning Programme. The Project started in January 2009. Initial results will be disseminated during AMEE 2009.

**8H6 The role of Intellectual Property Rights when sharing Virtual Patients**

Angela Miller*, Chara Balasubramaniam, Gabrielle Campbell, Terry Poulton (St George’s University of London, Cranmer Terrace, London SW17 ORE, United Kingdom)

Background: Time, cost and effort required to create VPs covering a variety of disciplines dictates the need for individual institutions to share resources. Sharing of digital content within the Healthcare sector raises many potential obstacles that need to be addressed: patient consent, confidentiality, ownership, issues pertinent to repurposing existing resources and licensing for future use by others.

Summary of work: The Electronic Virtual Patient (eViP) Programme consists of a European consortium of institutions. The aim of the Programme is to create a bank of repurposed multicultural VPs from across Europe. The eViP team conducted an analysis of the obstacles faced by institutions wishing to share VPs by reviewing existing intellectual property rights (IPR) policies of the member states.

Summary of results: A common consent form for obtaining patient information was devised and operational workflows for managing new and repurposed VPs created. Restrictions to the sharing and repurposing of content were addressed by adopting a common licensing framework based on the Creative Commons.
Conclusions: Analysing obstacles and devising common pathways that overcome any IPR issues, it is possible to manage and share digital content between institutions and minimise risk.

Take-home messages: eViP illustrates that it is possible for institutions to share VPs efficiently using a common unified approach.

8I SHORT COMMUNICATIONS: Teaching and Learning: Simulation – a rapidly developing tool in medical education

8I1 A revolutionary alliance between aviation and medical simulation: working towards creating an international standard in healthcare simulation

Background: The field of aviation simulation has long achieved a high level of utilization, standardization and regulation that is still lacking in the current state of healthcare simulation.

Summary of work: The Michener Institute for Applied Health Sciences and CAE - a leader in aviation simulation have created a novel public/private alliance to build a healthcare simulation center that encompasses medical education for the entire healthcare team.

Summary of results: Our collaborative comprehensive plan includes the: 1) creation of clear pedagogical standards in healthcare simulation focused on a student-centric model of learning emphasizing comprehension, retention and proficiency with valid and reliable evaluation and assessment methodologies/practices; 2) creation of well structured learning models including pre-study, simulation-based education and refresher learning activities; 3) optimization of healthcare simulation delivery and through-put by drawing efficiencies in resource integration, registration, scheduling, logistics and simulator use; 4) commitment to scholarship, research and development.

Conclusions: This alliance represents a new generation of collaboration that has the potential of creating synergy between local and global networks thereby achieving a level of unprecedented integration between healthcare simulation centers.

Take-home messages: The intent of The CAE/Michener Center for the Advancement of Simulation in Healthcare is to bring the best practices and relevant innovations from the aviation industry to the field of medicine in order to advance utilization, standardization and regulation of healthcare simulation. Through these accomplishments, we hope to create an inextricable link between simulation-based education and excellence in professional practice.

8I2 Distributed Simulation of a High Dependency Unit: an innovative approach to central line insertion
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Background: Clinicians performing procedures in high-dependency units (HDUs) must integrate technical skills with teamwork and other professional behaviours. Benchtop models lack an authentic context, while full-immersion simulation centres are expensive and scarce. We have developed the concept of Distributed Simulation (DS) - lightweight, inexpensive yet realistic environments which create immersive simulations in a portable format.

Summary of work: We developed a DS model of an HDU bay. A clinical scenario required participants to insert a central line into a model hybridised onto a simulated patient. Actors were trained in the roles of simulated patient and nurse assistant. Consultant and trainee clinicians (n=10) took part in a mixed-methods (questionnaire and semi-structured interview) face validity study.

Summary of results: Participants reported high levels of perceived realism, demonstrating face validity of the environment, simulated nurse and patient. Participants considered the simulation useful for training in central line insertion, especially for inexperienced doctors.
Conclusions: DS environments combined with hybrid simulation can simulate central line insertion in an HDU, widening access to high fidelity simulation and overcoming many limitations of current facilities.

Take-home messages: Distributed simulation of an HDU environment offers an inexpensive, portable and immersive context for patient-safe training of central line insertion.

**8I3 Simulation in paediatric emergency**

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Background: Due to Public Health System demand for new clinical practice skills which transcend technical abilities, the IAVANTE Foundation incorporated simulation techniques into specialist and resident training in paediatric critical care.

Summary of work: Two modules: preliminary e-learning phase; face-to-face teaching phase.

Face-to-face teaching phase: two-day period, using simulation-based training sessions, debriefing, video analysis. A full body model-driven (HPS METI™) and dramatization teaching tools with complete, true-to-life scenarios used in simulations. For more active, focused simulation observation we designed a collaboration script including indicators for communication, teamwork, leadership and decision-making competencies.

Summary of results: Participants evaluated aspects: credibility of scenography, performance of those taking part, clinical case credibility, relevance of clinical information, additional tests provided, participation of teachers-facilitators in debriefing and impact of methodology in participants detecting own shortcomings regarding knowledge, practical skills, attitude self-assessment.

Conclusions: In addition to providing technical training, the courses in treatment of severe paediatric patients using robotic and actor-based simulation give professionals opportunity to identify own weaknesses in field of Non-Technical Skills, making it possible to acquire these skills or to explore possible solutions for shortcomings.

Take-home messages: Primary results: improvement in understanding importance of non-technical abilities in critical patient care. Secondary results: use of collaboration scripts in observation phase produces more active participation.

**8I4 An EMS instructional program based on educational principles in simulated multi-casualty incidents (TAS3)**

Stefan Kutzscher* (Norwegian Air Ambulance, P.O. Box 94, Drøbak 1441, Norway)

Background: Adult Emergency Medical Services (EMS) providers generally learn for the purpose to expand effectiveness and safe practice in patient assessment and management skills.

Objective: This report seeks to explore some educational theories adopted to realize an interdisciplinary collaborative EMS program (TAS3).

Summary of work: A survey of important educational principles was collected and applied to the act of context-learning, reflection, motivation, collaborative interaction, orientation and readiness.

Summary of results: 1) Learning in interdisciplinary EMS teams requires social interaction and collaboration (interfaces between learning and participation) in contextually work integrated appropriate environments (Säljö 2000). 2) EMS learning model must be closely aligned with the use of a systematically designed instructional program (Gagne 1965). 3) EMS providers need to bring ‘reflection’ practised awareness and attention into the centre of their understanding (Schön 1983). 4) Learning occurs through interaction between the providers experience and knowledge and the ability to analyze critiques of own experiences. It consists of transferred knowledge, individual experiences and values that are "intertwined" (Lauvås and Handal 2001, Knowles 1984).
Conclusions: The pedagogical principles outlined are widely applicable for EMS training programmes.

Take-home messages: Education and learning of EMS providers should be guided by scientific and educational research and the principles of quality improvement.

815 Interprofessional Clinical Simulation – be SMART in acute care
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Background: Despite growing recognition that acutely ill patients are deteriorating on the general wards, ward based staff are underskilled in identifying and managing these patients as they decline towards Critical Illness (NCEPOD 2005, NICE 2007).

Summary of work: The SMART Course (Student Management of Acute Illness, Recognition and Treatment) provides collaborative education through Interprofessional Clinical Simulation (Sheffield Hallam University 2007). Through this evolving strategy, students develop clinical assessment skills, undertake clinical decision making and create appropriate management plans that are essential to the potential stability of the patient at the clinical interface.

Summary of results: The Student Experience has been explored through questionnaires and written feedback, and analysed through qualitative methodology. Emerging topics are role definition, interprofessional communication, team expectation, clinical knowledge and clinical confidence.

Conclusions: By introducing Interprofessional Clinical Simulation at Undergraduate level, medical and nursing students learn that through early collaborative intervention, they can positively influence the outcome of an acutely ill, deteriorating ward patient.

Take-home messages: Interprofessional Clinical Simulation is an important emerging educational strategy when learning to care for the acutely ill patient.

816 Can they ‘DO’ what they ‘KNOW’? A comparison of resuscitation knowledge and skills in Foundation Year 2 doctors: the advantages of using ‘full immersion’ simulation
Nicola Moores*, Bryn Baxendale, Andrew Buttery (Trent Simulation and Clinical Skills Centre, Queens Medical Campus, Derby Road, Nottingham NG7 2UH, United Kingdom)

Background: Several nationally accredited educational courses in acute care skills and resuscitation in the UK teach and assess individual ‘competence’ using low fidelity simulation. Important non-technical skills are not necessarily addressed in this process.

Summary of work: During 2008-09, 258 Year 2 doctors in the Trent Foundation School attended an advanced simulation training day. All had valid certificates of competence with regard to resuscitation. We assessed their knowledge of the cardiac arrest algorithm and observed performance of a cohort managing a simulated cardiac arrest. Assessment of knowledge application and use of technical and non-technical skills was undertaken.

Summary of results: A few participants showed unexpected deficiencies in knowledge. A higher proportion demonstrated inadequate standards of performance due to unsatisfactory technical and/or non-technical skills, which was independent of pre-existing knowledge.

Conclusions: The use of ‘full immersion’ simulation allowed better assessment of whether candidates can ‘do’ what they have shown that they ‘know’ in terms of managing cardiac arrests, demonstrating that clinical capability may not easily be predicted when assessing competence using a lower fidelity approach.

Take-home messages: A lack of emphasis on key ‘non-technical’ skills within acute care and resuscitation training may create difficulty for individual clinicians when attempting to translate knowledge and skills into practice.
8J SHORT COMMUNICATIONS: Education Management: Selection of students for medicine

8J1 The impact of changing to a multi-station interview process on predictive validity of assessed criteria
Sandra Gibson*, Sam Leinster, David Heylings (University of East Anglia, School of Health Policy and Practice, Norwich NR4 7TJ, United Kingdom)

Background: In 2007 UEA changed from structured interviews by two interviewers using 5 domains to a 7 station interview with 1 interviewer/station. Criteria assessed by both methods were designed to establish suitability for the curriculum; decision making; empathy; and motivation.

Summary of work: Reliability and predictive validity of interview scores between 2002 and 2008 have been compared, in relation to interview criteria and style. A 'suitability index' was developed based on interview scores and other admissions data.

Summary of results: Three criteria 'motivation', 'decision making' and 'supportive attitude' predict performance at medical school. This holds in both double assessor and multi-station interviews. A suitability index based on weighted interview criteria scores, entrance examination data and age increased ability to predict performance.

Conclusions: Some interview criteria can predict performance at medical school. Combining interview scores with other admissions data can increase predictive validity.

Take-home messages: No interview techniques are perfect, but we are improving our ability to select candidates who will thrive in medical school.

8J2 Selecting the postmodern student: explicit alignment of medical school curriculum objectives to admissions criteria through multiple mini-interviews
Saleem Razack*, Sonia Faremo, France Drolet, Linda Snell, Jeffrey Wiseman, Joyce Pickering (Centre for Medical Education, Admissions Office, & Undergraduate Medical Education Directorate, McGill University, Lady Meredith House, 1110 Avenue des Pins Ouest, # 205, Montreal, Quebec H3A 1A3, Canada)

Background: Multiple mini-interviews/simulations (MMIs) represent a promising new selection tool for admissions assessment for medical school. They can be competency-based and active ('doing' rather than 'telling'), and thus the potential exists to link desired behavioural outputs of medical training to behavioural inputs on selection for admission to medical school.

Summary of work: We piloted simulation-based MMIs, in which the selection criteria were explicitly aligned to defined physician competencies. This alignment was created through a process of consensus building with curriculum stakeholders, and we report on both the product and process of implementation of this pilot.

Summary of results: A blueprint for selection through MMIs was created with specific selection criteria ('curricular inputs') linked to competencies ('curricular outputs') expected of the graduating physician. This aligned blueprint showed a high degree of face validity with key stakeholders.

Conclusions: Medical school admission criteria can be explicitly aligned to physician competencies through simulation-based MMIs. Major stakeholders perceive this alignment as valid.

Take-home messages: A rational curricular alignment across the continuum from admissions to graduation may fit well with the selection of the student with a post-modern worldview, where truths are seen as relative and contextual, and where thus an explicit, behaviourally anchored approach to selection may prove more valid.
8J3  Extending the interview to all medical school applicants – Computer-based Multiple Sampling Evaluation of Non-cognitive Skills (CMSENS)
Kelly L Dore*, Harold I Reiter, Kevin W Eva, Sharyn Kreuger, Edward Scriven, Eric Siu, Shannon Hildden, Jennifer Thomas, Geoffrey R Norman (McMaster University, MDCL 3520, 1200 Main Street West, Hamilton, Ontario L8N 3S5, Canada)

Background: Health professions admission committees across the world are faced with the difficult task of selecting (from among many eligible applicants) the select few who will be admitted to their training programs. Unfortunately, most medical school applicants are excluded pre-interview without benefit of a psychometrically sound non-cognitive assessment. Can a non-cognitive screening test be widely applied pre-interview? In particular, correlation with the well-validated multiple mini-interview (MMI) is sought.

Summary of work: Study 1: 110 medical school applicants completed MMI and CMSENS – eight one-minute video-based challenges, with short-answer format questions, plus four self-descriptive questions. Seventy-eight applicants’ responses were audiotaped, thirty-two typewritten, scored by two independent raters. Study 2: 167 applicants completed CMSENS – eight videos, six self-descriptive questions, typewritten responses only, scored by two raters; 88 of 167 underwent the MMI.

Summary of results: Results respectively for overall test generalizability, inter-rater reliability, and correlation with MMI: Study 1: audio-responders: 0.86, 0.82, 0.15; typewritten-responders: 0.72, 0.81, 0.51. Study 2: self-descriptive portion: 0.69, 0.90, 0.33; video portion: 0.75, 0.92, 0.51. Overall CMSENS disattenuated correlation with the MMI was 0.6.

Conclusions: CMSENS correlates with MMI and represents future possible widespread implementation as a pre-interview non-cognitive screening test.

8J4  Arts and Science Graduates perform equally well on the Cambridge Graduate Course in Medicine.
White JF*, Wood DF, Siklos PWL (Cambridge University School of Clinical Medicine, Addenbrooke's Hospital, Box 111, Cambridge CB2 0SP, United Kingdom)

Background: The Cambridge Graduate Course in Medicine (CGCM) admits students with a first degree in any subject. In the first two years, students integrate the science – based Cambridge preclinical course with clinical studies. We wished to determine whether pre-course academic background influenced in-course performance and final result, exploring anecdotal reports that students with a non-biological science degree struggle with the scientific components of the course.

Summary of work: Data were collected from the first 4 consecutive admission year groups (2001-2004, n=84). Prior degree subject, raw scores in year 1 and 2 biomedical science examinations, summative OSCE, and total scores in Final MB examinations were reviewed.

Summary of results: One fifth of students in each year were non-biological science graduates (range 15-25 %). There was no significant difference in assessment scores or between cohorts.

Conclusions: Arts and Humanities graduates perform equally well as Science graduates on the CGCM, in both biomedical science and clinical assessments. We found no evidence that an arts background predicts poor subsequent scientific performance.

Take-home messages: This study supports our admission policy of selecting graduate students with a humanities background. Students who have demonstrated academic capability in a non-science field succeed in the CGCM.

8J5  Are there any factors which predict success in graduate medical students?
Haldane T*, Shehmar M*, Price Forbes A, MacDougall C, Fraser I, Peile E (Warwick Medical School, Warwick University, Coventry CV4 7AL, United Kingdom)

Background: There are no documented predictors of success in GEM courses, although it has been suggested that age and maturity may be influential. This study looks at the demographics and examination performance of GEM students to look for any predictors of success.
Summary of work: A quantitative study was conducted using data for GEM students graduating in the years 2004, 2005 and 2006 from Warwick medical school (WMS). Data collected included demographics (age, sex, A level score and previous highest degree) and results of all examinations undertaken.

Summary of results: The study group comprised 339 students. For clinical examinations (where data were normally distributed), one way ANOVAs showed no significant associations for any studied demographic variable, (age, sex, A level score and previous highest degree). For written examinations where pass/fail data was collected, logistic regression analysis for the same variables similarly showed no associations.

Conclusions: This is the first study which looks in detail at the examination performance of GEM students. Given the literature, it may have been thought that older age and life experience or a higher degree may be advantageous, however, this study did not show this.

Take-home messages: No predictors of success were seen, neither age, having a higher degree or A level score were shown to have any effect on outcomes.

8J6 Academic achievement in graduate entry medicine: a comparison of 5-year standard programme and 4-year accelerated programme
Jiyoung Kim*, John Rees* (King's College London School of Medicine, Sherman Education Centre, 4th Floor, Thomas Guy House, Guy's Hospital, London SE1 9RT, United Kingdom)
Background: At King's College London School of Medicine, the first entrants of 4-year graduate only programme (Graduate and Professional Entry Programme: GPEP) qualified in 2008. Around a third had a non-science degree. This study compared their academic achievement to non-graduates and graduates in the 5-year standard programme.

Summary of work: We examined the academic achievement of 387 students (69 graduate in 5-year programme, 27 graduate in GPEP and 291 non-graduates) due to qualify in 2008 by pass/fail rate, merit/distinction rate, and examination scores. Demographic and educational backgrounds were also examined.

Summary of results: During all academic years, graduates in GPEP scored higher in examinations than non-graduates and graduates in the 5-year programme and were more likely to achieve merits/distinctions. Graduates in the 5-year programme achieved higher scores than non-graduates only up to the first clinical year. There was no significant difference by demographic or educational backgrounds.

Conclusions: Graduates in GPEP, selected from a large applicant pool, performed better than non-graduates and graduates in the 5-year course, in spite of their shorter course and the relative lack of science background.

Take-home messages: Shorter graduate entry programmes with appropriate selection can ensure academic excellence.

8J7 The relationship between personality compatibility and career preferences in medical students of Mazandaran University of Medical Sciences
Kourosh Vahidshahi*, Mitra Mahmoudi, Sair Arabi, Nikoo Parvinnezhad, Yaser Salahshour (Mazandaran University of Medical Science, Education Development Center, Vall-Asr Boulevard, Mazandaran, Sari 4815733971, Iran)
Background: There is some evidence indicating lack of interest towards medicine among medical students during education. This study was conducted to survey the personality characteristics of medical students and their compatibility with medical career in Mazandaran University of Medical Sciences (MUMS).

Summary of work: This was a cross sectional descriptive survey. Study population was all medical students of MUMS. The tool for the data collection was Holland career–personality questionnaire. Data were analyzed using appropriate statistical test in SPSS 13.

Summary of results: 35.6% of participants were male. Average age was 22.1±2.5. The findings showed that 47.5% of medical students were not compatible with medical career regarding their personality characteristics. 46% of participants reported that they had
not been familiar enough with the field of medicine when they had to choose their field and more than 78% of the students in this category indicated that their aim for choosing medicine as their professional field had been neither their interest nor their abilities.

**Conclusions:** Many medical students of Mazandaran University of Medical Sciences were not compatible with medicine as a career regarding the most important personality characteristics for this job. It is suggested to use personality and attitude tests for admission of medical students for faculties in addition to knowledge test and necessity of conclusion.

**8K SHORT COMMUNICATIONS: Continuing Medical Education**

**8K1 Evaluation processes to lead change**

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**Background:** Saturday at the University (University of Toronto) is an annual CME program designed for Primary Care Practitioners. It consists of 6 Saturdays per year; average attendance 250. Speakers present 20 minute lectures followed by 10 minute question periods. The program is known for providing the best and latest specialty information.

**Summary of work:** Due to low response rates and administrative costs, several changes were made to program evaluation (October 2008-March 2009) including interactive audience response system (ARS), open ended questionnaires and focus groups. Qualitative information was summarized after each session and subsequently “fed-back” to participants. The hope was to increase response rates, streamline administration and provide practical suggestions to the planning team.

**Summary of results:** Response rates increased, administration was streamlined and useful suggestions generated.

**Conclusions:** Serendipitous results were of greater interest. Initially participants were clear about not wanting any change, including the evaluation methods being introduced. Over time as results from evaluations were discussed in each session, enthusiasm increased, resistance to change decreased and participants offered more suggestions.

**Take-home messages:** ARS combined with qualitative methods is an efficient method of evaluation and can increase interest and enthusiasm for completing evaluations of formal CHE programs. Establishing dialogue through creating a feedback loop is essential.

**8K2 CME for physicians on diabetes care: Improving knowledge and changing behaviour through a team-based learning approach**

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**Background:** CME courses should ideally improve physicians´ knowledge and change their behaviour in daily practice. Does a team-based learning approach on diabetes care meet these expectations?

**Summary of work:** We designed an interactive case-driven seminar on diabetes care using a team-based learning format. Questionnaires and an electronic voting system were used to evaluate motivation, acceptance and knowledge. Furthermore, we analysed the data on diagnostics and referral of patients with diabetes of participating physicians in the quarter before and after the course in comparison with a matched control group.

**Summary of results:** Participants (n=103) rated the interactivity and team-based discussions as main reasons for enhanced learning. They also expected that the course would impact their professional performance. Participants scored a mean of 43.9% right answers before and 62.6% after the course (SD=16.9, p<0.001). The referral to diabetes specialists increased by 30.8% (p<0.001). Referral for funduscopy also increased (8.5%, n.s.) whereas it dropped in the control group. Furthermore, the participating physicians tested their patients more often for microalbuminuria (7.1%, n.s.).
Conclusions: Our CME-approach was highly accepted and resulted in an increase of knowledge as well as it changed behaviour in daily practice for key learning goals of the course.

8K3 Motivating factors for – and barriers to – participation in continuing professional development
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Background: This study was instigated to gain a better understanding of veterinary practitioners’ motivation to engage in continuing professional development (CPD), and barriers to participation, in advance of a new Veterinary Surgeons Act which is likely to make CPD a statutory requirement.

Summary of work: A questionnaire was mailed to 2000 randomly selected, home-practising UK veterinary graduates. In addition to identifying motivators and barriers, the form was designed to gather information on respondents’ views and experience of CPD, and their dominant approach to learning.

Summary of results: Analysis of 775 responses (38.8%) revealed that respondents spent on average 31.5 hours in the last 12 months participating in CPD. Most were intrinsically motivated, somewhat socially motivated, and least extrinsically motivated. An overall preference for complex learning over simple tasks was positively correlated with intrinsic and extrinsic motivating factors showing that both types of motivation play a role in the continuing education of this group of professionals. A preference for simple tasks was positively correlated with barriers, summarised as a lack of appropriate CPD at a convenient time and location, a lack of workplace support, and personal factors such as family responsibilities.

Conclusions: These findings will help prepare the profession to better support the diverse CPD requirements of its members.

Take-home messages: Intrinsic and extrinsic motivators were linked with a preference for complex learning, and barriers linked with a preference for simple tasks, in this group of professionals.

8K4 Harvests of Continuing Medical Education and occupational development activities: experience of Turkey 2003-2008
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Background: The Turkish Medical Association (TMA) Continuing Medical Education and Continuing Professional Development (CME-CPD) Council regularly assesses the educational activities applied for accreditation in Turkey.

Summary of work: The last 6 years of TMA CME-CPD assessments are analyzed in detail and Turkish experience is shared.

Summary of results: Annual average number of the activities that have applied to TMA was 1,100 in the years 2003-2008 and 8 credit points on average were given them. The specialty associations and the universities arranged 65% of these activities comprising 40 specialty areas, 28 minor subjects besides general practice. 41% of these activities were education sessions. The data of 3.300 activities that have sent feedback form indicates that in total 200,000 certificates were given to physicians at CME-CPD activities with average capacity of 60 persons.

Conclusions: More than 41,000 physicians were credited in Turkey between the years 2003 and 2008 by attending CME-CPD activities. This scale indicates that 75% of the total number of physicians attaches importance to TMA CME-CPD Council’s accreditation.

Take-home messages: The efforts of TMA CME-CPD Council that comprise the activities in the last 6 years will enlighten the development of international experience through new perspectives and methods in accreditation of CME-CPD activities.
**8K5** Evaluating tools for continuing medical education: assessment of the quality of clinical practice guidelines used in Andalucia

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**Background:** Well-formulated clinical practice guidelines (CPGs) can be used positively to guide practice, but also for continuing medical education. However, knowledge on quality of guidelines used in clinical setting is scarce. This study aimed at evaluating the quality of CPGs used in the Andalucian Health System.

**Summary of work:** Cross-sectional study including the CPGs incorporated to improve the clinical decision-making process by the clinical management units (CMUs) from the Andalucian hospital network in the 2005 management agreement. Two appraisers used the AGREE instrument to independently evaluate the guidelines.

**Summary of results:** A total of 95 CPGs from 87 CMUs were recovered for evaluation. The CMUs guidelines scored highest in the dimension that evaluated reporting of the guideline’s scope and purpose (70.4%) and clarity and presentation (61.3%). The global assessment of guidelines was: 24.7% strongly recommended for use in practice, 27.4% recommended for use with some modification and 37.9% not recommended as suitable for use in practice.

**Conclusions:** The overall quality of used guidelines in the Andalucian Health System is relatively high.

**Take-home messages:** High-quality CPGs could be powerful tools of continuing medical education to translate evidence-based knowledge into practice (Supported by CIBERESP and Consejería de Salud de Andalucia (grant 218/05)).

**8K6** Managing GP performance issues – lessons learnt

Julia Whiteman* (London Deanery, Stewart House, 32 Russell Square, London WC1B 5DN, United Kingdom)

**Background:** London Deanery is currently providing support to 53 London-based GPs referred from a variety of sources including self-referral. London has the greatest concentration of doctors with fitness to practise concerns in the UK. Worryingly we are seeing an increased number of younger GPs being referred in for performance support.

**Summary of work:** Review of Performance Unit work with stats to show profiles of cases. Summary of approaches to remediation in contexts of a learner-centred approach, equal opps, patient safety and limited resources for remediation.

**Summary of results:** 35% of those GPs we are currently supporting are young GPs who qualified as GPs since 2000.

**Conclusions:** How to best inform the development of remedial provision arising from revalidation. What will be the impact of revalidation and Modernising Medical Careers on the need for remediation? Figures presented through this work to the Department of Health have influenced the thinking around the need for extending GP speciality training to 5 years.

**Take-home messages:** Why are failing GPs getting younger? How can we address this challenge and will revalidation help?

**8K7** Are paediatricians prepared for recertification?

Alistair Thomson*, Jacqueline Fitzgerald, Joanna Seth-Smith and the RCPCH Recertification Development Committee (Royal College of Paediatrics and Child Health (RCPCH), 5-11 Theobald’s Rd, London WC1X 8SH, United Kingdom)

**Background:** The RCPCH surveyed career grade paediatricians’ knowledge and views of revalidation to inform College recertification development.

**Summary of work:** E-survey using SurveyMonkey, with previously used RCP (London) questionnaire modified for paediatric relevance. Circulated once with reminder to 1000 paediatricians (86% Consultants; 6.5% Associate Specialist, 7.5% Staff Grades) in 4 week window in Autumn 2008.
Summary of results: 440 paediatricians responded (44% of Consultants; 57% Associate Specialists; 32% Staff Grade) from all paediatric and child health settings. The majority agreed that: more robust appraisal is needed (59%); appraisal should confirm specialty standards are met (52%), but is only part of revalidation portfolio (84.3%); RCPCH should set specialty standards (76.4%) and define evidence (77.7%). Respondents agreed that RCPCH assessment tools should be used (p < 0.001), but not quality of life indicators or health episode statistics (p > 0.05), supplemented by team performance evidence (75.2%); but 51.4% had not themselves yet undertaken a multi-source feedback assessment. Responses between career grade groups did not differ significantly.

Conclusions: Introduction and content of recertification was known to most career grade paediatrician respondents, though non-responders may have other views.

Take-home messages: Paediatricians need information to encourage activities relevant to the introduction of recertification.

8L SHORT COMMUNICATIONS: Professionalism (1)

8L1 Planning for emergence: McMaster’s Professional Competency Curriculum
Cathy Redon, Karen Trollope* (Department of Family Medicine, McMaster University, Faculty of Health Sciences, 690 Main St. W., Hamilton, Ontario L8S 1A4, Canada)

Background: A mandate to rethink the MD Programme Curriculum gave McMaster educators the opportunity to consider how we teach professionalism, communication skills, cultural competence, population health, ethics, self awareness and life-long learning.

Summary of work: We have completed four years of our “Professional Competency” curriculum. Groups of 10 students meet weekly for 3 hours, facilitated by an interprofessional pair of an MD and a “non-MD” clinician. Each week’s session includes a deliberate mix of pre-planned content and student initiated reflection on experiences critical for professional formation. Wherever possible, learning experiences include skills practice, content review and personal reflection.

Summary of results: After early growing pains, the curriculum (and its planners) have achieved a state of confidence and maturity. The essential s required for students to meaningfully participate in a learning experience which deliberately forces exploration of uncertainty, anxiety and ambiguity are better understood.

Conclusions: Creating and maintaining space for emergent learning about professional formation within a medical school requires a general philosophy of discovery and responsiveness, held in creative tension with the impulse to force structure and eliminate uncertainty.

Take-home messages: Processes of faculty development, student input, continuous reflection and explicit experimentation have been essential to the creation, evolution and sustainability of an innovative, integrated “Professional Competency” curriculum.

8L2 Professionalism and medicine’s social contract with society: a concept with implications for the teaching of professionalism
Sylvia R. Cruess*, Richard L. Cruess* (Center for Medical Education, McGill University, 1110 Pine Ave W., Montréal, QC H3A 1A3, Canada)

Background: Most observers believe that medicine’s social contract is based upon professionalism. Consequently, it should be taught as part of the cognitive base of professionalism. There is little literature on the nature of the social contract. Most treat it as a simple arrangement between medicine and society: medicine is given privileges on the expectation that it will meet societal expectations.

Summary of work: We and others have postulated that the social contract is tripartite, involving medicine and society, which consists of patients/the public and government (1). There are three relationships: between medicine and patients/the public; patients/the public and government; and medicine and government. Each is associated with expectations which impose obligations.
Summary of results: Teaching professionalism as the basis of medicine's social contract provides a rational basis for the existence of the expectations and obligations of medicine and society.

Conclusions: The nature of both professionalism and the social contract should be taught explicitly to students, trainees, and practicing physicians.

Take-home messages: Teaching the nature of medicine’s social contract with society provides a logical basis for the presence of medicine’s obligations and can facilitate the teaching of professionalism.

References:

8L3 Injecting human rights into clinical practice
Veronica Mitchell*, Athol Kent* (University of Cape Town, Anzio Road, Observatory, Cape Town 7125, South Africa)

Background: Training health professionals in human rights has been identified as a crucial need. To promote critical inquiry at the University of Cape Town, workshops were introduced for Year 3 students in Women’s Health. An innovative participatory approach was adopted to stimulate students exploring and expressing their differing perspectives.

Summary of work: Groups of 30-40 students subdivided into 3 small groups chose topics related to controversial health and human rights issues in Gynaecology. The groups have 2 weeks to prepare debates, roleplays, talkshow style presentations or any mode of interactive session they can conjure up. They present their topics to their peers and facilitators, and guided discussions follow. The diverse population of students in post-Apartheid South Africa affords opportunities for dialogue.

Summary of results: Students appreciated the opportunity to engage in open discussion on local and global issues. Qualitative analysis of their reflections through individual preparation and group interaction yielded a rich harvest of cognitive and affective learning. It was clear that students’ perspectives and attitudes were both challenged and formulated by the workshop experience.

Conclusions: Innovative teaching methods early in clinical training had a profound effect on student attitudes encouraging educators to build on their success.

Take-home messages: Take risks and trust students.

8L4 "Window cleaners can't sign passports ... but can doctors clean windows?" Stories from students and tutors about the learning and teaching of professionalism
Simon Downer*, Liz Anderson (University of Bristol, Department of Community Based Medicine (Psychiatry), Cotham House, Cotham Hill, Bristol BS6 6JL, United Kingdom)

Background: There is clear guidance about what professionalism and professional values for doctors and medical students should be. Evidence suggests that unprofessional behaviour in medical students may arise from personal ‘value conflicts’. We aimed to investigate the interface of personal and professional values in the teaching and learning of professionalism in the UK.

Summary of work: This is a qualitative study using a purposive sample. We conducted two focus groups for third year medical students, and interviewed fourteen unit tutors in an established school of medicine.

Summary of results: Five themes or stories emerged: 1.Conflicts – ‘Internal’ (relating to personal values); ‘external’ (the ‘imposition’ of public expectations, cultural or generational differences between people); using value conflicts in teaching; 2.Transitions – Moral development, identity development, and personal development (‘growing up’); 3.Definitions – Social (or relative – including the ‘power’ of the doctor), professional (or collegiate), personal (or agency), and public (or structure); 4.Regulations – Requirements (of professional bodies); the use of professionalism to ‘control’ and the pressure to conform; 5.Maintenance – teaching, learning, reflection as a tool, barriers to learning or teaching professionalism, ‘sanctioned deviance’ (allowing students to be ‘deviant’).
Conclusions: Doctors' difficulty reflecting on professionalism and their own personal values may arise because medical education reinforces the meta-narratives of "established" views. Lack of encouragement of the expression of students' personal values, and reflection upon them in the teaching of professionalism, may perpetuate this problem.

Take-home messages: Teaching and assessment need to stimulate insightful ways for students to think about professionalism.

8L5 Yellow card: one year on
R Cruickshank*, V O’Carroll, A Laidlaw, P Bjelogrlic (University of St Andrews, Westburn Lane, St Andrews KY16 9TS, United Kingdom)

Background: Forming attitudes, cultivating desired behaviour and ultimately promoting professionalism is an important aspect of medical education. University of St Andrews, Medical School introduced a yellow warning card system for students in 2007. Staff were trained to ensure consistency in delivery of the warnings.

Summary of work: Data regarding the date when cards were issued, and the reason for issuing, were noted against the student’s name in an Excel spreadsheet. We have reviewed 3 semesters of data covering 3 year groups, identifying trends in delivery of yellow card warnings. We reflect on the behaviours behind these patterns.

Summary of results: The number of warnings issued has increased, we believe, as staff became familiar with the system. Distribution is not uniform throughout the semesters. The peak observed in the early weeks of first year is not seen in later year cohorts. Punctuality has been improved. Comparing 2 year cohorts longitudinally we hypothesise that raising awareness of professional standards early in the student’s career may aid the development of professionalism.

Conclusions: From early data the yellow card scheme is an effective tool to mould attitudes and behaviour.

Take-home messages: Raising awareness of professionalism from day 1 of medical school appears to improve standards.

8L6 Professionalism cards to track and act on commendable and unprofessional behaviors of medical students
Harriet Myers*, Mary Coleman*, Barbara Harwell (Ross University School of Medicine, Seahorse Plaza, P.O. Box F-60087, Freeport, Grand Bahama, The Bahamas)

Background: Faculty members may fail to report observed student behaviors for a number of reasons. Recently Ross University School of Medicine instituted a Professionalism Card system to provide faculty with a mechanism to report significant behaviors—to recognize commendable behaviors and to intervene where behavioral patterns are of concern.

Summary of work: The RUSM system utilizes an electronic card which may be submitted by faculty in less than five minutes. Interventions are instituted if a behavioral pattern of concern is noted. Cards capture both in- and out-of-class behaviors and encourage guidance around behaviors related to professionalism.

Summary of results: 244 cards (178 commendations and 66 concerns) have been submitted. Students receiving cards meet with the citing professor or student affairs personnel in “teachable moment” interactions for reflection and feedback. Not all faculty and students are as yet clear about how the card system works.

Conclusions: Professionalism cards document behavioral patterns, providing opportunities for recognition/intervention. Ongoing clarification for students and faculty is needed for greater understanding and utilization.

Take-home messages: Professionalism cards provide a means to identify exemplary and problematic behaviors and facilitate remediation of negative behaviors early in the medical education process.
8L7  Assessment of osteopathic medical student professionalism competency: The impact of hidden curriculum
Patricia S Sexton*, Jane C Johnson, John H George* (AT Still University - Kirksville College of Osteopathic Medicine, 800 W. Jefferson St., Kirksville, MO 63501, United States)

Background: Professionalism has been identified as a core medical competency. Moral and ethical decision making are elements within professionalism. A hidden curriculum in medicine may indicate that such abilities may be eroded by the educational system itself.

Summary of work: Osteopathic medical students in educational years 1-4 completed the Defining Issues Test (DIT), version 2. Results were analyzed to determine the effect the educational process may have on moral reasoning.

Summary of results: Three primary schemas of moral judgment are evaluated by the DIT-2: Personal interest, characterized by decisions motivated by self-interest and lack of autonomy; maintaining norms, characterized by a focus on rules, codes and laws; and post-conventional decisions centered on justice, fairness and duty. Additionally an anti-social score indicates how a student’s interaction with the surroundings may influence these schema. The medical students sampled demonstrated lowest anti-social scores in years one and two with the score increasing significantly by year three. Likewise, post-conventional scores decreased with increasing medical education while maintaining norms increased between years one and four. Female students had higher post-conventional scores than males in all years.

Conclusions: Student moral judgment may be negatively influenced by the process of medical education. Additional research is needed to confirm this trend.

8M  SHORT COMMUNICATIONS: The Student: Career choice

8M1 Undergraduate surgery in the ring- fighting a corner
KM Browne*, ADX Hill (Department of Surgery, RCSI, Beaumont Hospital, Dublin 9, Ireland)

Background: The Medical Council published two reports on undergraduate medical education in Ireland in 2001 and 2003. Having reviewed the five medical schools’ curricula, they noted a discrepancy between the proportions of time assigned to the teaching of surgery.

Summary of work: We analysed original records from the Medical Council and then questioned each of the medical schools with respect to the proportion of each teaching paradigm employed i.e. formal or clinical. We calculated the number of doctors holding intern registration for the corresponding period by medical school. We then compared this data with the number of trainees entering Basic Surgical Training by undergraduate institution.

Summary of results: The percentage of time allotted to undergraduate surgery varied between 14-32% in the five institutions. This correlated positively with the institution providing the most candidates for surgical training (23%, n=18). In addition, the largest volume of trainees came from schools making the greatest use of small group teaching (n = 240 hours, 24% of total surgical teaching). The institution with the smallest proportion of surgical teaching (14%) provided the lowest proportion of doctors entering surgical training (4%, n=5).

Conclusions: In the context of curriculum pressures, it is imperative that surgery forms a strong part of the undergraduate curriculum if graduates are to be encouraged to pursue a career in surgery.

Take-home messages: It is clear from this study that the proportion of time allotted to surgery in the curriculum has an impact upon career choice.

8M2 Factors related to interest in rural practice among Japanese medical students
Yuko Takeda*, Kunimasa Morio, Junji Otaki, Miyako Takahashi, Ichiro Kai, Tatsuya Inafuku, Ayumi Takayashiki, Hiroki Yasui, Linda Snell (Mie University Graduate School of Medicine, Edobashi 2-174, Tsu 514-8507, Japan)

Background: Due to regional disparities and severe physician shortages, Japanese medical schools recently increased enrollment by 10-20%. A special admission quota was instituted
to ensure graduates work in underserved areas; however few studies identified factors related to interest in rural practice in Japan.

**Summary of work:** We conducted a nationwide cross-sectional survey of 4th and 6th year students in 41 & 21 (of 80) medical schools respectively. Anonymous data from respondents who chose to be a clinician and adequately replied to questions was analyzed (4th- year n=2572; 6th year n=1179).

**Summary of results:** Re willingness to practice in a remote area: 12.3% and 13.5% of students in 4th and 6th year respectively responded as “keenly-motivated”, 57.7% and 59.9% as “willing to work for certain period of time”, 20.8% and 17.4% as “rather avoid”; and 5.9% and 5.8% as “never”, with no statistical difference between years. Factors relating to willingness to work (keenly and for certain period) for both years are: public medical school (p<0.001).

**Conclusions:** Students with interest in rural practice have certain characteristics.

**Take-home messages:** Medical school admission policy might be adjusted to reflect factors known to influence choice of rural practice.

8M3  **Is the academic performance of students who pursue family medicine different from that of students who enter other disciplines?**

Wayne Woloschuk*, Bruce Wight, Kevin McLaughlin (Faculty of Medicine, University of Calgary, 3330 Hospital Drive NW, Calgary T2N 4N1, Canada)

**Background:** Fewer medical students have been pursuing careers in family medicine. Reasons for this include the impact of negative comments directed toward the discipline (hidden curriculum). A popular belief is that the brightest students forego careers in family medicine to pursue other specialties. The purpose of this study was to compare the academic performance of students who entered family medicine residency programs to that of their peers who entered other disciplines.

**Summary of work:** This study examined medical school performance data (grade-point averages, licensing exams scores) along with residency program director ratings for three classes (2004-2006) of graduates from the University of Calgary.

**Summary of results:** Complete data were available for 242 (81.5%) graduates. In the analysis, residency program [family medicine (n= 80) versus other (n=162)] served as the independent variable while seven performance measures served as dependent variables. A Manova revealed no significant difference among any of the mean performance scores, F(7,234) = 1.54, p > .05.

**Conclusions:** The academic performance of students that chose family medicine careers did not differ from that of students who chose other specialties.

**Take-home messages:** There is no evidence to substantiate the belief that top medical students gravitate towards sub/specialty programs.

8M4  **Tackling the psychiatry recruitment crisis: what effect does an undergraduate psychiatric attachment have on the attitudes and career intentions of Bristol Medical Students?**

Claire Archdall*, Tanya Atapattu*, Nicola Wiles, Glyn Lewis, Liz Anderson (Academic Unit of Psychiatry, University of Bristol), Chris Fear (2gether NHS Foundation Trust, GJ (Academic Unit of Psychiatry, Cotham House, Cotham Hill, Bristol BS6 6JL, United Kingdom)

**Background:** Changes in postgraduate medical training are forcing doctors to make earlier career choices. Research suggests undergraduate psychiatric attachments can influence students’ attitudes. It is unclear how these attitudes change over time or impact on career preferences. This study explores these questions in a cohort of all third year Bristol medical students in the 2007-2008 academic year.

**Summary of work:** Students completed a questionnaire at the beginning and end of the year and pre and post psychiatric attachment. Demographic details, career preferences and views on statements relating to psychiatry were recorded.

**Summary of results:** The response rate was 81%. Attitudes and career preferences improved post attachment but decreased by the end the year. The greatest decay was in views of psychiatry as a speciality. Demographic factors had no influence on attitude changes.
Conclusions: Psychiatric attachments positively affect attitudes and career preferences but this is not sustained. The decay could be related to the influence of other specialties. The attachment itself seems more important than a student’s background in shaping attitudes.

Take-home messages: Undergraduate education needs to change to improve recruitment into psychiatry and sustain attitudes towards mental illness. Repeated exposures to psychiatry throughout medical school and a more holistic educational approach are potential strategies.

8M5 Gender effects on choice of medical specialty
Marie Wedin* (Swedish Medical Association, Box 5610, Stockholm 114 86, Sweden)

Background: The Swedish Medical Association has carried out a survey on gender issues in relation to the choice of medical specialty amongst 10,000 of our male and female members (50/50). The survey has resulted in 3 reports and a plan to ensure equality in choice of specialty in the future.

Summary of work: The survey highlighted: (1) factors that effected choice of specialty; (2) factors involved in changing, or considering changing specialty; (3) working conditions in different specialties; (4) attitudes towards gender equality.

Summary of results: In general the survey showed that men and women found the same factors important in their choice of specialty. It showed that women take into account working conditions that allow them to have a professional career as well as raise a family. Women also perceived they had been discriminated against at some time, due to their gender.

Conclusions: There are strong indications of major differences between male and female physicians when looking at working conditions within the specialties.

Take-home messages: There are strong indications of major differences between male and female physicians when looking at working conditions within the specialties.

8M6 The best and the brightest: recruiting talented physicians into academic medicine
Casey B. White*, Eric L. Dey* (University of Michigan, 1135 E. Catherine, 3960 Taubman Med Lib SPC 5726, Ann Arbor 48109, United States)

Background: Quality in academic fields is dependent on the quality of the individuals working within it. In many purely academic fields there are constraints on reasonable employment alternatives, but in professional fields such as medicine the variety of practice settings presents significant institutional challenges to recruiting and retaining faculty. Currently, a modest percentage of residents plan to pursue academic positions. Considering that and ongoing generational changes with implications for the recruitment and retention of academic physicians, understanding how current medical faculty view the attractiveness of their current positions can help to guide us in efforts to increase the number of physicians who choose academic careers.

Summary of work: Using data from a national survey of 26,000 faculty working in U.S. universities, the experiences and preferences of medical faculty are compared with those in other fields with respect to whether they would again pursue an academic career.

Summary of results: Results show a modest but significant differential between faculty in medicine and other fields. Factors important to medical faculty who would again pursue academic positions include opportunities to pursue research and feeling rewarded for their teaching efforts. Overall workload was also found to be important, as were issues of salary and benefits.

Conclusions: Institutional reward structures for teaching and opportunities to participate in research are important elements in maintaining medical faculty interest and satisfaction in academic positions.

Take-home messages: Data-driven efforts to change institutional practices might enhance the ability to attract talented physicians who are choosing other career paths.
8M7 How career counselling can qualify choice of specialty
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Background: Society needs to educate excellent specialists in all specialties. However it is not possible for all trainees to obtain training in their preferred specialty. Career counselling is a method to support relevant choice of specialty. A review of literature was made to identify which aspects to include in career counselling.


Summary of results: Choice of specialty tends to be a negative choice where specialties that do not fit the individual trainee initially are left out of consideration. Career counselling should therefore focus on identifying the field of relevant specialties for the trainee. Choice of specialty is dependant on 1) specialty-specific and 2) personal factors. 1) Often trainees are not familiar with all potential specialties. Furthermore the trainees’ subjective opinions about the specialties may not be in line with the actual conditions. Hence, career counselling should provide factual knowledge about specialties including information about working conditions and characteristics of the specialties. 2) Career counselling should support self-awareness regarding personality and wishes for family life and lifestyle.

Conclusions: Career counselling can facilitate a relevant and lasting choice of specialty by assisting the trainee in identifying potentially relevant specialties.

Take-home messages: Career counselling is a way to optimize the match between trainee and specialty.

8N PhD REPORTS: School-based learning
8N1 Developments in veterinary medical education - intentions, perceptions, learning processes and outcomes
Debbie Jaarsma* (Faculty of Veterinary Medicine, Utrecht University, PO Box 80163, 3508 TD Utrecht, Netherlands)

Introduction: Veterinary education worldwide has gone through some rapid and major developments. Motivation for these developments were the explosion of biomedical knowledge and the mismatch between university and the veterinary profession to which alumni missed competencies essential for future career success(1,2). The developments in veterinary education can be characterised by a transition from mostly teacher centred education towards more student centred education and by more attention being paid in curricula for generic competency training, such as scientific, communication and business skills(1,2). The PhD research aimed at gaining more knowledge and insight into veterinary curriculum developments. The central question was how students, teachers and alumni of the Faculty of Veterinary Medicine, Utrecht University, the Netherlands have experienced their student centred curriculum with substantial attention to education in generic competencies. Studies in this thesis focused on the intended curriculum, seminar leaning, the research internship and preparation for professional practice.

Methods: The studies were conducted from process-directed and outcome-directed perspectives by use of a variety of research methods and resources, such as document analysis, an assessment instrument, questionnaire surveys examining students’, teachers’ and alumni’s perceptions, and observational techniques exploring students’ and teachers’ behaviour in a group learning environment.

Results: The results showed existing (mis)matches between what was intended with the curricula and what actually happened in the curricula and how it was experienced. The seminars were less interactive than intended; not much interaction existed and both students and teachers had mixed feelings about the value of interaction within seminars. The research internship was highly appreciated by veterinary students. The quality of the supervision and the social and intellectual climate appeared to be crucial factors influencing students’ learning during the internship. The research reports, as an outcome measurement, reflected on the students’ competency levels and both strengths and weaknesses of the reports could be identified. Research further showed that alumni of the newly developed
student centred curriculum felt better prepared for practice both for specific and generic competencies than their colleagues from the traditional, more teacher centred curriculum. Although they also experienced lacks in their training, especially practical-, communication- and business skills.

**Discussion and conclusion:** This PhD thesis was unable to chart all aspects of curriculum renewal. However, some recommendations to enhance the quality of veterinary education could be made: a) increase in practice-oriented training; b) increase in active participation of students in small group learning groups; c) increase in the coherence of research skills training.

**References:**

**8N2**

**Medical students are good helpers when they recognise psychological distress in their colleagues: but they are poor detectors of distress**

Catherine Leahy* (Medicine Learning and Teaching Unit, C/O Discipline of General Practice, The University of Adelaide, 5005 Adelaide, Australia)

**Introduction:** There is ample evidence that medical students experience elevated levels of psychological distress and that they are reluctant to seek professional help for mental health problems. Anecdotal reports suggest they might also be reticent to help colleagues experiencing psychological distress. Yet, research on adolescents reports that young people are more likely to seek help from peers. Research was conducted to explore medical students' approaches to colleagues experiencing psychological distress; firstly, to determine whether they notice the distress of colleagues, secondly, to determine what mediates consideration to intervene and help colleagues, and thirdly, the range of helping behaviours provided.

**Methods:** Students from all six years of an undergraduate medical course were compared with convenience samples from Psychology, Law and Mechanical Engineering. Students were recruited for one of three studies, using the Kessler Measure of Psychological Distress (K10), a Retrospective Helping Behaviour Instrument and a Hypothetical Helping Behaviour Instrument.

**Results:** Psychological distress (as determined by the K10) among the disciplines surveyed (N=949) was 4.4 times that of age-matched peers. Despite these high rates of distress, students consistently rated the distress of their colleagues, as significantly lower than the colleagues' own self ratings. All disciplines were equally inaccurate in detecting the distress of their colleagues. Analysis of hypothetical helping behaviours, in response to a vignette, indicated that medical students offered more help to non-medical students than they did to fellow medical students, however, the quality of help delivered to fellow medical students was superior. Analysis of the retrospective helping behaviours revealed that by Year 3, medical students offered a considerably diverse array of helping behaviours towards distressed colleagues going way beyond simple academic support which was primarily the domain of law and mechanical engineering students.

**Discussion and conclusion:** By concentrating on students' perceptions and actions towards colleagues showing distress, we gain an understanding of the culture around mental health within the medical student body. This understanding is crucial in the development of effective interventions for those students experiencing psychological distress. Encouragement of peer support behaviours, taking into account these findings, may offer a viable alternative to formal support services and more importantly may have far reaching effects in breaking down the stigma of mental health problems within the medical professional body.
8N3 A longitudinal study of the effect of medical school curricula on student performance on the United States Medical Licensing Examinations: a multi-level, multivariate study

Kent Hecker* (University of Calgary, 3330 Hospital Drive NW, T2N 4N1 Calgary, Canada)

Introduction: The purpose of this study was to 1) investigate the effects of medical school curricula and educational policies on pre-clinical and clinical indices (United States Medical Licensing Examination [USMLE] Step 1, 2, and 3) while covarying for student incoming performance and demographics (Medical College Admission Test [MCAT] subscores, pre-medical grade point average [GPA], sex, age, and under-represented minority status) over an eleven year period (1994-2004), and 2) test a latent variable path model of academic achievement, aptitude for medicine, competence in medicine and medical curriculum employing MCAT, GPA, demographic, USMLE, and school curriculum structure variables.

Methods: Using Association of American Medical Colleges and USMLE longitudinal data for 116 medical schools (USMLE Step 1 n = 104,983, Step 2 n = 101,879, Step 3 n =77,283), hierarchical linear modeling was used to study the effects of school curricula (e.g. PBL, systems-based, discipline based, etc) and educational policies on USMLE Step1-3 scores. Structural equation modeling was used to study latent variable path models assessing the impact of curriculum on competence in medicine (n = 9,332).

Results: The mean unadjusted between school variance was 14.74%, 10.50%, and 11.25%, for Step 1-3 respectively. When student entry performance and demographic variables were included as covariates between school variation was less than 5%. Curricula and educational policies did not consistently predict for the adjusted mean school performance on Step 1-3. The proportion of variance accounted for in-student-level performance by the covariates ranged from 27.58% to 36.51% for Step 1, 16.37% to 24.48% for Step 2, and 19.22% to 25.32% for Step 3. The proportion of the between school variance that was accounted for by the student covariates ranged between 81.22% and 88.26% for Step 1, 48.44% and 79.77% for Step 2, and 68.41% and 80.78% for Step 3. School-level variables did not consistently predict for adjusted mean school Step performance. Three models assessed the impact of curriculum on competence in medicine; one resulted in a Comparative Fit Index = .931 with a path coefficient of 0.04 from curriculum to competence in medicine.

Discussion and conclusion: Individual differences in students accounts for most of the variation in USMLE performance with small contributions from between school variation and even smaller contribution of curriculum and educational policies. Different curricula have very little impact on student performance on the USMLE.

References:

8N4 DREEMs, myths and realities: learning environments within the University of Manchester Medical School

Rachel Isba* (University of Manchester, c/o Elaine Smith, ATR4, 1st Floor ERC, University Hospital of South Manchester, Southmoor Road, M23 9LT Manchester, United Kingdom)

Introduction: It has been suggested that the curriculum within a medical school is made up of three parts – formal, informal, and hidden (1). The learning environment (LE) makes up part of this hidden curriculum and was the focus of this thesis. The LE may affect outcomes of a curriculum, and is therefore of interest to medical educators. The Dundee Ready Educational Environment Measure (DREEM) is a tool used to assess LEs, and has previously been reported as well-validated and reliable (2). The overall objective of this work was to explore the similarities and differences in LEs within a parent medical school. This work was conducted within the University of Manchester’s Medical School as it delivers the clinical years of its undergraduate medical curriculum via four individual, and geographically distinct, sectors. What do staff and students think makes up a “learning environment” – What are students’ perceptions of the LE in their teaching sector, and how do these differ from
other sectors? How is the same LE perceived by successive cohorts of students within it? Is perception of the LE stable for a single cohort of students over time?

**Methods**: A mixed methods approach made up of qualitative and quantitative elements was used. DREEM was administered to two successive cohorts of year 3 medical students at the University of Manchester (respondents n = 253 in 2007, n = 185 in 2008) and also to a sub-population of the original cohort when they were in their 4th year of study (n = 79). Qualitative work used focus groups and interviews with students and staff in two of the four test sectors to explore parts of the LE in greater detail.

**Results**: Staff and students described the learning environment in very emotional terms, and a model for the LE is suggested. Total DREEM scores varied between sectors, between cohorts, and over time for a single cohort.

**Discussion and conclusion**: There appear to be subtle differences in learning environments between the four clinical teaching sectors of the University of Manchester Medical School, and perception of the learning environment seems to be less static than was previously thought. Additionally, it seems that emotion plays a much larger role learning environment than had previously been thought. These findings suggest the concept of a learning environment in flux, and possibly the existence of multiple, shifting micro-learning environments within the whole. This has the potential to be extremely important for those delivering medical education at all levels.

**References**:

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**Tackling common OSCE pitfalls with struggling students**

Dason E Evans*, Kerry J Boardman* (St. George’s, University of London, Centre For Medical and Healthcare Education, Cranmer Terrace, London SW17 0RE, United Kingdom)

**Background**: OSCE scores are widely used as a surrogate marker for clinical ability within health professions curricula. However, a significant number of students seem to underperform due to a range of issues relating to anxiety and technique. As part of an academic support programme at St. George’s, University of London (SGUL) we have introduced a workshop to address this. Using modified nominal group technique, students identify, prioritise and address OSCE difficulties, discussing solutions. We aim to empower students to problem-solve and gain confidence, to allow them to demonstrate their true level of ability (good or otherwise). While some of the issues are OSCE specific, many of the solutions can be applied to other anxiety-provoking situations.

**Intended outcomes**: (1) To share a tool to improve students’ OSCE confidence and technique; (2) To discuss alternative approaches; (3) To share ideas for possible application by participants.

**Structure**: In this highly interactive workshop we will ask participants to play the role of students and they will experience the intervention first-hand. This will be followed by a 30 min debrief, exploring alternative approaches and opportunities for application elsewhere.

**Intended audience**: Students taking OSCEs; Tutors involved with OSCEs; Tutors involved with academic support.

**Level of workshop**: All

**Exploring Synchronous Transnational Collaborative Learning through MedEdWorld**

Alistair Stewart, Molly Gunn (AMEE, Tay Park House, 484 Perth Road, Dundee DD2 1LR, United Kingdom)

**Background**: MedEdWorld is a global online medical education community within which ideas, experiences, and expertise can be shared. One of the key features of MedEdWorld is the facility for Collaborative Learning with students and facilitators from around the world participating in
synchronous interactive learning sessions. During 2009, pilot synchronous sessions involving up to 10 sites per session were undertaken on the topic of TIA/Stroke.

**Workshop:** Experience and level of success of the pilot sessions will be demonstrated during the workshop using the Wimba platform. The demonstration will include explanation of the facilities, together with archive video from these collaborative learning sessions. Exploration of opportunities will include live online links with medical schools that have participated. It is hoped that it will be possible to include hands-on experience during the workshop (depending on whether attendees have a laptop and headset.) Discussion of the Transnational Collaborative Learning feature will be extended to include exploration of other applications of the Wimba system to other medical education activities.

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**8Q WORKSHOP**

**Formulating and writing learning outcomes to facilitate student learning and for strategic course planning (Part 1 – this workshop is continued in session 9Q)**

Matthew CE Gwee*, Dujeepa Samarasekera (Medical Education Unit & Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore, Medical Education Unit Block MD11 # 01-08, Clinical Research Centre, 10 Medical Drive, 117597 Singapore)

**Background:** An outcome-based model is used for the design and delivery of the medical curriculum in the 21st century in which the desired attributes of the end-product (i.e. the end-product capability) is first determined jointly by a curriculum committee together with the content experts. The end-product capability is commonly identified in statements referred to as the learning outcomes which students are expected to acquire on completing the course of study. Learning outcomes are classified within the three domains of learning: knowledge (cognitive), (psychomotor) skills and attitudes (affective). Learning outcomes can serve as an excellent avenue of communication with students in conveying the intended outcomes of learning to be acquired in a given course of study. Thus, learning outcomes are likely to motivate and enhance self-directed learning by students. Moreover, learning outcomes can also serve as a guide in the selection and sequencing of course content and the design of instructional and assessment strategies which closely match the desired learning outcomes, as well as provide substantial documentation for programme or course evaluation in the quality assurance process.

**Intended outcomes:** To understand the pedagogical principles and general procedure involved in formulating and writing learning outcomes, and its application in facilitating student learning and strategic course design.

**Structure:** Overview: designing an outcome-based curriculum for medical education in the 21st century; Hands-on practice in small groups: to systematically plan a study course through formulating and writing learning outcomes intended for the course; Presentation of work done by various groups; Question-Answer Session / Discussion; Reflection on the benefits and limitations of applying such an educational approach in designing a course of study for participants’ respective disciplines. Closing Remarks / Summing Up

**Who should attend:** All medical teachers

**Level of workshop:** This workshop is aimed at providing participants with basic understanding and developing basic skills in formulating and writing learning outcomes using a systematic educational approach.

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**8R WORKSHOP**

**How to transform your PowerPoint presentation**

Lisa Lipkin* (Story Strategies, Amstelboulevard 182, Amsterdam 1096, Netherlands)

**Background:** Scientists and medical professionals love their powerpoint presentations. But no one else does. They can be dismally boring and insufferably ineffectual. Using my skills as a professional storyteller for over twenty years, I will help participants transform their dull data and monotonous language into a riveting presentation. I am currently the Founder and Director of Story Strategies, (storystrategies.net), a communications consultancy, helping scientists, physicians and business people communicate more effectively.
Intended outcomes: Learn how to court pharma and biotech investors through a compelling powerpoint presentation. Learn how to make your data more audience friendly. Learn delivery skills, how to integrate personal stories, and how to use metaphors effectively.

Structure: Participants are invited to bring along their powerpoint presentations. We will choose one and work in small groups on applying storytelling skills to transform it.

Intended audience: research scientists; medical professionals; administrators; students; general audience

Level of workshop: All

**WORKSHOP**

**Portfolios in medical education: design decisions for competency-based training**

Jason R. Frank* (The Royal College of Physicians and Surgeons of Canada, 774 Echo Drive, Ottawa, Ontario K1S 5N8, Canada)

Background: This session is designed for academic teachers, program designers and anyone interested in physician competence. Portfolios are increasingly popular in clinical education around the world, but they are not useful for every program. This session will guide beginners in developing and using portfolios in medical education, with a special focus on competency-based education using the CanMEDS framework.

Intended outcomes: By the end of this session, participants will be able to: 1. define portfolios as they are used in medicine; 2. describe the steps in designing a portfolio in medicine; 3. describe how portfolios could be used to assess the CanMEDS competencies; 4. begin to design a portfolio to use in a medical education program.

Structure: This workshop is a practical, interactive session which will involve several discussions and exercises. Principles of portfolio design will be introduced using a step-by-step model. Each participant will then work through a formula for developing their own portfolio.

Intended audience: Medical educators with an interest in competence assessment and competency-based education: Clinician Teachers, Program Directors, Directors of Education, Associate Deans of Education, Department Chairs.

Level of workshop: Beginners

**WORKSHOP**

**Assessing and supporting trainees in difficulty**

Jenny King*, Philippa Moreton* (Edgecumbe Consulting Group Ltd, 23 Berkeley Square, Clifton, Bristol BS8 2TS, United Kingdom)

Background: Evidence suggests that trainees can experience a range of difficulties affecting their performance which can, if not addressed early, escalate and jeopardise their training progression. Causes include a combination of behavioural, health, cognitive and social difficulties. Dr Jenny King is an acknowledged expert on the behavioural assessment of doctors, and as assessor for the National Clinical Assessment Service. Dr Philippa Moreton has developed a specialist unit within the Oxford Deanery to assess, coach and support trainees through a range of difficulties. Together, Drs King and Moreton have developed a training programme to pass these skills on to others directly concerned with managing trainees. This workshop presents their work, underpinned by an strong evidence and experiential base.

Intended outcomes: (1) To understand the underlying causes of trainees who get into difficulty; (2) To explore practical methods of assessing and supporting trainees in difficulty ; (3) To develop skills for remedial interviewing and constructing a personal development plan.

Structure: Discussion of key challenges relating to the performance of trainees; input (theory and evidence) of underlying causes of poor performance or other difficulties; case study discussion; input on suggested framework and skills for remedial interviewing; practical skills-based exercises; summary of intended actions by individual members.

Intended audience: All senior medical educators responsible for managing the performance of trainees (Foundation Year and above) but also of relevance to those supervising medical students.
Includes Training Programme Directors, Foundation Programme Directors, Clinical and Postgraduate Tutors, Educational Supervisors, Associate Postgraduate Deans Postgraduate Deans etc.

Level of workshop: Advanced

8U WORKSHOP

Debriefing as formative assessment
Walter Eppich* (Children’s Memorial Hospital, 2300 Children’s Plaza Box 62, Chicago 60614, United States)

Background: As simulation-based training becomes more established in medical education, the critical role of effective debriefing strategies is becoming clear. Debriefings, whether after actual medical events or simulated learning encounters, can be used as formative assessment. By using communication strategies that focus on observable performance gaps and elicit the invisible drivers that underlie them, medical educators can provide focused instruction targeted to individual learning needs in a variety of domains (Rudolph et al. 2006, 2008).

Intended outcomes: After this session, participants will be able to: (1) Discuss the theory behind debriefing exercises; (2) Define performance gaps and use them to guide debriefing and feedback sessions; (3) Discuss and apply communication strategies that uncover the invisible drivers that lead to performance gaps; (4) Use debriefing as formative assessment.

Structure: This interactive session will include brief theoretical inputs and small group exercises using videos and illustrative games.

Intended audience: Medical educators who use simulation-based training at their institutions and would like to improve their debriefing skills and/or who wish to improve their ability to provide feedback.

Level of workshop: All

8V WORKSHOP

Scientific reasoning, basic biostatistical terms, and choosing/interpreting statistical tests
Aysegul Gozu* (Franklin Square Hospital Center, Johns Hopkins University, 9105 Franklin Square Drive Suite: 312, Baltimore 21237, United States)

Background: There is a growing need and interest to integrate best research evidence to clinical practice to improve patient outcomes. To meet with these needs, health care professionals must have a basic understanding of scientific reasoning, hypothesis development, basic biostatistical terms and choosing/interpreting appropriate statistical testing. Despite the fact that medical school curriculum provides general training in biostatics, studies previously done demonstrated that many health care professionals have limited understanding of commonly used statistical tests and interpreting the results that are described in the journal articles.

Intended outcomes: Through a didactic presentation and interactive case-based small group discussions participants will be able to understand: 1. Logic and steps of scientific reasoning, hypothesis testing, power, alpha and developing null hypothesis; 2. Basic biostatistical terms, differences between descriptive and inferential statistics; 3. Choosing and interpreting appropriate statistical tests depending on study design, outcome variable and data distribution.

Structure: 5 minutes: Introduction and objectives; 15 minutes: Steps of scientific reasoning; 15 minutes: Steps of statistical testing; 10 minutes: Instructions to use diagrams in choosing/interpreting appropriate statistical tests; 20 minutes: Choosing/interpreting appropriate statistical tests for the given case-based questions (Small group discussions); 15 minutes: Discussing the answers of the questions (Large group discussions); 10 minutes: Wrap-up and evaluation.

Intended audience: Medical students, residents (house officers), physicians and nurses who have an interest in medical research and would like to improve their basic biostatistical skills.

Level of workshop: Intermediate
8X POSTERS: Curriculum development

8X1 A pilot project: preparation course for first clinical clerkships in a German medical faculty
Sasa Sopka*, Sonja Finsterer, Henning Biermann, Stefan Beckers (Skillslab-Aixtra, Medical Faculty RWTH Aachen, MTI- Medizintheoretisches Institut, Wendlingweg 2, Aachen 52074, Germany)

8X2 Humanization in undergraduate medical education from the student's perspective in the Federal University of Rio Grande do Norte, Brazil
Alves Ano, Moreira SNT, Azevedo GD, Rocha VM, Vilar MJ* (Federal University of Rio Grande do Norte (UFRN), Avenida Nilo Peçanha 620 Petropolis, Natal RN 59012300, Brazil)

8X3 Premedical curricular change in Korea and different needs of students and staffs
Chul-Joo Lyu*, Hong-Im Shin (Yonsei University College of Medicine, 262 Seongsanno Seodaemungu, Seoul 120-749, Republic of South Korea)

8X4 Experience with medical education at Comenius University, the Jessenius Faculty of Medicine in Martin, the Slovak Republic
Erika Halasova*, Albert Stransky, Andrej Krajcovic, Juraj Mokey, Sona Franova (Jessenius Faculty of Medicine in Martin, Zaborskeho 2, Martin 036 01, Slovakia)

8X5 An opportunity for change. Needs of the public health system and new study plans in the Spanish University Schools Of Medicine
Romanos A.*, Campos-Garcia T, Cortes-Martinez C (Andalusian Regional Ministry of Health, Edificio Arena 1, Avenida De La Innovacion S/N, Sevilla 41071, Spain)

8X6 Strengthening new paradigm of nursing education at Faculty of Medicine
Chikhladze N*, Tsiskaridze A, Jorbenadze M, Gobbi M (Tbilisi State University, 1, Chavchavadze Av., Tbilisi 0128, Georgia)

8X7 Curriculum reform – a narrated journey
Geraldine MacCarick* (Royal College of Surgeons Ireland, 123 St Stephens Green, Dublin 01, Ireland)

8X8 The value of student choice in the modern medical curriculum – A study exploring student perceptions
Heena Pindoria*, Martin Carrier (Centre for Medical Education, Institute of Health Sciences Education, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Room 210, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)

8X9 Change through Curriculum Innovation Projects – Sharing FAIMER Regional Institutes experience in India
Avinash Supe*, Tejinder Singh, Thomas Chacko (Seth G S Medical College, Maharashtra, Mumbai 400071, India)

8X10 Internship of the Medical School Of Federal University Of Goiás: new horizons
Vardeli Alves de Moraes, Edna Regina Silva Pereira, Nilce Maria da Silva Campos Costa, Denis Masashi Sugita*, Karine Borges de Medeiros, André Moreira Lemes (The Medical School of Federal University of Goias, Primeira avenida, s/n, Setor Universitario, Goiânia 74605-020, Brazil)

8X11 Concept making of research map and determination of its framework in medical science research
Akram Barahimi* (Vice Chancellory For Research, Isfahan University of Medical Sciences, PO Box 81745-319, Isfahan, Iran)

8X12 Impact of success on strategy management in the training of PCU Nurse Practitioners (NP) program in Sakonnakorn Province during August–November 2008
<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>8X13</td>
<td>M.Med Curriculum Change: what challenges are there from the medical educational perspective?</td>
<td>Julie Schurgers* (University of Zambia, School of Medicine, PO 320296, Lusaka 10101, Zambia)</td>
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<tr>
<td>8X14</td>
<td>The effect of education in the 1st national Shiraz summer school on achieving educational objectives</td>
<td>Mittra Armini*, Mohammad Reza Dehghani, Javad Kojuri, Gholamreza Safaei Ardekani, Mohammad Mehdi Saghebi, Zahra Karimian, Mahboobe Saber, Leila Bazrafcan, Mohsen Moghadarni (Education Research center, Shiraz University of Medical Sciences, Zand Street, Shiraz Medical School Building No3, 7th Floor, Education Development Center, Shiraz 80986, Iran)</td>
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<tr>
<td>8X15</td>
<td>The Medical Education Centre: The centre for an undergraduate training in Medicine, Maharaj Hospital, Nakhon Si Thammarat, Thailand</td>
<td>Prachyapan Petchuay* (The MEC at Maharaj Hospital, Ratchadamneon Road, Nimaung, Maung, Nakhon Si Thammarat 80000, Thailand)</td>
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<tr>
<td>8X16</td>
<td>Medical student shadowing 5 years: a collaborative approach</td>
<td>Diane Fisher*, Oliver J Corrado, Richard Fuller, Kate Reuben, Catherine Dickinson, Margaret Ward (St James’s University Hospital, Leeds Teaching Hospitals NHS Trust, Beckett Street, Leeds LS9 7TF, United Kingdom)</td>
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<tr>
<td>8X17</td>
<td>Safer transitions? Using the final year OSCE to assess handover skills</td>
<td>Alison Cracknell*, Kirsty Forest, Richard Fuller, Matt Callister, Jon Cooper (Leeds Institute of Medical Education, School of Medicine, Leeds Teaching Hospitals NHS Trust, Room 7.09 Worsley Building, University of Leeds, Leeds LS2 9JT, United Kingdom)</td>
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<tr>
<td>8X18</td>
<td>A Clinical and Professional Development Course for a new Medical School</td>
<td>Melih Ecin*, Orhan Ozbek, Gamze Mocan Kuzey (Near East University, Faculty of Medicine, Near East Avenue, Nicosia, Mesrin 10, Northern Cyprus)</td>
</tr>
<tr>
<td>8X19</td>
<td>Adopting a case based approach to teaching and learning at the School of Nursing, University of the Western Cape, South Africa</td>
<td>F Daniels* (University of the Western Cape, Private Bag X17, Modderdam Road, Bellville 7535, South Ossetia)</td>
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<tr>
<td>8X20</td>
<td>Innovation in medical education curriculum</td>
<td>Jogenananda Pramanik* (MAHSA College, Millenium Court, Jalan University,Kuala Lumpur 59100, Malaysia)</td>
</tr>
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<td>8X21</td>
<td>The development of a teaching competency model at UNAM Faculty of Medicine in Mexico</td>
<td>Adrián Martínez-González*, Joaquin López-Barcena, Patricia Herrera-Saint Leu, Joaquin Ocampo-Martínez, Ileana Pérez-Micu, Grisel Urte-Martínez, Ma Concepción Garcia-Sahagún, Sara Morales-López (UNAM Faculty of Medicine, Av. Universidad 3000, Mexico City 04510, Mexico)</td>
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<tr>
<td>8X22</td>
<td>Communication planning for curriculum change</td>
<td>Sharon Morang, James Grogan (Ross University School of Medicine, Box 266, Roseau, Dominican Republic)</td>
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8Y POSTERS: Basic medical sciences

8Y1 Basic science teaching – less facts more relevance  
Jörg Peitz*, Anthea Schulze-Luckow, Manfred Gross (Prodekanat Studium und Lehre, Charité Universitätsmedizin Berlin, Regelstudiengang, Schumannstr. 20 - 21, Berlin 10117, Germany)

8Y2 Teaching guidebook of physiology for occupational therapy in the context of the EHEA  
Acosta MC*, Gallar J (Departamento de Fisiología, Universidad Miguel Hernández, Apto. 18, Sant Joan d’Alacant 03550, Spain)
8Y3 Teaching characteristics that are most helpful for promoting learning in the basic sciences
Blunt, RJS* (St. George’s University, True Blue, St. George, Grenada)

8Y4 Assessment of three-dimensional (3D) anatomy in an integrated medical curriculum
Nicki Morgan*, Susie Whitten, Jim Alton (Bute Medical School, University of St Andrews, St Andrews KY16 9TS, United Kingdom)

8Y5 Hello cadaver!
SiddharthDubhashi*, U.P. Dubhashi, Amarjit Singh, Gurjit Singh (Padminishree Dr. D.Y. Patil Medical College, Hospital And Research Centre, Sant Tukaram Nagar, Pimpri, Pune 411018, India)

8Y6 The use of reconstructed cross-sectional imaging in the dissection room
J Franklin*, K Burnand, T Koc, M Johnston, D Evans, K Miles (Clinical Imaging Sciences Centre, Brighton and Sussex Medical School, University of Sussex Falmer Campus, Brighton BN1 9RR, United Kingdom)

8Y7 The pros and cons of an Intercalated Degree in Anatomy for medical students
David Brigden*, Peter Dangerfield, Richard Thornton (University of Liverpool, School of Medical Education, Cedar House, Aintree Street, Liverpool L69 3GE, United Kingdom)

8Y8 Enhancing academically diverse students’ learning and interest in an undergraduate anatomy course via innovative teaching measures
Arneed Razoo*, Sabine Hildebrandt, John Stibley, Lowell Fisher, Jose Davila, Alissa Pullos (Division of Anatomy/Medical Education, University of Michigan Medical School, 3135 E Catherine, 3740 MSII BLDNG., Ann Arbor, Michigan 48109-5508, United States)

8Z Posters: e-Learning: undergraduate case studies

8Z1 Student comparisons of tutors, Google, Wikipedia, and other resources
Steven Malikowski* (Centre for Medical and Healthcare Education, St George’s, University of London, Hunter Wing Level 4, Cranmer Terrace, London SW17 0RE, United Kingdom)

8Z2 Using Networks of Practice to develop a blended learning module in Pharmaceutical Public Health
Lesley Diack*, Lorna McHattie, David Pfieger (The School of Pharmacy and Life Sciences, The Robert Gordon University, Schoolhill, Aberdeen AB10 1FR, United Kingdom)

8Z3 Teaching Evidence Based Medicine via EBM-blog
Hathaitip Tumvitiyakul* (Hatyai Hospital, Social Medicine Department of Hatyai Medical Educational Center Hospital, Songkhla 90110, Thailand)

8Z4 The “IT” factor in medical education
Erle C H Lim*, Vernon M S Oh, Koh, Raymond C S Seet (Division of Neurology, National University Health System, Yong Loo Lin School of Medicine, National University of Singapore, 5 Lower Kent Ridge Road, Singapore 119074, Singapore)

8Z5 Virtual solutions to real problems: an innovative work experience support programme
Lewis K, Wadsley K* (St George’s, University of London, Cranmer Terrace, London SW17 0RE, United Kingdom)

8Z6 Learning about and learning using electronic medical records in undergraduate education – the Leeds experience
Alison Lea*, Susan Clamp, Owen Johnson, Richard Jone, David Pearson (Leeds Institute of Health Sciences, Academic Unit of Primary Care, G08, Charles Thackrah Building, 101 Clarendon Road, Leeds LS2 9LU, United Kingdom)
8Z7 Using “Turnitin” plagiarism detection software to support academic writing skills training
Carol Ditchfield* (Wolfson Medical School, University of Glasgow, University Avenue, Glasgow G12 8GQ, United Kingdom)

8Z8 Improving the student learning experience using Web 2.0 technologies
Dan Robinson*, Helen O’Sullivan (CETL, School of Medical Education, Faculty of Medicine, University of Liverpool, Cedar House, Ashton Street, Liverpool L69 3GE, United Kingdom)

8Z9 Development of Multimedia modules for self directed learning for preclinical sciences in an Integrated Virtual Learning Environment (IVLE) and assessment of a prototype module by students
P Gopalakrishnakone*, Yap Lee Yong, K Ragupathy, James Low (Department of Anatomy, YLL School of Medicine & CDTL, National University of Singapore, YLL School of Medicine, Singapore 117597, Singapore)

8Z10 Innovations in undergraduate ophthalmology education: Use of a student-centered website for learning and teaching
Nathoo N*, Sutanto I, Kozan D, Rudinsky CJ (2J2.00 WC Mackenzie Health Sciences Centre, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta T6G 2R7, Canada)

8Z11 Graduate degrees doubled in training programs – Finnish case study concerning Occupational Health Physicians
Timo Leino*, Kristiina Toivola, Virpi Liukkonen, Ilkka Ruonala, Kimmo Räisänen and Susanna Pitkänen* (University of Helsinki, Finnish Institute of Occupational Health, Haartmaninkatu 1 D, Helsinki 00290, Finland)

8Z12 The role of E-learning in medical education process change in Mashad University of Medical Sciences in Iran 2007-2008
Mohammad Reza Sarmadi*, Hassan Gholam, Omobin Motamed Rezaei, Hassain Gholami, Farhad Kazemian (Payame Noor University, Nakhl Street, Lashkarak Highway, Tehran 19395-4697, Iran)

8Z13 Developing sustainable e-Learning in a medical faculty
Marc Sohrmann* (Faculté de biologie et de médecine, University of Lausanne, Unité de Pédagogie, Rue du Bugnon 21, Lausanne 1011, Switzerland)

8Z14 Service user participation in Radiotherapy
Beverley Ball* (University of Liverpool, Johnston Building, Quadrangle, Brownlow Hill, Liverpool L69 3GB, United Kingdom)

8Z15 The development of an interface for personal development planning
P.H. Dangerfield*, P. Duval, R. Fewtrell, M. Ralph, D. Robinson (School of Medical Education, The University of Liverpool, Ashton Street, Liverpool L69 3GE, United Kingdom)

8Z16 Instructional technologies in medical education: integration of e-learning and problem based learning
Erol Gurpinar*, Nese Zayım, Ibrahim Basarici, Filiz Gunduz, Mevlut Asar, Nurettin Oguz (Department of Medical Education, Akdeniz University School of Medicine, Antalya 07070, Turkey)

8AA POSTERS: Teacher evaluation

8AA1 Students feedback: their happiness in 6 department rotations
Paworamon Sribussara*, Sa_ang Dansawang, Rungrut Rayakeaw (Buddhachinaraj Hospital, School of Medicine, 90 Sittamtripidok road, Amphur Muang, Phitsanulok 65000, Thailand)

8AA2 How dare students evaluate teachers! A powerful tool for faculty development and program monitoring
Jitravadee Chumphol*, Salpin Hatharat (Department of Family Medicine, Ramathibodi Hospital, Mahidol University, Rama VI Road, Rajthavei, Bangkok 10400, Thailand)
8AA3 Evaluating quality improvement of clinical teaching: a feedback experience through Moodle platform questionnaires
Barbancho MA*, Lara JP, Dawid-Milner S, Berthier ML, Villena A, Bermúdez R, González-Barón S (Facultad de Medicina, Universidad de Málaga, C/ Marques de Beccaria, 3. Edif CIME, Malaga 29010, Spain)

8AA4 The validation of a questionnaire to evaluate clinical teachers in a veterinary curriculum
T.B. Boerboom*, A.D.C. Jaarsma, D.H.J.M. Dolmans, A.J.J.A. Scherpelier, P. van Beukelen (Utrecht University, Faculty of Veterinary Medicine, Yalelaan 1, Utrecht 3584CL, Netherlands)

8AA5 Impact of Resident Physician well-being on assessments of clinical teachers
Thomas J. Beckman*, Colin P. West, Darcy A. Reed, Tait D. Shanafelt (Mayo Clinic College of Medicine, 200 First Street SW, Rochester, Minnesota 55906, United States)

8AA6 How well are the clinical teachers doing? Quality assessment of the bedside teaching through a student based evaluation instrument
Ruddy Verbinnen*, Nicole Pouliart, Ives Hubloue (Faculty of Medicine and Pharmacy - Vrije Universiteit Brussel, Laarbeeklaan 103, Brussels 1090, Belgium)

8AA7 An instrument to measure the quality of the clinical teacher in postgraduate education
Fluit CRMG*, Bolhuis S, Laan R, Grol R, Wensing ML (University Medical Centre Nijmegen, 306 OW/ Postbus 9101, Nijmegen 6500 HB, Netherlands)

8AA8 Investigation of the perceptions of the medical teachers and students regarding being an educator
Fath Yazar*, Tuná Karahan, Suleyman Ceylan, Cengizhan Acekil (Department of Medical Education, Faculty of Medicine, Guhnane Military Medical Academy, GATA Anatomii, Etilik, Ankara 06018, Turkey)

8AA9 Viewpoints of Kashan’s Paramedical school students about the effects of teachers’ behaviors on their learning motivation
M. Mahdian*, A. Alaghashradeh, F. Mirhosseini, S. Yadollahi* (Kashan University of Medical Sciences, Qutb-e ravandi blvd, Kashan 8715985131, Iran)

8AA10 Development of a peer review tool to investigate medical lecturers’ use of teaching techniques associated with assisting learning.
Nina Salooja*, David Parry (Hammersmith Hospital, Imperial NHS Trust and Royal College of Physicians, London W12 OHS, United Kingdom)

8AA11 Tools for academic evaluation
J. Charles Morrison, UI J Miedzinski* (Faculty of Medicine and Dentistry, Department of Medicine, University of Alberta, 114 street and 84 Ave, Edmonton, Alberta T6G 2B7, Canada)

8AA12 Evaluation of teacher performance: in search of the great teacher
Molina IM*, Garcia V, Hoces MP (Empresa Publica Hospital Alto Guadalquivir (Consejería De Salud, Junta De Andalucia), Avda.Blas Infante S/N, Andujar (Jaen) 23740, Spain)

8AA13 Experience with student online evaluation in a faculty for veterinary medicine education
Andrea Tipold*, Torsten Carl, Gerhard Greif (Dept Small Animal Medicine and Surgery, University of Veterinary Medicine Hannover, Bischotsholer Damm 15, Hannover 30173, Germany)

8AA14 Validity and reliability of faculty members’ evaluation questionnaire, Mazandaran University of medical sciences, Sari, 2006
Sara Ehteshami*, Koroush Vahidshahi, Mitra Mahmoudi, Sepideh Shakeri (Mazandaran University of Medical Science, Sari, Mazandaran, Iran; Education Development Center, Mazandaran University of Medical Science, Vali-Asr Boulevard, Sari 4815733971, Iran)
8AA15 An assessment tool for evaluation of medical teachers
R.Sarchami*, P.F.Abed, N.Mohammadi, A.Javadi (Qazvin University of Medical Sciences, Apt.6, No.6, First 8 meter, West 2nd St., Shahran Ave, Tehran 14788-34711, Iran)

8AA16 Effective teachers in postgraduate pathology training: The junior doctors’ perspective
Sara Vadot*, Maryse Fiche, Raphael Bonvin, Ilene Harris (Unité pédagogique, Rue du Bugnon 21, Lausanne 1011, Switzerland)

8AA17 The value of feedback for developing educational practice
Bridget Lock* (Princess Royal University Hospital, Education Centre, Farnborough Common, Orpington, Kent BR6 8ND, United Kingdom)

8BB POSTERS: The OSCE

8BB1 Item analysis for case-specific checklists of an objective structured clinical examination
Agatha M. Hettinga*, Cornelis T. Postma, Eddie Denessen (Onderwijsinstituut, Radboud University Nijmegen Medical Centre, PO Box 9101, Nijmegen 6500 HB, Netherlands)

8BB2 OSCE – an objective examination? Comparison between objective and subjective marks through examiners
Sandy Kujumdshiev*, Martina Steigerwald, TOF Wagner (Department of Internal Medicine, Johann Wolfgang Goethe-University Frankfurt, Theodor-Stern-Kai 7, Frankfurt D-60590, Germany)

8BB3 It is always difficult to know how appropriate a new OSCE-station is: Development of a review matrix for OSCE-stations
Sandy Kujumdshiev*, Wilma A. Flaig*, Boris Wittekindt, TOF Wagner* (Department of Internal Medicine; 1Department of Trauma, Hand and Reconstructive Surgery; 2Department of Paediatrics, Theodor-Stern-Kai 7, Frankfurt D-60590, Germany)

8BB4 Final career exam with OSCE – three years of expertise. Faculty Of Medicine of National University of The Northeast (UNNE), Argentina
Cortes Teresa, Bluvstein Samuel, Larroza Omar*, Acosta Eduardo, Gorodner Alejandro (Facultad de Medicina, Dpto. De Salud Publica, Edif.B 6o.Piso, Ciudad Universitaria, Facultad de Medicina, Universidad Nacional Autonoma De Mexico/Facultad De Medicina; Universidad Nacional Del Nordeste, Corrientes Argentina; Mexico, D.F. 04510, Mexico)

8BB5 Two assessment methods of surgical clinical skills in OSCE
I R Kulmagambetov, F N Nurmanbetova, E M Turgunov, L G Turgunova*, V P Ricklefs (Karaganda State Medical University, 40, Gogol Street, Karaganda 100008, Kazakhstan)

8BB6 How competent are TUMS clerks to perform clinical skills?
Azim Mirzazadeh*, Behrouz Bavar (Tehran University of Medical Sciences, Po Box: 14185-481, Tehran 1444735497, Iran)

8BB7 Implementation of an interdisciplinary OSCE working group
Sandy Kujumdshiev, Wilma A. Flaig, Boris Wittekindt, Falk Ochsendorf, Sabine Jobst, TOF Wagner* (1Johann Wolfgang Goethe-University Frankfurt, Department of Trauma, Hand and Reconstructive Surgery; 1Johann Wolfgang Goethe-University Frankfurt, Department of Internal Medicine; 1Johann Wolfgang Goethe-University Frankfurt, Department of Paediatrics; 2Johann Wolfgang Goethe-University Frankfurt, Department of Dermatology; Frankfurt D-60590, Germany)

8BB8 Objective Structured Clinical Examination as a summative evaluation tool
Francisco Purroy*, Manuel Portero, Miquel Falguera, Javier Trujillano, Joan Ribera (Facultat de Medicina, Universitat de Lleida, Lleida, Spain)

8BB9 Examiner fatigue in Objective Structured Practical Examination (OSPE)
Predrag Bjelogrlic*, Anita Laidlaw (University of St Andrews, Bute Medical School, Bute Medical Building, St Andrews KY16 9TS, United Kingdom)
8BB10 The survey of medical students’ cognition after Objective Structured Clinical Examination (OSCE)
Young Joon Ahn*, Nam Yong Do, Soo Hyung Cho, Kyung Rye Moon (Chosun University, School of Medicine, 375 seoseok-dong Dong-gu Gwangju, 501-759, Republic of South Korea)

8BB11 Predictive validity of an objective structured clinical examination (OSCE) at the end of the first clinical year
Sáez Méndez Lourdes*, Sáez García Mª José (Medical Education Unit, University of Medicine, University of Castilla la Mancha, General Hospital of Albacete, Albacete 02006, Spain)

8BB12 Statistical evaluation on Objective Structured Clinical Examination (OSCE) grading regarding raters, standardized patients and testing environment

8BB13 Observation vs testing method for evaluation of residents’ communication skills: a 360-degree evaluation and OSCE
Woranart Ratanakorn* (Chonburi medical education center, Bansuan, Muang District, Chonburi 20000, Thailand)

8BB14 Student stress in standardized patient structured clinical examinations
Luiz E. Troncon*, Fernando T. V. Amaral (Ribeirao Preto Faculty of Medicine, University of Sao Paulo, Hospital das Clinicas - Campus da USP, Ribeirao Preto, State of Sao Paulo 14048-900, Brazil)

8BB15 Quality assurance of the OSCE in post graduate examination in Oman
K. Bhargava*, Zakiya Al Busaidi*, Anwar Khan*, Mohammed Al Shafae (Dept. of Family Medicine & Public Health, SQ University, College of Medicine & Health Sciences, Box 35 FAMCO, Al Khod 123, Oman)

8BB16 Running an OSCE within a surgical specialty
Vázquez Javier*, Villén Jose Ángel, Chaves Juan (AVANTE Foundation, Parque Tecnológico de Andalucía, C/ Marie Cute 16, Edificio Possibilia 2005 – 1º Planta, 29590 Campanillas, Málaga 29590, Spain)

8BB17 The face validity of the new MRCPsych Clinical Examination
Adrian Husbands* (The Royal College of Psychiatrists, 17 Belgrave Square, London SW1X 8PG, United Kingdom)

8BB18 Improving communication: effects of feedback and action planning
Jo Hart*, Chris Harrison, Val Wass (Manchester Medical School, University of Manchester, Walmer Street, Manchester M14 5NP, United Kingdom)

8CC POSTERS: Training for General Practice

8CC1 Difference between male and female GP-trainees in scores on a knowledge test
Henk Mokkink*, Patrick Dieleman, Anneke Kramer, Herman Duesman, Ben Bottema (UMC St Radboud department Voortegzette Opleiding tot Huisarts (166 VOHA), PO Box 9101, Nijmegen 6500 HB, Netherlands)

8CC2 Doctor and patient views of ‘a good consultation’ in the context of giving and receiving patient feedback
Bryan Burford*, Michael Greco, Jan Iling, Ajay Bedi, Charlotte Kergon, Gill Morrow, Moira Livingston (The Northern Deanery/Newcastle University, 10-12 Framlington Place, Newcastle upon Tyne NE2 4AB, United Kingdom)

8CC3 The GP specialist curriculum as a process – a development and evaluation strategy
Charlotte Tulinius*, Armar Rughani, Simon Gregory, Arthur Hibble, Jill Edwards, Les Ashton, Christine Johnson, Justin Allen, Julie Bedward, Ben Riley (Royal College of General Practitioners, 14 Princess Gates, Hyde Park, London SW7 1PF, United Kingdom)
8CC4  Protected learning time: meeting expectations and changing practice – but at a cost
Ross Reid*, David Bruce (NHS Education for Scotland, Tayside Centre for General Practice, The Mackenzie Building, Postgraduate Unit, Kistiey Semple Way, Dundee DD2 4BF, United Kingdom)

8CC5  Development of a revised GP training practice reapproval process in Wales
Mary Beech*, Gordon Lewis (Wales Deanery, Cardiff University, 8th Floor, Neuadd Meirionydd, Heath Park, Cardiff CF14 4YS, United Kingdom)

8CC6  The Organisational Effectiveness Programme: an interim evaluation
Steffi Williams (Presenter: Martin Sullivan) (Wales Deanery, Cardiff University, 8th Floor, Neuadd Meirionydd, Heath Park, Cardiff CF14 4YS, United Kingdom)

8CC7  Exploring the perceptions of GPs who train less than full-time in Wales
M. Hopkin*, M. Rhydderch* (Wales Deanery, Cardiff University, 8th Floor, Neuadd Meirionydd, Heath Park, Cardiff CF14 4YS, United Kingdom)

8CC8  The Málaga Family Practice Journal Club: a highway to lifelong learning
Leiva F*, Barnestein P, Vidal F, Carrión MT, Prados D. (Unidad Docente MFyC Málaga (DSM, SAS), Hospital Civil s/n, Pabellon 6 2º planta, Málaga 29009, Spain)

8CC9  The GP Training Practice – quality assurance
Colin Coward, Simon Street* (NESC Oxford Deanery, The Triangle, Roosevelt Drive, Headington, Oxford OX3 7XP, United Kingdom)

8CC10 Learning from experience: a significant event study of the reasons given by specialist trainees in general practice and hospital medicine for changing selected aspects of their clinical practice
JM Brown, M Patel*, JC Howard J, G Cherry, NJ Shaw (Edge Hill University/Mersey Deanery Faculty of Health, St Helens Road, Ormskirk, Lancashire L39 4QP, United Kingdom)

8CC11 SWOT analysis in a teaching unit of family medicine
Martinez-Pecino F*, de Serdio-Romero E (Unidad Docente de Medicina Familiar y Comunitaria de Sevilla, Avda de Jeréz s/n (antiguo Hospital Militar), Seville 41013, Spain)

8CC12 Developing a standardised application form for the accreditation of UK general practice training practices
Sharon Kibble*, Samantha Scallan*, Camilla Leach* Johnny Lyon-Maris* (Wessex Deanery, NHS Education South Central, Southern House, Otterbourne, Winchester, Hampshire SO21 2RU, United Kingdom)

8DD  POSTERS: Selection for speciality training

8DD1  Bringing competencies to life – students’ experiences of preparing for MTAS
Donna Aya*, Graham Thomas, Michael Roberts (Centre for Medical Education, Institute of Health Sciences Education, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Room 210, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)

8DD2 The efficacy of a machine marked test for recruitment into acute specialties in the South West Peninsula Deanery
Gemma Crossingham*, Ian Anderson, Tom Gale, Alison Carr, Fiona Patterson, Jeremy Langton, Martin Roberts, Paul Sice, Peter Davies, Hiu Lam (Derriford Hospital, South West Peninsula Deanery, Anaesthetic Department, Plymouth PL6 8DH, United Kingdom)

8DD3 Selecting the right people: using job analysis to develop a competency model
Williams D*, Duff C, Patterson F, Kerin M*, Zibarras L, Mason B (Faculty of Public Health, 4 St Andrews Place, London NW1 4LB; Work Psychology Group, T5 Wheeler Gate, Nottingham NG1 2NA, United Kingdom)
8DD4 **Predictive value of selection methods of residents**
F.Tromp*, H.Mokkink, B.Bottema (UMC st. Radboud, PO Box 9101, Nijmegen 6500 HB, Netherlands)

8DD5 **Evaluation of situational judgement tests to select postgraduate trainees: validation studies in two specialties**
Carr V*, Patterson F, Burr W, Plint S, Gregory S (Work Psychology Group, 15 Wheeler Gate, Nottingham NG1 2NA, United Kingdom)

8DD6 **Acceptability of high-stakes multiple mini-interviews in paediatrics: the Danish experience**
Thomas Balslev*, Mia Bjerager, Malene Boas, Kirsten Arntz Boisen, Klaus Børch, Marianne Sjælin Frederiksen, Kirsten Holm, Annette Grum-Nymann, Martin Mayntz Johnsen, Stine Whitehouse, Thomas Herte (Aarhus University Hospital, Brendstrupgårdvej, Skejby, Aarhus N 8100, Denmark)

8DD7 **Equal opportunities in selection: an evaluation of UK national recruitment for general practice**
Plint S*, Patterson F, Jackson N, Gregory S (GP National Recruitment Office, Blythe Valley Business Park, Solihull B90 8AG, United Kingdom)

8DD8 **Quality control of cognitive assessment for medical residents admission**
Peres CM*, Cavalli RC*, Rodrigues MLV, Carlotti Jr CG, Kroui M, Colares MFA, Mamede RCM*, Troncon LEA (Medical School of Ribeirão Preto, Campus USP, Av. Bandeirantes, 3900, Ribeirão Preto 14049-900, Brazil)

8EE **SECRETS OF SUCCESS (5)**

8EE1 **ProF; a system for query-based, longitudinal feedback of progress test results**
Timmermans I,Muijtjens AMM, Cohen-Schotanus J (UMCG), Thoben AJNM (UMCN); Wenink ACG (LUMC), Van der Vleuten CPM (Dept. of Educational Research and Development, FHML, Maastricht University, P.O. Box 616, Maastricht 6200 MD, Netherlands)

*Short description of innovation:* Information about students’ competence development is useful for students in order to plan and adjust their study behaviour but also for educational institutions to monitor the quality of their curriculum. Progress testing can provide this information because of its cross sectional and longitudinal design, but only if test data are accessible and easy to interpret. In order to promote the availability of this type of information, the medical faculties of Maastricht, Groningen, Nijmegen and Leiden in the Netherlands have set up a joint project to develop easily accessible, query-based, longitudinal feedback of progress test results. The result of this project is ProF: A system to deliver feedback of progress test results to students and staff. This feedback consists of longitudinal test results, a prognosis of future test results and the possibility to compare individual results with peer group results, all information being displayed in an easy-to-interpret graphical way.

*What will be demonstrated:* We will share our experiences from developing and implementing the ProF system for query-based, longitudinal feedback of progress test results and showcase the ProF system itself.

*What is particularly interesting about the innovation:* It offers an easy way to analyze longitudinal progress test results, both for students and staff.

*How could it be implemented:* To learn about a new, unique system to display Progress test results.

8EE2 **Feedback booklet, including manual, fitting in the pocket of every white coat**
Jousma F, Lange JF (Institute for Medical Education, Postbus 2040, Rotterdam 3000 CA, Netherlands)

*Short description of innovation:* During clerkships interns are stimulated to collect written feedback from experts in a booklet. The main functions of this instrument are: to collect feedback in a structured way, to reflect on the received feedback and to gain insight into the professional development during the whole clerkship. The forms in the booklet are CanMEDS based.
What will be demonstrated: The feedback pocket-sized booklet, including a job aid for the users.

What is particularly interesting about the innovation: All in one, despite small size; The framework and structure supports the intern to ask for concrete feedback focused on all of the relevant CanMEDS competencies; The form of the feedback cards is similar for every clerkship and every feedback situation, therefore participants consider it practical to use.

Implementation: Interns are expected to use the instrument in every clerkship. An assessor decides if it is properly used. If not, the assessor may decide to give a negative grade for the Professionalism competence.

How could It be implemented: Come and see how an “all in one” and “easy to use” instrument encourages CanMEDS based feedback, suitable for all clerkships.

8EE3 Improving educational opportunities for clerks by using a miniportfolio as a formative assessment tool
Zijsling BR, Wagter JM, Eckenhausen MAW, Bijnen AB (Medical Centre Alkmaar, Wilhelminalaan 12, Alkmaar 1815 JD, Netherlands)

Short description of innovation: The Postgraduate Hospital Educational Environment Measure (PHEEM) made clear that clerks in our hospital were dissatisfied about the possibilities to identify and develop their own shortcomings in competences. Portfolios are considered to improve development of competences. Psychosocial literature argues that feedback is essential to change behavior.

What will be demonstrated: A miniportfolio in an easily carried pocket format is developed as a formative assessment tool that provides individual education opportunities by specific feedback. The theoretical framework incorporates the CanMEDS competences and an extra reflection competence, which are in line with the formulated final attainment levels of the continuation courses. The current study evaluates the usability-satisfaction of this tool at the surgery department of a large non-academic teaching hospital. Data were collected by a questionnaire, page-analysis and two relevant PHEEM-questions.

What is particularly interesting about the innovation: It is shown that clerks consider the miniportfolio as a usable tool and guide in their professional development.

How could It be implemented: The miniportfolio for clerks is a valuable formative assessment tool with the possibility to receive instant feedback. Therefore it is also introduced at other departments of the Medical Centre Alkmaar.

Why participants should come to the demonstration: Believed is that other teaching hospitals should consider introducing the miniportfolio as well.

8EE4 Assessing Integration – a pilot
Bolander Laksov K*, Josephson A, Carroll J (Karolinska Institutet, Berzelius väg 3, Stockholm 171 77, Sweden)

Short description of innovation: Assessment is a crucial way of steering students' approach to learning. This pilot project aimed to develop a new form of assessment, where the integration of knowledge, attitudes and competences learned during the first four terms of study in the medical undergraduate program was required.

What will be demonstrated: Principles emphasising a student's ability to reason, prioritise and motivate, rather than just recall facts were constructed and applied in the design of a pilot exam. 10 students of the 4th term were paid to sit the exam, which was followed by a focus group interview. When analysing the students' answers and the focus group comments, criteria for assessment were developed

What is particularly interesting about the innovation: Most students in the focus group interview agreed this is how assessment should be designed. A concern was expressed for being unused to being questioned in this way and students required support and preparation.
How could It be implemented: The principles for the design of questions stimulated students to apply basic science in an evidence-based manner in motivating their clinical decision-making.

Why participants should come to the demonstration: Students need to be supported and prepared to be able to reason about their knowledge. The benefit would be that assessors would be able to see whether students are able to integrate knowledge or not.
Session 9

9A SYMPOSIUM: What makes a leader in medical education?
Chairperson: Aviad Haramati (Georgetown University School of Medicine, Washington DC, United States)
The significant changes and megatrends in medical education require a new generation of leaders. An increasing number of individuals with responsibilities in undergraduate, postgraduate and continuing medical education have, to a greater or lesser extent, responsibilities for leadership within their organisation. There has been a widespread belief, however, that identifying individuals with the “right stuff” to be leaders is more an art than a science. Increasing recognition is now being given to the need to assist individuals who have a responsibility in medical education develop appropriate strategies for leadership and, among other things, for managing systematic change. This symposium will explore what is required of a good leader and how the necessary competencies can best be developed in an individual.

9B SYMPOSIUM: What makes a curriculum model and what difference does it make?
Chairperson: Ara Tekian (University of Illinois at Chicago, USA). Panel: Janet Grant (Open University Centre for Education in Medicine, UK), Ronald Harden (University of Dundee, UK), Henk G. Schmidt (Faculty of Social Sciences, Erasmus University, The Netherlands) and David Prideaux (Flinders University, Adelaide, Australia)
There are many different labels for what have been called curriculum models, such as integrated, discipline-based, organ-system based, competency-based, objectives and outcome-based, or the spiral curriculum. But what makes a curriculum model, where do these different labels come from and what is the justification for so many different models? How can we compare them and how should we use them? How do curriculum models make a difference in theory and in practice? The purpose of this symposium is to explore and clarify the meaning, attributes and uses of effective curriculum models, both former and current highly praised models as well as emerging ones.

9C FRINGE (2)
9C1 Music and Medicine: using one to learn the other
John Spicer* (St George’s University of London, Cranmer Terrace, Tooting, London SW17 0RE, United Kingdom)
In recent years, whilst the medical humanities have gathered student interest and academic analysis, the connections between music and medicine have received relatively little attention. But the overlap between these 2 fields offers a wealth of medical and health care learning. Consider among other things: (1) the neurology of musical understanding and appreciation; (2) the therapeutic role of music; (3) the health and welfare of musicians; (4) the personal stories of composers [old and new]; (5) the reflective nature of listening to music. All these issues have been incorporated into a Special Study Module at St George’s University of London. This presentation will demonstrate some of the themes students have experienced: with an accent on listening to, and interpretation of, various musical forms.

9C2 Skin deep is deep enough: a storytelling performance
Lisa Lipkin* (Story Strategies, Amstelboulevard 182, Amsterdam 1096, Netherlands)
For over twenty years I worked as a professional storyteller, writing and performing original works internationally. I often used personal material as fuel for my stories, as family members begrudgingly will attest to. This collection of original, humorous stories were inspired by my father, a dermatologist at New York University. They include personal adventures (screening the New York Mets for skin cancer), metaphoric ones (God speaking to my father through one patient’s psoriasis) and philosophic ones (faith vs. Scientific imagination).
9C3 Encouraging Learning, Educating People, Having A Nice Time; The ELEPHANT Criteria
Araavinthan Varatharaj*, Hugh Gifford, Edward Blacker (Oxford University Medical School, Osler House, John Radcliffe Hospital, Oxford OX3 9DU, United Kingdom)

Background: Medics tend to be intelligent people. Intelligent people tend to be silly people. Silliness is a powerful tool that can be harnessed to drive education. The ELEPHANT criteria provide a non-evidence based framework for our methodology.

Intended outcomes: Participants will gain an understanding of how silliness can be incorporated into medical education, be warned of the potential pitfalls, and be inspired by the potential gains. It is intended that the presentation itself will fulfill the ELEPHANT criteria.

Structure: Several criteria for guiding the use of silliness in medical education will be introduced and discussed. Examples from the authors’ own projects will be critiqued, and the audience will be invited to explore their own ideas.

Intended audience: Anyone with interest in medical education and/or a dry wit.

Level of presentation: Suitable for all levels.

9C4 Teaching medical ethics – planting good(s) or God in the head of entrepreneurs

Medical ethics is firmly embedded in the curricula of medical faculties. “Graduates should apply relevant ethical codes to everyday clinical work and be able to express a well-considered opinion on ethical issues” [EMSA European Core Curriculum]. We hear so often that ethical reasoning should be an integral part of medicine comparable to scientific reasoning, that we believe it and take for granted. But what is ethics for the user – the wannabe physician? – We asked them. - Answer: A tangled mass of theories which may be clustered under the headings of consequentialism, virtue ethics or duty based ethics [Lit: Medical ethics and law] – or others – if you like, depending on your gusto or on the group of thinkers you fancy. There is no hobnobbing with those with a broad heart and even a broader brain. What a peace of work is man? How noble in reason? [Hamlet] - Physicians are entrepreneurs, too; have to be entrepreneurs. “Eat first, morals later” [Ballad of Jack the Knife] - why, it appears no other thing to me than a foul and pestilent congregation of vapours? [Hamlet] – So why invest in ethics – invest in behavioural economics – compare with us ‘good’ and/or ‘goods’, ethics and/or economy and be honest – what’s your choice?

9D RESEARCH PAPERS: Teaching and Learning

9D1 The effect of algorithms for learning the sequence of action in resuscitation training
Oliver Meyer*, Stefan Clar, Gunnar Grossert (Martin-Luther-Universität Halle-Wittenberg - University Hospital, Dept. of Anaesthesiology and Intensive Care, Ernst-Grube-Str. 40, Halle 06120, Germany)

Introduction: We expect the official resuscitation-algorithm to be a valuable tool and tried to improve it with designing a new one, considering aspects of cognitive and learning psychology. This research project determined the effects of algorithms: Does our newly designed resuscitation-algorithm result in a significantly better theoretical and practical performance of 5th year medical students compared to the official resuscitation-algorithm and a short text containing the same information?

Methods: After a positive vote of our ethics committee for this prospective trial we randomized the students (n=210) to three groups (official~, new algorithm, short text) to learn the sequence of action in a resuscitation situation. Then they had to write a test before solving a standardized, video-taped resuscitation situation. A blinded investigator scored the tests. Two blinded investigators analyzed the video tapes independently, using a newly developed checklist (based on official guidelines for resuscitation[1] - no standard checklist available). Also subjective grades were given. After merging both lists the mean of each item were calculated to get a global score. In case of a difference of more than 10% the videos were reviewed by both investigators together to find a consensus or involvement of the principle investigator.
**Results:** We found significant differences (p<0.05) between the three groups for the global score in theory and practice, using an oneway-anova (using Bonferroni-correction), and the grade (using Pearson-chi-square-test). In the written test, the group learning the official algorithm had the best results, followed by the new algorithm and the text last. This row is the same for the grades. Surprisingly in practice the group with the text performed best, followed by the new algorithm and finally the official algorithm, though a correlation between the global practical score and grade is significant (boxplot and calculated). We found no correlation between the performance in theory and practice.

**Discussion and conclusion:** A possible explanation is that the investigators emphasized the tasks differently when giving the grade, while each item was scored equally. Either our global score is not appropriate or the grades are very subjective. Further research is necessary. Our results confirm that there is no relation between theoretical and practical performance. Students should be examined in theory and practice. Validated score lists are necessary to be objective. Algorithms seem to support learning in theory. Their effects on practical performance seem to be minor. Further research on influencing effects to increase also practical performance has to be done.

**References:**

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**9D2 Assessment of learning efficacy of small group work employing a key word test**

**Dirk Ruijter*, Marleen Olde Bekkink, Peter de Wilde, Goos van Muijen, Ron Launissen en Riekje de Jong (Radboud University Medical Centre and Radboud University, Nijmegen 6500 HB, Netherlands)**

**Introduction:** In modern (bio-)medical curricula small group work is a central element. To obtain insight in its learning efficacy it is important to be able to monitor the quality of the learning and the learning process, which is relevant for evidence-based education. As an essential feature of small group work is deep learning and elaboration of learning we hypothesized that key words, that are representative for main concepts and principles, and were already listed in the course reader to guide students, could be used as a target for testing learning efficacy.

**Methods:** We have designed an extended matching key word test, consisting of two questions on the topic of the small group and two on the theme of the course episode in which the small group took place; two other questions on the perception of the students on their own degree of participation and understanding were added. The test was introduced to all 400 bachelor (bio-)medical second year students of the Radboud University Medical Centre Nijmegen during a course on Oncological Pathology, as an experimental instrument for monitoring learning efficacy. It was taken by all students at the beginning (t=0), and at the end of the small group work (t=1). The test, that took about five minutes to complete, was well accepted by both students and five tutors involved.

**Results:** The score at t=1 clearly exceeded that at t=0, especially for the two questions that concerned the topic worked on in the small group (p<0.0001). The score of the corresponding open question at the formal exam evidently exceeded the average score of the other non-related questions (p<0.0001). Female students had a higher score at t=0 than male students (p<0.002), that equalized at t=1. No influence on the scores of the test was found for biomedical (n=100) or medical (n=300) discipline of the students, time table or four tutors of the small group. There was an increase in the degree of understanding of the key words at t=1 as compared to t=0.

**Discussion and conclusion:** Our results suggest that it is feasible to monitor learning efficacy of small group work during an ongoing (bio-)medical curriculum employing an extended matching key word test. The learning mechanisms assessed by the test, that may be relevant as possible targets for future interventions, and the gender difference in the score of the test, deserve further study.

**References:**
9D3  Does e-learning maintain resuscitation competence?

Morten Lind Jensen*, Frederik Mondrup, Freddy Lipperh, Charlotte Ringsted (Centre for Health Science Education, Copenhagen University and Capital Region of Denmark, Rigshospitalet afsnitt 5404, Blegdamsvej 9, Copenhagen Ø 2100, Denmark)

Introduction: Competence acquired during cardio-pulmonary resuscitation (CPR) courses usually declines rapidly. E-learning has been suggested as a means to preserve CPR competence. However, reports regarding the effect of e-learning are conflicting and dropouts are frequent. Yet, little is known about incentives to use e-learning. Research questions 1) Does an e-learning program preserve CPR competence following a resuscitation course? 2) Which factors influence the use of e-learning?

Methods: The study includes two parts related to each of the research questions: A randomized controlled trial on a volunteer sample of junior doctors who had passed the European Resuscitation Council Advanced Life Support Course. The intervention group received an e-learning program including 12 scenarios to be completed during one year (MicroSim Inhospital, Laerdal). The control group had no e-learning. After one year resuscitation competence was assessed in both groups by a knowledge test (MCQ) and a skills performance test (simulated CPR scenario). A validated composite score was used for further analysis (1). The second part was a mid-term telephone interview of the intervention group. An interview guide was constructed from theories on incentives to learn and prior studies on e-learning. Interviews were coded and categorized, and responses were rated numerically. In order to identify factors explaining the use of e-learning a univariate correlation was used to select significant variables to be included in a multiple regression analysis.

Results: Invitation to participate was accepted by 103/134 (77%). The intervention group (N=51) used e-learning to a varying degree, mean number of cases completed 8 (95% CI=6-10). In total 79/103 (77%) completed the final assessment. In both groups CPR competence declined after one year, intervention group (N=40) by mean 7.9% (95% CI=4.7-11.1), P<0.01, and control group (N=39) by mean 4.8%, (95% CI=2.8-6.8), P<0.01. There was no significant correlation between the amount of e-learning and assessment scores. Mid-term telephone interviews were conducted with 47/51 (92%) in the intervention group. Three variables significantly correlated to the use of the program: lack of personal contact with others, prior resuscitation competence, and lack of time. The regression model explained 27% (R-squared) of the variance. The only individually significant variable in the model was ‘lack of personal contact’.

Discussion and conclusion: The e-learning program did not preserve CPR competence. Lack of personal contact was the primary factor influencing the use of e-learning. Our results indicate that in designing and evaluating e-learning issues related to the social dimension of learning might be equally as important as addressing the cognitive and emotional dimensions of learning (2).

References:

9D4  Medical faculty’s conceptions on learning and how they approach teaching

G Peereer*, V Donche, B Y De Winter, A M M Muijten, R Remmen, P Van Petegem, L Bossaert, A J J A Scherpber (Faculty of Medicine, University of Antwerp, Universiteitsplein 1, gebouw S2, Antwerpen 2610, Belgium)

Introduction: It is often assumed that the way teachers teach is determined by how they think about learning (Devlin 2006). Many faculty development programmes aim at influencing teachers’ ideas on learning towards more student-centred learning, assuming that this will automatically change their teaching practice. The aim of our study was to investigate whether there is a relation between medical faculty’s ideas on learning, and their (self-reported) approaches to teaching.
Methods: We used the Inventory of Teaching Patterns, designed to measure teachers' conceptions of learning (COL), as well as their approaches to teaching (AT) (Donche 2007). This questionnaire consists of 13 scales (COL: 11; AT: 5), with a total of 116 items. All academic teachers involved in the bachelor-master medical curriculum (N=108) received a copy, and we had a response rate of 71%. For each scale (variable) we calculated Cronbach's α for internal consistency, as well as mean and standard deviation. (SD) To investigate the relationship between variables, we computed the bivariate Pearson correlation coefficient for all pairs of variables. Bonferroni's corrected significance level was used.

Results: Fourteen out of 16 variables have an acceptable (0.60-0.70) to good (0.71 to 0.86) Cronbach's α. The mean of COL-related variables range from 2.87 to 4.13 (max 5; SD from 0.5 to 0.92). Mean of AT-related variables range from 1.55 to 1.79 (max 3; SD from 0.36 to 0.49). No (significant) correlations were found between the variables of COL and variables of AT. Few correlations were found between variables of COL, more correlations were found between variables of AT.

Discussion and conclusion: Teachers differ in their conceptions on learning, as is shown by the standard deviation. They agree more on the way they approach teaching, compared to how they think about learning. As we see few correlations between different variables related to conceptions of learning, we conclude that their ideas on learning are not always consistent. On the other hand there seems to be more coherence in the different aspects of their teaching approaches. The way medical teachers think about learning is not automatically converted into the way they approach teaching, as is shown by the absence of correlations between COL and AT. As our study is based on a self reporting questionnaire, we suggest more qualitative research methods, such as observation of teaching practices, to further investigate if there is indeed no or ample evidence of the conversion of teachers' ideas into daily practice, and what this means for student learning.

References:

9E SHORT COMMUNICATIONS: Assessment: Assessment of clinical competence

9E1 Construct validity of the RIME model
Tolsgaard M*, Ringsted C, Arendrup H, Stoltenberg M, Hillingsoe J, Lindhardt BO (Center for Clinical Education, Blegdamsvej 9, dept. 5404, Copenhagen O 2100, Denmark)

Background: Evaluation of medical students in clerkships using standardized descriptive frameworks is widespread. Among these models is Pangaro's Reporter-Interpreter-Manager-Educator (RIME) system, which is supposed to reflect progression of medical students' clinical competence. Despite the widespread popularity of this model, the construct validity has never been shown. The aim of this study was to assess the construct validity of the RIME-model with respect to its ability to reflect supposedly increasing levels of clinical competence regarding managing the patient encounter.

Summary of work: Three groups, 16 year four medical students, 16 year six medical students, and 16 postgraduate interns were tested in 2 simulated patient encounters by associate professors using the RIME-model translated into a checklist.

Summary of results: RIME-scores (% maximum) showed significant difference between the groups, medical students at year four, mean 50.1 (SD 11.1), medical students at year six, mean 60.2 (SD 11.6), and interns, mean 69.5 (SD 7.7), one-way ANOVA, p < 0.0001. Differences in scoring of each of the four RIME elements levelled out from the most junior to the most senior group.

Conclusions: The RIME-model possesses construct validity regarding reflecting progression in competence in managing patient encounters.
Take-home messages: The RIME model can be a valid tool in assessment of medical students regarding managing patient encounters.

9E2 Secretary outperforms clinical staff in predicting clinical knowledge
Jaap W Groothoff*, Olle Th J ten Cate (Emma Children’s Hospital AMC, Amsterdam & Center for Research and Development of Education, UMC Utrecht, Melberdreef 9, Amsterdam 1105AZ, Netherlands)

Background: We evaluated the accurateness of summative judgements by clinical staff of medical clerks’ clinical knowledge and reasoning (CKR), based on multiple structured and documented observations.

Summary of work: Between March 2007 and December 2008, final CKR ratings of paediatric clerks were compared with scores of the MATCH test, a validated tool for clinical reasoning and knowledge. Between May 2008 and December 2008 predictions of CKR ratings at onset of the clerkship by our secretary were also compared with the MATCH scores.

Summary of results: 167 out of 200 students participated. Staff rated “A” in 68.1%, “B” in 29.2%. Students with staff “A” and students with staff “B” ratings had equal MATCH scores (72.5, SD 7.7 vs. 70.8, SD 8.0). The secretary predicted 37.5% A ratings and 62.5% B ratings. Students with secretary “A” ratings had significantly higher MATCH scores than those with “B” ratings (75.5, SD 8.0 vs. 70.1, SD 7.3; 95%CI 1.7–9.1, effect size 0.33).

Conclusions: Staff judgments of clerks’ clinical knowledge and reasoning, even when based on multiple observations, result in inappropriately high and unreliable ratings of clinical knowledge.

Take-home messages: An objective tool is necessary in assessing medical knowledge during clerkships.

9E3 Steps towards optimization of surgical long case examination: an exploration through generalizability study
Siow Woei Yun, Zubair Amin*, Gominda Ponnamperuma (Yong Loo Lin School of Medicine, National University of Singapore, 10 Medical Drive, Singapore 119597, Singapore)

Background: Planning a high-stake clinical examination requires evaluation of several psychometric and logistical variables. Our research questions are, in the context of surgical long case: i. Does addition of a third examiner have any added benefit to the examination? ii. Is global mark more reliable than itemized marking template?

Summary of work: A third examiner was introduced prospectively. Examiners used both itemized and global marking template. Separate G-studies and D-studies were carried out for both two and three examiners and for both itemized and global scores. We explore two study designs. In Model One, it was candidates into examiners. In Model Two, examiners were nested within candidates.

Summary of results: Using the third examiner resulted in gain of reliability by 0.05 to 0.07. Gain in reliability was higher if each candidate were allowed to take higher number of clinical cases. Both global score and itemized score provided equivalent reliability (G co-efficient 0.74 to 0.89). However, global score resulted in smaller Standard Error of Mean.

Take-home messages: i. Increase the number of long cases per candidate; ii. Use global score if content experts are available as examiners; iii. Use itemized score if each examiner panel is to examine only one candidate.

9E4 Assessment of multiple physician competencies with a structured oral examination
Ann Jefferies*, Brian Simmons, Eugene Ng, Martin Skidmore (Division of Neonatology, University of Toronto, Room 775, Mount Sinai Hospital, 600 University Avenue, Toronto, Ontario M5G 1X5, Canada)

Background: Although the structured oral examination (SOE) is reliable and valid, its role in assessing physician competencies is uncertain. We examined the utility of the SOE in assessing the CanMEDS roles.
Summary of work: Sixty-eight neonatal-perinatal medicine trainees participated in 5 SOEs, each consisting of 8 scenarios developed by program directors. Questions addressed all 7 CanMEDS roles – medical expert (ME), communicator (COM), collaborator (COL), manager (MAN), advocate (ADV), scholar (SCH) and professional (PRO). Examiners assigned checklist scores and global rating scores for knowledge and organization. For the 5 exams, questions related to each competency were compiled and an overall checklist score for each competency calculated. Candidates and examiners completed a satisfaction questionnaire.

Summary of results: 193 of 300 questions addressed the ME role. Lowest checklist score (% mean±sd) was 61.4±21.4 (SCH,) and highest was 71.5±19.4 (MAN). Internal consistency for each role, expressed as Cronbach's alpha, was 0.62±0.2 (ME), 0.43 (COM), 0.40±0.34 (COL), 0.19±0.17 (MAN), 0.46±0.32 (ADV), 0.67±0.18 (SCH) and 0.79 (PRO). Correlation between ME checklist score and knowledge global scores was significant (r=0.80, p=0.01). Participant satisfaction was high. Electronic communication facilitated exam development and costs were minimal.

Conclusions: The SOE was most reliable in assessing ME, SCH and PRO competencies. Increasing the number of questions may improve reliability for the other competencies.

Take-home messages: The acceptability, low cost and ease of administration suggest that the SOE is a useful method for assessment of multiple competencies.

9E5 Summative assessment is a waste of time: a qualitative study of students’ and teachers’ perceptions of an assessment programme
Hanan Al Kadri*, Mohammed Al Moamary, Cees van der Vleuten (King Saud Bin Abdulaziz University For Health Sciences, College of Medicine, King Abdulaziz Medical City, Po Box 57374, Riyadh 11574, Saudi Arabia)

Background: “Examinations drive students’ learning.” This statement refers to what is assumed to be one of the strongest relationships in education. We explored the effects of assessment-related factors on students’ approaches to learning by exploring students’ and teachers’ perceptions concerning an assessment programme in the clinical years of a PBL graduate entry medical curriculum.

Summary of work: We conducted a qualitative, phenomenological study, using semi-structured group interviews with students and individual semi-structured interviews with teachers. The transcripts were analysed and themes were identified. The research was conducted at King Saud bin Abdulaziz University for Health Sciences, College of Medicine, Riyadh, Saudi Arabia in the period from November 2007 to March 2008.

Summary of results: A total of 28 students participated in seven focus group interviews and semi-structured individual interviews were conducted with twelve teachers. The analysis yielded five themes with codes: summative assessment, formative assessment, continuous assessment of clinical attachments, learning objectives, and education culture.

Conclusions: Students think that summative assessment provides little support for their learning and prefer formative and continuous assessments during clinical attachments because these are regarded as stimulating a deeper approach to learning. To what extent formative assessment should be used at the expense of summative assessment is an area that needs to be investigated.

Take-home messages: Assessment is not always perceived as having a positive effect on the learning of students. Teachers should take into consideration the possible differences between their perceptions and those of the students with regard to different types of assessment.

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SHORT COMMUNICATIONS: Curriculum: PBL evaluation

9F1 Using questionnaires to compare the perceived competencies of graduates from a traditional and PBL curriculum 6 years after graduation
Simon Watmough*, David Taylor, Helen O’Sullivan (University of Liverpool, Centre for Excellence in Teaching and Learning, School of Medical Education, Liverpool L69 3GE, United Kingdom)

Background: In 1996 Liverpool University reformed its course from a traditional lecture-based programme to an integrated PBL curriculum. A project has been underway since 2000 to evaluate this change.

Summary of work: This paper will summarise questionnaires which were distributed to the final two cohorts to graduate from the traditional curriculum with the first two cohorts to graduate from the PBL curriculum 6 years after graduation. The questionnaires asked the graduates about their preparation for the key skills required to work as doctors and to assess their undergraduate teaching by subject.

Summary of results: There were significant differences between PBL and traditional graduates on most questionnaire variables. PBL cohorts felt significantly better prepared for undertaking practical procedures, working in a team, understanding evidence based medicine but they wanted more teaching in anatomy. The traditional graduates felt better prepared in variables relating to basic sciences such as understanding disease processes.

Conclusions: Reforming the curriculum can change the way graduates from the same medical school view their undergraduate education.

Take-home messages: A reformed PBL curriculum can produce graduates who feel they have better skills to perform as doctors than graduates from a traditional curriculum but are less confident about their basic science knowledge.

9F2 Attitudes towards PBL and personality traits
Are Hølen* (Faculty of Medicine, Norwegian University of Science and Technology, MIFS, Trondheim N-7489, Norway)

Background: Attitudes towards PBL were studied in relation to gender, age and personality traits as measured by NEO-PI (The Big Five) in second year medical students in Trondheim, Norway.

Summary of work: The students completed anonymously several inventories.

Summary of results: Positive attitudes towards PBL were associated with extrovert personality traits, Openness to experience, and Conscientiousness. PBL was also regarded more favorably by females. Negative attitudes towards PBL were associated with introversion and negative associations to Social Agreeableness, and positive to Neuroticism. No gender difference emerged with regard to the negative attitudes. Age was not significant in relation to any of the attitudes.

Conclusions: Personality traits and gender plays a role in relation to the attitudes towards PBL.

Take-home messages: Learning activities should be broad based and be able to include well both genders and all personality traits adequate for the medical profession.

9F3 Pooled results from 6 follow-up studies of undergraduate medical education in Sweden. Comparing a problem-based, student-centred curriculum with other medical faculties in Sweden
Wolfram Antropohl* (Office for Postgraduate Medical Education, Östergötland County Council, University Hospital, Linköping SE-58185, Sweden)

Background: The Swedish Medical Association (SMA) performed six national evaluations addressing physicians who had finished their pre-registration period, (2.5-3.5 years after graduation) with eight questions, based on national objectives for undergraduate medical education. The evaluations were performed annually from 2000 to 2004 and again in 2006.

Summary of work: Raw data were obtained from SMA and pooled for this study. Student's t-test was used for groupwise comparisons between graduates from the Linköping Faculty of Health Sciences (FHS) and the other faculties.
**Summary of results:** The SMA's questionnaire was sent out to the 4151 members who had received full medical licensure from 1999 to 2003 and in 2005. In total, 3535 members (85%, range 81-89%) responded. 3256 of these had originally graduated from one of the six medical faculties in Sweden, 328 had graduated from FHS. In summary, FHS graduates rated the degree to which their undergraduate education had prepared them for professional life significantly higher than graduates from the other medical faculties concerning seven out of eight items. Only concerning the item “taking care of acute patients” did FHS alumni not rate their preparation during undergraduate education significantly higher.

**Conclusions:** Alumni of the FHS’ medical programme have over time highly favoured the benefit of studying at FHS in comparison to other medical faculties in Sweden; they feel well prepared for professional practice, both during their pre-registration period and specialist training especially concerning areas of competence that are highlighted in the Linköping curriculum.

**9F4** How do we know if PBL could stimulate students towards constructive, self-directed, collaborative and contextual learning?

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**Background:** Problem-based learning (PBL) is a student-centered instructional strategy in which students collaboratively learn triggered by a problem in a small group facilitated by a tutor. PBL has been adopted extensively as learning strategies in all continents in this world. The application of PBL is based on theory of constructive, collaborative, self-directed and contextual learning. However, evidence on whether those underlying theories work in practice and if so under what circumstances are still needed. This study aimed to develop an instrument to measure if PBL could stimulate students towards constructive, self-directed, collaborative and contextual learning.

**Summary of work:** Qualitative study to students and tutors, literature reviews, and nominal group techniques were used to generate the items. Validation of instrument was done by distributing the instrument to all students in Faculty of Medicine Gadjah Mada University, Jogjakarta, Indonesia.

**Summary of results:** The result is a validated instrument to measure if the application of PBL could stimulate students towards constructive, self-directed, collaborative and contextual learning.

**Conclusions:** This study offers evidence of validity and reliability of the new developed instrument.

**Take-home messages:** The developed instrument may be used for program evaluation in a PBL curriculum.

**9F5** PBL – “it’s all talk”. Corpora Analysis of Problem Based Learning transcripts

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**Background:** Problem Based Learning (PBL) can involve learners talking to each other for about 3-4 hrs per week. Research has not yet captured or analyzed all of the lexical and cognitive activities that take place during this discourse.

**Summary of work:** Using Wmatrix2®, a powerful text analysis tool for corpora analysis, we have processed transcripts of PBL tutorials allowing us to quantify the development of technical vocabulary, clinical reasoning, questioning and explaining episodes.

**Summary of results:** We analyzed 60 hours of PBL sessions from 1st and 2nd year students at the Graduate Entry Medical School of the University of Nottingham in Derby. The analysis was focused on: a) development of technical language and b) development of clinical reasoning. Longitudinal and cross-sectional comparisons were performed.

**Conclusions:** Our results show that there are significant differences in the lexical and cognitive activities among PBL sessions. The quantity and quality of technical vocabulary and clinical reasoning changes between PBL sessions, subject blocks and years.
Take-home messages: We propose that Corpora Analysis can become a powerful tool to help explore the lexical and cognitive activities of students and facilitators as they engage in PBL discourse.

9F6 Curriculum mapping to restore the PBL curriculum of Phase I at Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak
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Background: The FMHS, UNIMAS adopted a hybrid PBL curriculum since its inception in 1993. Over a period of 10 years, unplanned and undesired changes took place in the curriculum. The curriculum changed from student-centred to teacher-centred and from information-searching to information-gathering. A curriculum mapping was conducted to institute the appropriate remedial action.

Summary of work: The study was conducted keeping in view the three highly inter-related issues: (a) whether current teaching strategies were appropriate for set objectives and outcomes; (b) whether core knowledge and skills were being adequately identified and addressed and (c) whether horizontal and vertical integration was being achieved? Appropriate changes were suggested in the content and implementation of the curriculum to overcome the identified deficiencies.

Summary of results: Using a well-defined criteria the core content was identified; areas of duplication and overlapping were recognized; and topics were relocated to appropriate modules. Based on this process the didactic lectures were reduced from 292 to 173. This change gave students an extra 119 hours for self-study. Similar changes were made in other areas of teaching/learning.

Conclusions: This exercise helped the Faculty to restore the original spirit of the curriculum. The Faculty also instituted a mechanism for continuous monitoring of the development and implementation of the curriculum.

9G SHORT COMMUNICATIONS: International medical education (2)
9G1 EU-US-Medical-Dual-Degree-Program – Making mobility real: A pilot project at Witten/Herdecke University
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Background: Due to economic globalisation, internationalised job markets and increased occupational mobility, transnational qualifications of today’s medical graduates are advantageous. Especially EU-US medical cooperations are increasingly important in education, medical science and clinical work. Nevertheless, today there are no transatlantic agreements on the reciprocal approval of final medical licensing examinations, nor are there any integrated academic programs for dual EU-US-degrees.

Summary of work: Witten/Herdecke University (UWH) is the first German University to implement a fully integrated medical dual degree program. Students get the ability to graduate with both the German and the US national board’s licensing examination (USMLE). Medical training and preparation takes place in Witten/Germany and Cleveland/Ohio.

Summary of results: A first pilot cohort has completed both national STEP 1 exams, as part of the UWH-USMLE-Program (UUP). Our study evaluates the benefits and student satisfaction.

Conclusions: First results show that students benefit from the program, not only because of a dual degree but also because of a synergetic learning effect and deepening of medical knowledge, clinical skills and attitudes.

Take-home messages: More EU-US medical dual degree programs need to be set up to support transatlantic medical mobility. Further research of long term effects on students’ future career tracks following the UUP should be done.
9G2 The preparedness for practice of UK, EU (non-UK) and non-EU medical graduates: a comparison of questionnaire responses
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Background: The UK is a large importer of overseas doctors. As part of a study to examine the experiences of UK, EU and non-EU medical graduates making the transition to the UK workplace, a questionnaire was developed to collect data on their perceived preparedness for practice.

Summary of work: A fifty-three item cohort questionnaire of five-point scale items was devised from focus group data and examination of the literature. Questionnaires were distributed at pre-shadowing events before starting work and returned anonymously to researchers attending the sessions (n=480 UK, 68 non-EU, 12 EU).

Summary of results: Overseas doctors felt more prepared on most items (statistically significant difference for 41/57 items), including carrying out complex procedures, making clinical decisions on evidence gathered, writing safe prescriptions for different types of drugs, and recognising and managing the acutely ill patient. UK doctors felt more prepared in applying the principles of holistic care and applying knowledge of how social and psychological factors impinge on health.

Conclusions: Overseas doctors had more self confidence in their ability to do the job than the UK doctors.

Take-home messages: The data raises questions about why different perceptions of preparedness may occur. For example, some overseas graduates will have previously worked as a doctor in their own country or spent a length of time on clinical attachments.

9G3 European Medical Examinations – a new trend
Zeev Goldik* (UEMS-CESMA, ESA, 24 Rue de Comedien, Brussels, Belgium; 6 Mihal St. Haifa 34608, Israel)

Background: The inception of the first European Diploma Examination was in 1984 when a group of Anaesthesiologists from different European countries decided to create a pan-European exam in order to harmonize levels with opening of the Iron Curtain. Today, 25 years after, 26 different European Diploma Examinations are being held: Allergology and Clinical Immunology; Anesthesiology; Dermatology & Venereology; Hand Surgery; Intensive Care; Internal Medicine; Neurosurgery; Nuclear Medicine; Ophthalmology; Oral and Maxillofacial Surgery; Orthopaedics and Traumatology; Pathology; Pediatric Surgery; Physical and Rehabilitation Medicine; Plastic Surgery; Respiratory Medicine; Surgery (General Surgery); Coloproctology; Endocrine Surgery; Surgical Oncology; Thoracic Surgery; Transplantation; Trauma Surgery; Thoracic and Cardiovascular Surgery; Urology; and Vascular Surgery. What is the secret of this enormous flourishing of European Diploma Exams? What does it mean for the fellows of these diplomas? Which countries adopted them officially? What are the official agreements of reciprocity between the different Examination Boards inside and outside Europe? All these topics are managed by UEMS-CESMA (Council for European Specialty Medical Assessments). An overview of these exams will be presented.

9G4 Assessment of medical knowledge: a necessary requirement for licensure
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Background: The public often assumes that a valid degree is satisfactory for licensure. The Medical Council of Canada Evaluating Examination (MCCEE) assesses knowledge at the level of the minimally competent medical student graduating in Canada.

Summary of work: The mean scores and pass rates were determined for ten countries and or regions; selected based on physicians from these countries practicing in Canada and or because they are a known source of Canadians studying medicine outside the US and Canada. The mean scores and the pass rates were calculated for the examinations, 2004-2008.
Summary of results: Graduates from the UK, South Africa, Australia and the Caribbean region had mean scores (300+) and pass rates (>90%). Graduates from India, Egypt, Poland, France and Ireland had lower mean scores (270-280) and significantly lower pass rates (68-76%). Graduates of Pakistan schools had a mean score (262) and a pass rate of (59%). Each country had medical schools with high and low pass rates.

Conclusions: Graduates from specific countries do not have the same level of medical knowledge. There is variable performance on a standardized knowledge assessment (MCCEE). Also, graduates from medical schools within a country perform at different levels.

Take-home messages: An internationally recognized assessment of medical knowledge should be a prerequisite for licensure in any jurisdiction.

9G5 EU GPs working across EU countries: protecting doctors and patients
Trafford P*, Khan A, Burrows P, Rutteck L, Jackson N (London Deanery, Stewart House, 32 Russell Square, London WC1B 5DN, United Kingdom)

Background: The London Deanery has provided induction programmes for EU GPs wishing to work in London since 2002. EU GPs are legally entitled to work in all countries of the European Union. However, Primary Care Trusts in the UK have a duty to ensure that any GP in their area is capable of working safely and independently. So EU GPs not only need to know the routine procedures of NHS practice, but also to understand the cultural expectations of British patients and communicate in a manner acceptable to them. Hence the need for induction and assessment.

Summary of work: GPs are assessed for knowledge (MCQ) and communication skills (OSCE). A language consultant observes how they communicate during consultations. During the induction, they work in a practice under supervision and attend seminars on language and culture. Individual learning plans are arranged according to the needs identified at their assessment (Educational prescription).

Summary of results: Poor performance in our assessment predicts that EU GPs will have difficulties working in London. An educational prescription, based on observation of their consultations, enables them to address their learning needs.

Conclusions: (1) EU GPs should acquire cultural competence specific to the country where they intend to work. (2) Assistance with linguistic and cultural adaptation during the induction course helps to protect both patients and the relocating GP.

Take-home messages: (1) Country specific induction for EU GPs is essential. (2) Culturally appropriate consultation skills can be learnt.

9G6 Accreditation of medical education programs in countries that supply physicians to the United States
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Background: Graduates of international medical schools (IMGs) seeking to enter graduate training programs in the United States are educated in countries with diverse medical education and quality oversight systems.

Summary of work: Accreditation systems (if one exists) in the ten countries producing the most IMGs attaining Educational Commission for Foreign Medical Graduates (ECFMG®) certification in 2007 are described.

Summary of results: In 2007, standard ECFMG certificates were issued to 10,172 IMGs. The top ten countries of medical education for these graduates were: India (26.4%), Pakistan (6.1%), Dominica (5.5%), Grenada (4.8%), Philippines (3.7%), Netherlands Antilles (3.7%), China (3.3%), Nigeria (2.1%), Colombia (2.0%) and Iran (1.9%). IMGs educated in these ten countries represented 59.5% of all certificates issued in 2007. While most of these countries have a national system of accreditation in place, there is variability in both the nature of the authorities and the standards and procedures employed.
Conclusions: There is diversity in accreditation systems, and the authorities and policies are frequently dynamic and vary globally in their levels of enforcement and influence.

Take-home messages: Quality assurance data is essential to understanding and improving medical education worldwide, and can augment the information available to graduate medical education program directors who select IMGs for their training programs.

9H SHORT COMMUNICATIONS: e-Learning: Use of virtual patients

9H1 Needs analysis for virtual patients: a report from the eVIP project
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Background: eVIP is a 3-year Programme co-funded by the European Union to create a bank of repurposed and enriched multicultural virtual patient cases from across Europe.

Summary of work: We have conducted a survey on the current use of virtual patients across the EU and the wider global community.

Summary of results: A total of 216 respondents have given feedback on the current and potential future use of virtual patients, including different educational settings and scenarios within which virtual patients have been used. Data has been gathered on different business models for access to a repository of virtual patients. The broad demographic profile of respondents has been gathered to help analyse these data in context.

Conclusions: Our survey has gathered important evidence on the use of virtual patients across a range of institutions currently taking a virtual patient approach, uncovered some of the issues around implementation including the range of technical solutions currently in place, the preparedness for a technical standard for virtual patients, and the potential business models that might sustain virtual patient development.

Take-home messages: Information gathered in this survey will be of use to other groups considering a virtual patient approach in their curricula, as well as for those reviewing the current good practice in this area.

9H2 Curricular integration principles for virtual patients: a focus group study among students
Sören Huwendiek*, Cecilia Brasch, Friedrich Reichert, Bas A de Leng, Diana Dörmans, Cees PM van der Vleuten, Martin Haag, Georg Friedrich Hoffmann, Burkhard Trönnhoff (Children’s Hospital & Centre for Virtual Patients, University Hospital Heidelberg, Germany, INF 153, Heidelberg 69120, Germany)

Background: There are only few data available on the curricular integration of virtual patients (VPs).

Summary of work: 120 fourth year medical students worked on VPs in six different learning scenarios. The scenarios differed concerning sequence, tutor guidance, small group work, and patient involvement. Students (n=39) participated in focus-group discussions to examine the ideal curricular integration of VPs to foster learning.

Summary of results: Curricular integration principles for virtual patients: (1) It should be possible to work on VPs flexibly; (2) VP work and corresponding teaching events should be adapted to each other; (3) The connection of VP work and corresponding teaching events should be explicitly stressed; (4) Lectures should take place before working with VPs; (5) Small group wrap-up-sessions after working with VPs should be offered; (6) Wrap-up sessions concerning two VPs with the same leading symptom should be considered; (7) Tutors of wrap-up sessions should be informed about the VPs and trained in facilitating groups; (8) VP work should be followed by meeting a real patient; (9) Optimal single scenario: Lecture - VP – wrap-up-session – real patient; (10) VPs should be relevant for the exam.

Conclusions: Students perceived the described principles as highly relevant for their learning.

Take-home messages: The sound curricular integration of VPs is important.
9H3 Virtual Patients in clinical education from a phenomenological perspective
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Background: Although Virtual Patients (VPs) are more commonly used today there is no clear-cut picture of the nature of VPs as a learning tool. This means that educators hesitate in further curricular integration of VPs. Students and educators need examples of how this innovation can support student learning in practice.
Summary of work: We have analysed the use of VPs in a clinical rotation of medical students of rheumatology lasting 2-4 weeks. The phenomenological approach was used in order to maximise the student perspective. Focus lied with the character of VP learning and the immediate framework supporting meaningful learning with VPs at the clinic. We interviewed 31 students followed by a phenomenologic analysis of the transcriptions. This resulted in increased knowledge of the value of VPs in this setting.
Summary of results: VPs as a learning tool play a role of enhancing the value of other learning activities at the clinic. The immediate framework affects the way that students approach VPs. When students work in pairs, reflection and argumentation strengthen the learning experience.
Conclusions: The study approach provided a way to characterise learning with VPs as enhancing the value of clinical education.
Take-home messages: Phenomenological research interviews provide a way of discovering the value of innovations in medical education.

9H4 Professionalism in practice – a web-based interactive tool to support learning
John Jenkins*, Yael Bradbury-Birrell, Jane O'Brien (General Medical Council, 350 Euston Road, London NW1 3JN, United Kingdom)
Background: Good Medical Practice (GMP) sets out principles and values which UK doctors are expected to follow and is introduced to all UK medical students. However, the ethical issues faced in practice require understanding and application of the guidance to real-life situations.
Summary of work: An interactive web-based tool, GMP in Action has been developed to support doctors to do this throughout their careers. It is freely available to medical students, doctors and members of the public at www.gmc-uk.org/guidance/index.asp Beginning in a virtual waiting room, the user selects a ‘patient’. Each presents a number of ethical dilemmas. The scenario is revealed via audio and text of a conversation between doctor and patient. The user decides which of three options is the best match to the guidance in GMP and is then given feedback and further guidance.
Conclusions: GMP in Action has been widely welcomed as a valuable aid for medical students, for example as a contribution to development of a learning portfolio. It is relevant to doctors as part of their postgraduate training and as the basis for reflection during continuing professional development. It can also provide insight for patients and members of the public.

91 SHORT COMMUNICATIONS: Teaching and Learning: Simulation – a rapidly developing tool in medical education (2)

9I1 Haptic simulation as an adjunct to veterinary anatomy teaching
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Background: Anatomy teaching in both veterinary and human medicine faces challenges. Using and sourcing cadavers is increasingly problematic, as are larger class sizes. Traditional dissection is now being complemented by increasingly sophisticated three-dimensional graphic models and new approaches such as body painting. Haptic (touch) simulations might also aid anatomy teaching as students can palpate computer-generated virtual structures. We introduced and evaluated a simulator, the Haptic Cow, in an anatomy practical class.
**Summary of work:** First year students were taught with the simulator to locate and feel four structures: pubis, aorta, left kidney and rumen, which are palpable per rectum in the live cow. Feedback was gathered using a questionnaire.

**Summary of results:** The practical was attended by 188 students. Questionnaire feedback indicated that 93% thought the simulator helped with their understanding of bovine anatomy. The majority agreed or strongly agreed that they would now be able to locate and recognise the key abdominal structures.

**Conclusions:** The Haptic Cow simulator was successfully introduced into a veterinary anatomy course and was well received by students. Other applications of haptic simulators in anatomy teaching are being explored.

**Take-home messages:** Haptic simulators have the potential to contribute to anatomy teaching.

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**Building bridges and filling gaps**

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**Background:** The General Dental Council recommend that all dentist staff receive yearly training in medical emergencies. To meet this training need, the clinical skills team developed scenario based sessions which were delivered within the practitioners' working environment. The staff worked in interdisciplinary teams encouraging appreciation of colleagues’ roles.

**Summary of work:** Each emergency scenario was introduced by presenting the dental team with a medical history form about their “next patient.” Using a resuscitation manikin, the team were asked to proceed, as if preparing for conservation work. As the scenario developed they were encouraged to use their emergency kit to manage the situation.

**Summary of results:** Positive feedback highlighted that participants identified the relevance of the training to their daily work. Running simulations in a real environment allowed logistical problems to be identified and enabled staff to become familiar with equipment not used in their daily routine.

**Conclusions:** This is an example of a successful collaboration between dental care professionals and the clinical skills team. Taking the teaching out of the classroom and into the working environment increased its relevance to the participant.

**Take-home messages:** Extending professional development opportunities to within a relevant working environment provides accessible, quality learning for participants and enriches the experience.

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**Improving psychological fidelity in scenario-based patient simulation for medical undergraduates**

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**Background:** High fidelity scenario-based patient simulation is used in the preparation for practice modules of many undergraduate medical courses in the UK. The aim of these educational interventions is to address the theory-practice gap reported subjectively by undergraduates and to equip the final-year students with the knowledge and skill competences required of a foundation doctor in the clinical setting. Despite interacting as undergraduates with scenarios that specifically target commonly occurring pathologies and explicit learning outcomes, Foundation doctors report an emotional “shock” when arriving in the clinical setting.

**Summary of work:** This work looks at the potential reasons for the lack of psychological preparedness despite interaction with the “work” of a doctor in the clinical and scenario-based simulation setting as undergraduates.

**Summary of results:** Data from targeted focus group analysis revealed those components that help to identify a foundation doctor’s role. This work suggests how the use of this data to improve scenario narrative, place role-specific props and the use of credible “war-stories” can enhance the psychological fidelity of clinically oriented simulation.
Conclusions: The key output of scenario-based patient simulation is to improve performance in the clinical setting. As a surrogate for performance, the increase in perceived emotional and skill-based preparedness of Foundation doctors post-intervention will be identified.

914 Video-Assisted Real-time Simulation (VARS) in paediatrics
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Background: Paediatricians are involved in acute care situations where complex skills are needed from both individuals and health care systems. Today, it is recognised that good clinical care is not only dependent on knowledge and skills (technical skills), but also on factors like communication, leadership and followership (non-technical skills). Learning by trial and error as a learning tool has become unacceptable in respect of patient safety and team safety. Video-assisted real-time simulation allows the learner to make mistakes, and immediate post event debriefing facilities the development of new strategies as well in the technical as non-technical domains.

Summary of work: In 2007 we developed video-assisted real time paediatric simulation for as well technical as non-technical skills. We used both low- and high-fidelity manikins, even for training of the use of extracorporeal membrane oxygenation

Summary of results: We will present our preliminary results of our first year of experience with simulation for as well technical as non-technical skills. We will illustrate this by showing some characteristic interactions and behaviours such as team working, decision making and elements of communication.

Conclusions: Video-assisted real-time simulation seems a very promising educational method for training as well technical as non-technical skills in acute paediatrics

Take-home messages: Video-assisted real-time simulation is a promising educational method for training as well technical as non-technical skills.

915 Does the testing effect on skills learning last six months?
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Background: Testing compared to practicing as a final activity in a skills course increases two-weeks learning outcome. However the effect of testing on long-term retention has not been investigated.

Research question: Does testing as a final activity in a cardio-pulmonary resuscitation skills (CPR) course increase learning outcome assessed after six months compared to spending an equal amount of time practicing?

Summary of work: The study was a single-blinded randomised controlled trial. A convenient sample of medical students attending a mandatory CPR course was randomized to take either the intervention course or the control course. Both the intervention and the control course were a 4-hour small group course in CPR. The intervention course included 3.5 hours skills training and 30 minutes of skills testing. The control course included 4 hours of skills training. Participants’ learning outcome was assessed six months later.

Summary of results: There was no significant difference between the learning outcome of the control group (N=41), mean 70.3, SD 17.1, and the intervention group (N=48), mean 75.9, SD 11.0, p = 0.07. Effect size=0.4.

Conclusions: Testing as a final activity in a CPR course had a small, but statistically insignificant effect on long-term learning outcome assessed after six months.
9J SHORT COMMUNICATIONS: Education Management: Approaches to selection for postgraduate or specialist training

9J1 Evaluation of a new selection centre for UK National Neurosurgical Selection into Specialty Training programmes
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Background: We report on the design, development, implementation and evaluation of a new national selection centre (SC) for Specialty Training in Neurosurgery in the UK.

Summary of work: Based on a job analysis study, a multi-trait, multi-method SC approach was adopted comprising 7 exercises: three 10-minute interviews; telephone consultation; simulated patient; image interpretation; practical skills. We report on data gathered over 2 successive recruitment rounds (n=96 year 1; n=96 Year 2). Reactions of candidates and selectors were evaluated immediately after the SC.

Summary of results: Results show the SC reliably differentiated between candidates and that assessment in individual exercises demonstrated good internal reliability (N=192). A new exercise was piloted to explore situational awareness and leadership (N=96). Applicant and selector reactions were generally positive (eg 89% of applicants reported the SC content as appropriate and 94% as fair). Opportunities to further improve the SC logistics and exercise content have been identified.

Conclusions: The SC design showed significant incremental validity compared with the use of 3 interview stations alone. Future work includes a 3-year longitudinal evaluation of the career progression of applicants and further analysis of the assessment of practical skills.

Take-home messages: The UK National Neurosurgical Selection Centre is reliable, fair and valid. Further research will explore long-term predictive validity.

9J2 6-station selection centre model for recruitment to anaesthesia
Thomas Gale*, Martin Roberts, Paul Sice, Hu Lam, Ian Anderson, Peter Davies, Gemma Crossingham, Jeremy Langton, Alison Carr (Thomas Gale, Selection Centre and Machine Marked Test Pilot, South West Peninsula Deanery, John Bull Building, Tamar Science Park, Plymouth PL6 8DH, United Kingdom)

Background: We describe the development and evaluation of a 6 station selection centre for recruitment to anaesthesia since 2006.

Summary of work: The 6 stations comprised; Structured Interview, Portfolio, Presentation, Simulation, Telephone analysis and Role play. The latter 3 of these stations were designed to simulate scenarios of realistic work related tasks. Criterion-referenced scoring grids were developed to assess attributes identified by the Royal College of Anaesthetists. Two independent assessors also awarded “global rating scores” according to the overall impression of a candidate.

Summary of results: Both candidates and assessors demonstrated strong approval of all the stations with over 80% of ratings being 4 or 5 on the scale: 1= Poor to 5= Excellent. Inter-rater agreement coefficients (Scott’s Pi) ranged from 0.67 to 0.88 across the six stations representing very good agreement. Correlations between each selection centre station scores and the candidates’ total score indicated: 1) Weak to moderate positive correlation between all pairs of stations; 2) Strong positive correlation between each station and the total interview score.

Conclusions: These results demonstrate high face validity from both assessors and candidates, of a selection centre testing personal attributes for selection to anaesthesia. Our stations form an acceptable and coherent evaluation of candidate performance, without excessive duplication of assessment.

Take-home messages: A selection centre model for recruitment to anaesthesia is an acceptable interview method.
9J3 Using cognitive ability tests to select specialty trainees: a case study from public health
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Background: The use of cognitive ability tests for medical school admissions is a controversial and fiercely debated topic. This paper is the first to report on the use of cognitive ability tests for selection for postgraduate training in UK Public Health (PH). Since training in Public Health is also open to applicants who are not medically trained, this creates an interesting challenge in how to reliably assess aptitude and capability, where candidates have differing levels of clinical knowledge.

Summary of work: Job analysis revealed that verbal and numerical reasoning are important criteria for success in PH training. To assess these in a format free from clinical expertise, the selection process involved completion of 2 cognitive ability tests. A thorough piloting process identified the most appropriate verbal and numerical critical reasoning tests.

Summary of results: 500 candidates were invited to sit the tests and those with scores above an agreed standard progressed through shortlisting to a selection centre. Candidate reactions to the tests were collected from applicants. Validation examined the relationship between test scores and performance at the final selection centre with further longitudinal evaluation ongoing.

Conclusions/Take-home message: Cognitive ability testing proved a useful selection tool for assessing aptitude for speciality training in public health.

9J4 Four innovative programmes for pre-vocational doctor education
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Background: Responding to a demonstrated shortfall in medical practitioners for the Australian population, University Medical Schools substantially increased student intake. Medical Graduates from the State of Queensland will increase from 235 in 2007 to 760 in 2011. The State Government guaranteed all medical graduates from Queensland Universities employment as Interns in Queensland hospitals. This required expanded pre-vocational training positions which met the requirements for full registration by the Medical Board of Queensland (MBQ) at the end of the Intern year.

Summary of work: The Medical Education & Training Service identified novel intern training opportunities in specialty units within the Health Service District. These units complied with the Australian Curriculum Framework for Junior Doctors and satisfied accreditation criteria of the Postgraduate Medical Council of Queensland (PMQC). PMQC monitors pre-vocational training for the MBQ. Learning objectives, assessment and evaluation tools were designed for each new rotation. A PMQC survey of proposed new rotations allowed Intern placements for 2009 in eleven areas not previously used.

Summary of results: Results of assessments of Intern performance and evaluation of these new rotations will be presented.

Conclusions/Take-home messages: Traditional Intern training requirements of exposure to Medical, Surgical and Emergency can be appropriately expanded by employing novel terms in specialised units. Learning objectives, appropriate supervision, assessment and evaluation tools are necessary. Globally, medical graduate numbers increase in response to community requirements for doctors. Innovative training opportunities beyond traditional areas need to be explored. Our results demonstrate the feasibility of these expanded learning areas.
SHORT COMMUNICATIONS: Postgraduate Education: The early years of postgraduate training

Risk appreciation in acute medicine

A A Lwin, E R Richards, R Richards* (Princess Royal University Hospital, Farnborough Common, Orpington BR6 8ND, United Kingdom)

Background: In acute medicine, accurate risk/benefit analysis is an essential part of management. This study was to assess how well Junior Hospital Doctors (JHDs) understood the risks in three common medical conditions and proposed interventions.

Summary of work: A questionnaire was constructed using the examples of myocardial infarction (MI), transient ischaemic attack (TIA) and acute respiratory failure (ARF). JHDs (n=59) were asked to assess the risks associated with the underlying conditions and, in MI and ARF, state how effective intervention would be.

Summary of results: In MI, the risk of death was over-estimated by 446%, and the effectiveness of all the interventions were overestimated by over 200% except in the case of angioplasty (171%). The risk of stroke following a TIA and death in ARF without intervention were overestimated by 230% and 217% respectively.

Conclusions: Current medical education is failing to equip JHDs in the assessment of acutely ill patients. Their understanding of Absolute and Relative risk reduction is poor and may be over influenced by clever marketing both by the pharmaceutical industry and specialists alike. We recommend that more emphasis should be placed on concepts such as number needed to treat and absolute/relative risk reduction throughout their medical training.

Take-home messages: Continuous statistical training can cure cardiac neurosis.

An evaluation of the first three years of a quality improvement education program for junior interprofessional staff: a work-based, collaborative project

Taylor EC*, Fuller C, Tanner A, Wilcock P (Salisbury NHS Foundation Trust, Odstock Road, Salisbury SP2 8BJ, United Kingdom)

Background: Although we teach our doctors how to practice within a system, we do not routinely teach them how to improve this system. We share experiences of three years of an innovative, interprofessional project aimed to introduce Quality Improvement (QI) learning into Foundation Year 1 and junior interprofessional staffs teaching program.

Summary of work: This program is grounded in work-based experiential learning in facilitated action learning sets. Each set completes a small QI project. This learning is underpinned by more didactic sessions, which concentrate on the theories and skills needed to undertake their project. These include plan-do-study-act cycles and process mapping.

Summary of results: Our data shows a statistically significant increase in self-reported confidence in the areas of designing service improvements and testing them in practice (p<0.002), use of methods such as: process mapping; fishbone diagrams; root cause analysis or pareto principle (p<0.001) and managing risk and improving patient safety (p<0.01, analysed using Kruskall-Wallis test). Using feedback received from participants we have refined the project and are working towards making it fully interprofessional at learner and faculty level. We have created a project web site to increase communication between participants and we have invested in increased facilitator training in QI and facilitation.

Conclusions: QI can be effectively taught using an experiential model of learning, which is supported by structured teaching sessions.

Take-home messages: This project has created a legacy of improvements within the Trust and improved QI knowledge and skills amongst Trust staff.

Foundation doctors do learn from generic skills teaching

Oliver J Corrado*, Matthew Martin, Chloé Stanway (The West Yorkshire Foundation School, Department of Medical Education, Leeds General Infirmary, Great George Street, Leeds LS1 3EX, United Kingdom)

Background: Many Foundation Schools introduced generic skills teaching for Foundation doctors as part of training. The West Yorkshire Foundation School runs a modular programme...
based on the syllabus and the GMC's "Good Medical Practice" and positively evaluated by trainees. We wanted to establish whether trainees actually learn from these sessions.

Summary of work: Multiple choice question papers were devised based on 4 generic skills modules (medical emergencies, patient safety and ethics, continuing development and professionalism). Foundation Year 1 doctors completed a paper before the teaching and a different paper after the teaching. Each module was held on 4 separate days and to avoid bias papers were reversed on the final day.

Summary of results: Scores for correctly answered questions significantly improved (p <0.01) after teaching for all first 3 modules (4th module not yet completed). This trend continued when papers were reversed on the last day. Modules 1, 2, 3 before teaching (mean +/- SE) 67 +/- 1.37, 64 +/- 1.78, 66 +/- 1.23; after teaching 78 +/- 0.86, 75 +/- 1.00, 77 +/- 1.08 respectively.

Conclusions: We have shown that Foundation Year 1 doctors' knowledge improves significantly from generic skills teaching.

Take-home messages: Generic skills teaching is a valuable source of new information.

9K4 Foundation training and the importance of out-of-hours experience

Jenny Brocklehurst*, Lynsey Goodwin*, Paul Baker (Royal Bolton Hospital, Education Centre, Minerva Road, Farnworth, Bolton BL4 0JR, United Kingdom)

Background: Foundation Training is a 2 year programme used throughout the UK for newly qualified doctors. We evaluated out-of-hours experience of foundation doctors during their medical and surgical jobs.

Summary of work: A questionnaire was completed by foundation doctors focussing on the quality and value of experience during out-of-hours shifts compared to normal working hours.

Summary of results: Rating the out-of-hours experience of the job, 61% of trainees rated it as very good, 33% fair and 6% poor compared to 31%, 38% and 31% respectively during normal working hours. On nights, 100% of trainees thought they made more decisions and managed patients independently compared to normal working hours. 94% were exposed to a wider range of surgical/medical problems, dealt with more acutely unwell patients and emergencies. 100% of trainees believed out-of-hours work was important and their experience would have been worse without it.

Conclusions: In conclusion, trainees found the quality of the out-of-hours work good and extremely valuable to their experience. A disproportionate amount of trainees' acute experience and decision making was completed during out-of-hours work. In an era of reduced out-of-hours working, education providers need to ensure adequate provision of experience during trainees' rostered hours.

Take-home messages: Out-of-hours work is extremely valuable to foundation trainees' experience.

9K5 The “extended role” of Facebook

S.Bajwa*, J.Maryosh, B.V.Prathibha (William Harvey Hospital, Kennington Road, Willesborough, Ashford TN24 0LZ, United Kingdom)

Background: Modernising Medical Careers (MMC) has changed the way junior doctors are recruited. This is especially so for the Foundation programme where juniors apply nationally. Thus, students can potentially move from the area of their medical school to a completely new one.

Summary of work: With this in mind, the Foundation year one doctors at the William Harvey Hospital started a facebook group during their final year of medical school, to identify and "virtually meet" their potential colleagues. This became very popular and what started as a social networking site soon became a discussion site for various issues and an important means of communication.
Summary of results: Due to its success, it was then modified and used the following year to encourage potential applicants to become members of the Facebook group and learn more about the hospital from current junior doctors. It is a closed group, and the moderator enforces and ensures standards. The site remains popular and serves the purpose well.

Conclusions: Changing trends and behaviour call for newer and more innovative ways of communication. With younger generations being more technologically adept and advanced, our channels of communication should follow suit, if we are to make an impact and attract good quality staff.

9L SHORT COMMUNICATIONS: Professionalism (2)

9L1 Peer and faculty assessment of leadership, communication, professionalism, and teamwork among pre-clinical medical students
Rachel D. Haver*, Darcy A. Reed (Mayo Clinic College of Medicine, 200 First Street SW, Rochester 55902, United States)

Background: Assessment of leadership, communication, professionalism and teamwork among pre-clinical medical students represents an important challenge. Yet, the first two years of medical school may be a critical time to inculcate fundamental principles within these four domains.

Summary of work: We implemented an observation-based assessment system at Mayo Clinic wherein faculty and peers rate students’ behaviors using 5-point scales (1= needs improvement, 3= meets expectations, 5= exceeds expectations). The assessments were developed using a scholarly approach involving feedback from faculty and students.

Summary of results: In 2007-2008, 6,979 observations (2784 by faculty and 4195 by peers) were recorded on 85 first and second year students. Students’ mean (SD) scores were: leadership 4.37 (.53), communication 4.29 (.27), professionalism 4.42 (.25), and teamwork 4.39 (.28). Scores from faculty were consistently lower than peers in all four domains (all p<0.001). First year students received higher mean teamwork scores from faculty and peers than second year students [4.47 (.24) vs. 4.31 (.30), p=.01].

Conclusions: Peers may be less discriminating than faculty in their assessments of fellow students. Further exploration of differences between faculty and peer ratings is needed.

Take-home messages: Peer and faculty assessments can provide meaningful information about leadership, communication, professionalism, and teamwork.

9L2 Promotions committees do not identify students who are subsequently sanctioned by State Medical Boards
Sally A Santen*, Emil Petrusa (Emory University School of Medicine, 648 Pierce Drive, Suite 452, Medical Education and Student Affairs, Atlanta, GA 30322, United States)

Background: Papadakis (1994) found that problematic behavior in medical school was associated with subsequent action by State Medical Boards (SMB). Promotions committees are responsible for determining which students are have acceptable academic performance and professional behavior to be promoted and graduate. The purpose of this study is to determine if the promotions committee identified the students who subsequently had disciplinary actions by SMB.

Summary of work: The formal actions of the promotions committees’ files from 1980 to 2000 were reviewed to determine if the students who had subsequent disciplinary actions had significant issues in medical school.

Summary of results: Of the graduates, 28 had disciplinary actions by SMB. 140 students had formal actions recommended. However, only 3 of the graduates with SMB disciplinary actions had formal actions by the promotions committees.

Conclusions: The majority of graduates who later have disciplinary actions by SMB, did not have promotions committee actions. The behavior in medical school is not so egregious as to create action by the promotions committees. Students who have actions by promotions committees, do not later have SMB disciplinary actions.
Take-home messages: Medical schools are responsible for graduating students of high academic standards and professional behavior, however graduates who have later significant lapses likely are not identified in medical school.

9L3 Students' views on peer evaluation and professionalism: “Getting away with it”
Gabrielle M. Finn*, Marina A. Sawdon (Durham University, School of Medicine and Health, Queen’s Campus, University Boulevard, Thornaby-on-Tees TS17 6BH, United Kingdom)
Background: This study describes how undergraduate medical students perceive professionalism and their views on peer assessment as a tool for measuring professionalism.
Summary of work: 12 undergraduate medical students participated in focus groups after completing a peer assessment. Focus groups were recorded and transcribed verbatim. Transcripts were coded using a grounded theory approach. This study has since been expanded to include Durham University's current cohort and the University of Liverpool students.
Summary of results: Two main themes emerged; students’ perceptions of how professionalism relates to them (subthemes were attributes, (ir)relevance to students and teaching & learning of professionalism) and views of the design of a peer assessment tool (subthemes were; online environment, eliminating anonymity, justifying choices and promoting reflection).
Conclusions: Students appear to know professionalism should be shown in an academic situation; however they feel that as students they should be able to ‘get away with it’. Thus, students regard professionalism as only relevant in a clinical context, and call for leniency in preclinical years. Students are accepting of peer assessment for measuring professionalism; preferring an online environment, with the opportunity to justify their decisions. Students report peer assessment as a driver for reflection on their own behaviour.
Take-home messages: Students view professionalism as irrelevant outside of the clinical environment.

9L4 Assessing polyprofessionalism in the pre-clinical phase: developing an online inventory to assess academic integrity
Madawa Chandratilake*, Sue Roff, Sean McAleer, John Gibson (Centre for Medical Education, University of Dundee, 484, Tay Park House, Perth Road, Dundee DD2 1LR, United Kingdom)
Background: The governing bodies of healthcare professionals in UK have recommended incorporating professionalism into undergraduate curricula. Most of the instruments developed for assessing different aspects of professionalism, however, neither examine consensus standards of professionalism in a given context nor possess acceptable cost-effectiveness and feasibility for large classes of > 150 students.
Summary of work: We aimed at developing and validating robust and cost-effective strategies for assessing PolyProfessionalism. The first strategy focuses on students’ Academic Integrity during their pre-clinical phase. The items to represent academic integrity and a response frame work were designed and developed based on research literature, by an expert panel.
Summary of results: The electronically deliverable and analysable online inventory consists of 41 items representing unprofessional behaviours which students observe during their academic work. For each item, students indicate: (i) whether it is wrong; (ii) do their fellow students do it; (iii) have they ever done it; (iv) would they ever do it; (v) what level of sanction would they recommend.
Conclusions: The Polyprofessionalism inventory I thus designed: makes respondents aware of different aspects of professionalism; assesses the consensus standards of professionalism in a context/ cohort; enables respondents to receive consensus feedback on their level of professionalism; permits tracking the changes of respondents’ professional behaviour along their training.
**9L5** Professionalism – the same answer, whichever way you ask the question

David C M Taylor* (University of Liverpool Medical School, School of Medical Education, Cedar House, Liverpool L69 3GE, United Kingdom)

**Background:** We have been studying professionalism in Liverpool for a number of years, with a view to developing an assessment and feedback system which is robust, valid and reliable. Like others, we have shown that there are several elements to professionalism.

**Summary of work:** We have used several techniques to categorise the elements which comprise professionalism. These included Q sorts and factor analysis, nominal/consensus group work to categorise the elements (with staff), and focus groups (with students) followed by coding analysis.

**Summary of results:** The Q-sort/factor analysis technique emphasised competence and personal qualities, but the subsequent, more discursive, methods highlighted the importance of competence, relationships and personal qualities. On the basis of this we have developed a professionalism inventory, which shows how the relative importance of each of the three elements varies as one progresses through one’s career.

**Conclusions:** Students in the early part of their undergraduate career value knowledge-based competence above all other measures. As people progress through their undergraduate and subsequent careers, personal qualities and relationships with others assume a much greater significance.

**Take-home messages:** Change and development are essential elements of professionalism and the inventory allows us to highlight areas for development at particular points of someone’s career.

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**9M SHORT COMMUNICATIONS:** The Student

**9M1** Do learning styles have an impact on interprofessional learning?

David Foreman* (Derby Hospitals NHS Foundation Trust, c/o Surgical Services 5th Floor, Derby City General Hospital, Uttoxeter Road, Derby DE22 3NE, United Kingdom)

**Background:** The ability to work together is a core component of professional practice. This therefore should be an equally core aspect of professional education. The learning styles or preferences of the different professional groups have rarely been taken into account when planning inter-professional learning interventions.

**Summary of work:** I explored the learning styles of pre-registration nursing and medical students, with particular regard to the task of creating meaningful inter-professional learning interventions. I gave an ‘ASSIST’ (Entwistle 1986) questionnaire to 186 students, and analysed the results to compare the two groups.

**Summary of results:** Results demonstrate a similarity between both groups. Nurses showed that they used deep approaches to study more than medical students in terms of ‘seeking meaning,’ relating ideas and use of evidence’ however, medical students had a keener ‘interest in ideas’. Both groups highlighted a necessity to organise their study and to apply strategy to it. Interestingly, the medical students preferred a teaching style that transmitted information compared with the nurses who preferred a style of teaching that supports understanding.

**Conclusions:** There are considerable similarities between the learning styles of pre-registration nursing and medical students.

**Take-home messages:** Inter-professional learning is an increasingly important component of today’s healthcare curriculum, and the shared learning styles of the students should support this process if delivered in an appropriate manner.
9M2 Two aspects of a deep approach: understanding and critical evaluation – what is valued by medical students?
Juha Nieminen*, Annamari Heikikä, Sari Lindblom-Yläne, Kirsti Lonka (Research and Development Unit for Medical Education, P.O. Box 63, University of Helsinki, 00140 Helsinki, Finland)

Background: The aim of the present study was to compare the roles of two aspects of a deep approach to learning – understanding and the critical evaluation of evidence - between medical and non-medical students.

Summary of work: Medical and non-medical students (N=1659) filled in a questionnaire on approaches to learning. The scales measured the importance of 1) understanding and 2) critical evaluation of evidence in studying. The application of these aspects in the context of studying for examinations was also measured. The responses of the two student groups were compared and correlations with course grades were calculated.

Summary of results: Medical students found understanding to be more important than the critical evaluation of evidence. Critical evaluation was valued less by medical students than by students of other fields. Intention to apply understanding while studying for examinations was positively correlated with grades.

Conclusions: Aiming for understanding appears more important for medical students than critical evaluation of evidence. Intention to understand is also profitable in preparing for examinations.

Take-home messages: Both aspects of a deep approach should be taken into account in research on medical education and in instruction. The question remains, however, whether critical evaluation should be stressed even more.

9M3 Impulsive response style in undergraduate medical students: implications for learning and future professional practice
John Sandars*, Matt Homer (Medical Education Unit, Room 7.09, Level 7, University of Leeds, Leeds LS2 9NL, United Kingdom)

Background: All individuals respond to a wide variety of situations, both educational and clinical, with a preferred style. This style has a range from impulsive through reflective to excessively preoccupied. Previous research in several contexts has shown that high impulsivity is associated with reduced academic achievement and impaired decision making and performance. The impulsive response style of a population of undergraduate of medical students has not been previously studied.

Summary of work: Survey of 276 first and second year undergraduate medical students using the validated Reflective Activity Scale (RAS).

Summary of results: The mean RAS scores for the population profile were: Reflection 55.40, Action (Impulsivity) 23.40, Information Gathering 24.07 and Over-absorption (Excessively preoccupied) 17.17.

Conclusions: The RAS can be used to identify students with an impulsive response style that is greater than the mean. This has implications for academic achievement and future clinical performance. The presentation will discuss the future recommendations for research, including the further validation of the RAS in the medical education context and its association with academic performance and professional behaviour.

Take-home messages: Early identification of the impulsive response style of undergraduate medical students has the potential to improve academic and future clinical performance.

9M4 Encouraging students to be the best possible future educators: introducing the DATE programme
Jon Fuller*, Viv Cook (Barts and the London School of Medicine and Dentistry, Centre for Medical Education, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)

Background: Doctors as Teachers and Educators (DATE) is an innovative 2-day programme taken by all our final year MB BS undergraduates. Although largely practical, it offers an introduction to educational theory and prepares students for their future teaching role as junior doctors. The emphasis of the programme is on active learning. Even during the
plenaries, the students are involved in ‘unpacking’ their own learning experiences, giving feedback, practising teaching clinical skills as well as engaging with concepts such as constructivism and educational climate.

**Summary of work:** Introduced in 2007, the programme has now been undertaken by over 900 graduates. In its inaugural year, we used a questionnaire to elicit views from the entire student cohort (>300). More recently we have used Nominal Group Technique with selected groups.

**Summary of results:** Our evaluations have shown us that students value the opportunity to learn about and practise teaching skills. The key challenge for organisers is in achieving the right balance of theory and practice and accepting that students’ receptiveness to teaching programmes will vary. Both students and staff find DATE fun!

**Take-home messages:** It is logistically possible to put a large year cohort through a 2-day programme on teaching and students appreciate the relevance to their future careers.

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**9M5 Course week arranged by students**

Torstein Torgan*, Knut Eirik Helthe* (Norwegian University of Science and Technology [NTNU], Faculty of Medicine, Det medisinske fakultet Olav Kyrres street 9 Medisinsk teknisk forskningscenter, Trondheim 7489, Norway)

**Background:** Over the last eleven years, a course week has been offered annually to students. The aim has been to inspire learning, and improve teaching. Since 2006, a student elected committee has taken over the administration of the week and independently recruited professors as course holders. The course week is made by students for students.

**Summary of work:** The students choose from a list of courses. Attendance is obligatory. Topics are generally outside the regular curriculum and cover a wide range of medical topics. Medical students can also attend surgical operations. In addition, students can participate in the daily routines at the wards, and they may also attend practitioners in alternative medicine.

**Summary of results:** Evaluations were collected about the individual courses and the week as a whole. The individual reports were sent to the professors as feedback. Following the student takeover, the general evaluations have changed and are now solely positive.

**Conclusions:** Student involvement in parts of the curriculum has major advantages.

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**9N SHORT COMMUNICATIONS: e-Learning: Teaching online and sharing resources**

**9N1 The way of cooperation – from sharing of educational webs to the wiki**

Štuka Č*, Štípek S, Vejražka M (1st Medical Faculty Charles University in Prague, Katerinska 32, Prague 2 CZ-12108, Czech Republic)

**Background:** Educational network of Medical faculties (MEFANET) in the Czech and Slovak Republics represents a new strategy for the construction of educational network. It supports and facilitates the provision of a sufficient quantity of electronic learning objects covering the educational curricula of each member school.

**Summary of work:** Different approaches for educational learning objects sharing were tested. Based on our experience from Medical school in Prague and Mefanet network the storage concept has successively moved from educational webs, through digital repositories to open, participating technologies Web 2.0 (wiki repository).

**Summary of results:** Most of the materials are collected (and shared) in web portals with one common gateway. We have tested the Wiki repository as a collaborative approach for collecting and sharing educational materials. The amount of materials has been growing satisfactorily.

**Conclusions:** Web portal offers simple and inexpensive way to collect and share educational sources. Nevertheless the Wiki seems to be a very dynamic way for creating and keeping fresh complex text oriented educational resources.
Take-home messages: Czech and Slovak medical schools share their educational materials in an educational network MEFANET. Wiki technology is one of most perspective way for creation and sharing those materials.

9N2 How to teach online – acquiring new skills
Milos Bajetic*, Danijela Scepanovic, Bojan Lazarevic, Jelena Kostic, Jelena Marinkovic (School of Medicine, Department for Histology and Embryology "A.Dj. Kostic", Visegradska 26, Belgrade 11000, Serbia)

Background: Although qualified in their particular field, many medical teachers have no education in the methods of instruction or facilitation. Those that have such training often do not have any additional training or experience specifically in the field of distance or online education.

Summary of work: In order to improve basic ICT and pedagogical skills of medical teachers at Belgrade University School of Medicine we developed a five-week (40 hours) blended course "Introduction to e-Learning and Learning Management Systems". Main objectives were to raise awareness in integrating the IC Technologies within the traditional existing curriculum, to introduce the basic pedagogical principles of the online learning and to enhance the use of LMS in the teaching process.

Summary of results: After the completion of the blended course, medical teachers acquired basic technical and pedagogical knowledge and skills on eLearning and LMS. They were able to start to develop their online course. During 2008, seven new blended courses were developed at Belgrade School of Medicine.

Conclusions: Proper integration and use of ICT in the existing medical curriculum can improve quality of teaching and students’ achievements. Because of that continuing development of medical teachers pedagogical and ICT skills are of great importance.

Take-home messages: eLearning is not about technology. It is about pedagogy.

9N3 Pedagogically-informed approaches to supporting clinical staff development in e-learning – initial observations and lessons learned
Kirsten Dalrymple*, Maria Toro-Troconis, David Riley (Imperial College Centre for Educational Development, Seminar and Learning Centre - Mezzanine, Sherfield Building, Exhibition Road, South Kensington, London SW7 2AZ, United Kingdom)

Background: E-learning and multi-media tools have the potential to enhance medical education. Embedding these resources into the curriculum represents a challenge as clinical teachers often lack the time and background to develop and use these resources effectively.

Summary of work: Imperial College's Undergraduate Medical School (UGM) and Centre for Educational Development (CED) have a long-standing relationship working together to develop teacher skills. Developmental opportunities include: stand-alone workshops on using e-learning to complement clinical teaching; Certificate and Master's level programmes on teaching and learning; and small, competitive grant schemes on teaching development/research (TDG/TRG). These development opportunities are organized around inculcating the use of pedagogically sound principles in teaching and learning practices.

Summary of results: This work focuses on initial observations suggesting that clinical staff take different approaches to personal development around e-learning. An example of how a TDG from CED supported the development of an Anatomy online resource for the Graduate Entry Programme will be discussed. Future research to identify enabling and constraining factors around staff development and e-learning implementation is being planned.

Conclusions: The existence of a range of developmental opportunities can provide staff with the skills and motivation to create e-learning materials. This, in turn, eases the development and implementation of online learning across the curriculum.
Computer-based animations and static graphics as aids in learning the physiology of bladder filling and emptying: a randomized controlled trial

Renuka Tunuguntla1,2, Anita Bagiri2, Bernard A. Roed1,2,3, Joseph Ouslander4 and Jorge G. Ruiz1,2,3
(1Geriatric Research, Education, and Clinical Center (GRECC), Miami VA Healthcare System, Miami, 2University of Miami Miller School of Medicine, Miami, 3Stein Gerontological Institute, Miami, 4Florida Atlantic University, Boca Raton, Florida, United States)

**Background:** Animations may intuitively seem more effective than static graphics for teaching, but evidence for the superiority of computer-based animations is contradictory. We investigated animations compared with static graphics as aids in learning the physiology of bladder emptying and filling.

**Summary of work:** We randomized 29 first-year medical students into three groups: control, system-paced animations, and static graphics. Immediately after instruction, students completed a retention- and-transfer test about the physiology of bladder filling and emptying.

**Summary of results:** Using ANOVA, the difference among the three groups was significant for both retention and transfer scores ($F = 10.862, p < .0001$ and $F = 7.903, p = .002$, respectively). Post hoc analysis using Tukey's HSD revealed no difference between the animation and static groups for retention and transfer. However, the animation intervention group scored significantly higher than the nonintervention group for both retention and transfer ($p = .001$ and $p = .003$, respectively). Additionally, the static intervention group scored significantly higher than the nonintervention group for both retention and transfer ($p = .001$ and $p = .003$, respectively).

**Conclusions:** We found no significant differences between the animation and static groups. Both intervention groups scored better than the control.

**Take-home messages:** Animations may not always outperform static graphics for teaching physiological phenomena.

Meducation.net: Peer to peer sharing of medical education resources online

Alastair Buick* (Meducation.net the medical education network, 70 Coast Road, West Mersea, Colchester CO5 8LS, United Kingdom)

**Background:** Student generated medical education resources are found to be a valuable resource when shared with peers.

**Summary of work:** An innovative open access website (www.meducation.net) was designed and developed allowing medical students and doctors to share educational resources such as videos, audio podcasts and PowerPoint presentations with others. A student-generated video was produced and uploaded to the site. A questionnaire was produced to assess the how useful this resource was and attitudes towards learning from student generated material.

**Summary of results:** Twenty-two students completed the questionnaire. Results showed strong agreement that educational videos are a useful resource. Most students ‘strongly agreed’ that there should be more video animations to learn from (72.2%) and that having a website which allowed them to share student generated material was of value (68.2%). The majority of students ‘disagreed’ that student generated material raised concerns about authenticity (45.5%) and many students agreed or strongly agreed that they had something of value that could help others (63.6%).

**Conclusions:** Allowing students to share self generated material with peers is a valuable resource with few concerns regarding authenticity and many reported having valuable material to share.

**Take-home messages:** Further development of this online model and investigation is supported.
9O WORKSHOP
Generalizability Theory
Geoff Norman (McMaster University Medical School, Hamilton, Ontario, Canada)

Background: Generalizability Theory (Cronbach et al., 1972) is an extension of classical theories of reliability that explicitly deals with multiple sources of error. Instead of thinking about separate studies of inter-rater reliability, test-retest reliability and internal consistency, the G theorist begins by identifying the main potential sources of error in any observation, then designing a single multi-factor study that captures each variance component. These multiple estimates or error variance are then used to compute G coefficients corresponding to different kinds of reliability. Finally, by conducting a “D study” which looks at the impact of multiple observations (e.g. 3 raters, 4 occasions, 2 cases), the investigator can optimize the overall reliability for a set amount of testing time.

Content and format: This workshop will take a conceptual approach to understanding, beginning with classical test theory and then building on it conceptually to explore the key elements of G theory. As an added feature, participants will be given a CD-ROM containing a freeware program that does G theory analyses (urGENOVA, R.L. Brennan) and an interactive shell, (G String, R.Bloch). Some time will be spent on the operation of these programs.

Level of workshop: Intermediate. Participants should have some knowledge of statistics, in particular analysis of variance, if only at the conceptual level. No knowledge of psychometrics is necessary.

9P WORKSHOP
Research in teaching and learning: transforming ideas into action
Deesh Chada*, Patricia K. Kokotailo* (Kings College London and University of Wisconsin School of Medicine and Public Health, King’s Learning Institute, Room 5.19, Waterloo Bridge Wing, Franklin-Wilkins Bldg., Waterloo Road, London SE1 9NN, United Kingdom)

Background: As educators, questions are constantly raised in our minds around suitable modes of assessment, student engagement, motivation factors, etc. Answers, however, are less forthcoming if we are unable to engage with educational literature, conduct educational research and subsequently shift our educational perspectives. The aim of this workshop is to foster a critical understanding of the appropriateness of research methodologies and methods for investigating pedagogy within tertiary education.

Intended outcomes: The outcomes of this workshop would be for participants to: 1. Understand the nature of pedagogic research; 2. Develop the ability to critically analyse the nature and significance of pedagogic research; 3. Identify their own learning and development needs with respect to pedagogic research at tertiary level; 4. Begin the implementation of medical education research.

Structure: In a highly interactive session, the participants will discuss distinctive features of educational research and examine critically different writing styles and techniques within educational literature. Participants will integrate research from their own disciplines with broader methodological approaches of educational research, and discuss possible research strategies, such as action research. Participants will develop their own research questions to begin to implement strategies.

Intended audience: Medical practitioners who teach and have an interest in conducting educational research.

Level of workshop: Beginners

9Q WORKSHOP
Formulating and writing learning outcomes to facilitate student learning and for strategic course planning (Part 2 – see 8Q for abstract)
Matthew CE Gwee*, Dujeepa Samarasekera
Workshop 9R

The wealth in silence – communication beyond conversation
Amy Flanagan Risdal* (Uniformed Services University, 4301 Jones Bridge Road, Bethesda, MD 20814, United States)

Background: Can you read someone's thoughts just by looking at their facial expressions? Common opinion would say No, and common opinion is correct ... to a point. While specific thoughts can't be decoded by watching facial expressions, specific emotions play across the face constantly. Dr. Paul Ekman began researching facial expressions in the late 1960s, and through years of work created the Micro Expression Training Tool (METT). This tool has been proven to teach people with no previous experience how to recognize very brief (less than 1/4 second) facial expressions—a powerful tool that provides detailed insight into what a person may be feeling, even if he or she is unaware of the emotion.

Intended outcomes: Through individual, hands-on training, participants will learn: (1) The seven emotions with universally recognized facial expressions (Happiness, Sadness, Fear, Anger, Disgust, Contempt, and Surprise); (2) Micro Expressions (those that appear on the face for 1/4 of a second or less); and will practice their new skills by watching video clips and receiving immediate feedback.

Structure: 10 minutes: Introduction; 60 minutes: Training; 20 minutes: Applications and Discussion.

Intended audience: Those who are interested in enhancing interpersonal skills training for medical students, residents and beyond, or simply augmenting their own interpersonal skills.

Level of workshop: All

Workshop 9S

The professionalism of teaching
Randy Barker* (Johns Hopkins University School of Medicine, 5000 Springlake Way, Baltimore 21212, United States)

Background: The Professionalism of Teaching (POT) ... how clinical tutors practice professionalism in their relationships with trainees ... is an important component of professionalism in medicine. Much of the POT is learned and practiced through the tutor-trainee interactions that occur in the “hidden” or “informal” curriculum. This is the curriculum in which trainees directly experience clinical tutors’ communication, day to day, in the context of patient care. Both intrapersonal reflection and transparency are important in the POT.

Intended outcomes: Participants will be able to describe: (1) A model of the Professionalism of Teaching; (2) How the POT is learned/practiced through tutor-trainee interactions in the hidden/informal curriculum; (3) Their own strengths and potentials as practitioners of the POT.

Structure: (2) Introduction to Workshop: Core competencies for the Professionalism of Teaching; Illustrative vignettes from the hidden/informal curriculum. (2) Interactive reflection on personal experiences with the POT: Orientation; Pairs: Share reflections on challenging personal experiences with POT; Groups of four: Share themes from personal reflections; Whole group: Reach concensus on ways to enhance the learning and practice of the Professionalism of Teaching. (3) Closure: Each participant: Write down one or more plans for enhancing your Professionalism of Teaching.

Intended audience: Clinical tutors

Level of workshop: Advanced

Workshop 9T

Getting started in medical education scholarship: a 3-step approach
David A. Cook*, Thomas J. Beckman* (Mayo Clinic College of Medicine, Rochester, MN, USA)

Content and structure: In this highly interactive workshop participants will explore a scholarly approach to the design and evaluation of educational projects and activities. First we will review the importance of educational scholarship, and identify aspects of medical education practice that require more complete understanding. We will then discuss a three-step approach to planning scholarly projects: 1) Identifying the scholarly question; 2) Using appropriate methods; and 3) Selecting appropriate outcomes. We will conclude with a discussion of challenges facing education
scholars, and review practical ways to overcome these challenges. We will emphasize throughout that the numerous questions, methods, and outcomes available for a given project will each have their own strengths and weaknesses. Rather than prescribing a specific, algorithmic approach we will discuss frameworks to guide choices most appropriate to individual circumstances.

Objectives: At the completion of this workshop, participants will be able to: 1. Explain why scholarship and research in medical education are important, and identify several topics worthy of further study; 2. Describe essential elements of scholarship; 3. Refine a study question by developing focused problem statements and statements of study intent; 4. Select appropriate study designs and methods to minimize threats to study validity; 5. Select outcomes appropriate to study purposes, and distinguish outcomes, measures, and instruments; 6. Identify and address barriers to conducting education scholarship in their home institution.

Who should attend/level of workshop: No prior knowledge required. This workshop is targeted to beginning and intermediate levels - those just starting out, or with a moderate amount of experience with education scholarship.

9U WORKSHOP

How can teachers encourage performance improvement after multisource feedback?
Karlijn Overeem* (University of Nijmegen, Netherlands), Erik Driessen* (Maastricht University, Netherlands), Cees van der Vleuten* (Maastricht University, Netherlands), Val Wass* (Manchester University, UK)

One of the methods commonly used to assess students and doctors in practice is multisource feedback (MSF). MSF implies the collection of feedback on various tasks from 1) peers with knowledge of a similar scope of practice, 2) co-workers with whom students and doctors collaborate and 3) the end users of health care: patients. The premise of MSF is performance improvement by providing feedback that guides professional development and self-directed learning. However, research consistently shows that performance improvement does not automatically take place: one third of MSF-recipients report not to make a change in their behaviour and of those who intend to improve in practice only a small part succeeds. Literature suggests, however, that performance improvement can be enhanced by a mentor who delivers the feedback and by stimulating MSF-recipients to reflect on feedback.

After a short introduction, participants will have the opportunity to practice with delivering multisource feedback and encouraging reflection. This workshop will deal with techniques that clinical teachers can use to heighten the chance of real performance improvement. Several techniques are exercised such as: contrasting and collating information, posing reflective questions and goal setting. Barriers to the use of MSF and performance improvement in practice will be discussed, and teaching tips and background information will be shared.

9V WORKSHOP

Strategies for high impact faculty development and continuing professional development courses
Jocelyn Lockyer*, Heather Armson* (University of Calgary, Continuing Medical Education and Professional Development, 3330 Hospital Drive NW, Calgary Alberta Canada T2N 0L1, Canada)

Background: Short courses (3 hours – 1 day) for faculty development (FD) and continuing professional development (CPD) are intended to improve practice. Few courses demonstrate quantifiable outcomes. Research and theory suggests curriculum designers can be more effective if they conduct needs assessments; engage learners through case and problem based learning; employ reflective exercises (e.g., ask learners to complete end of course commitment/agreements to change), and provide experiential learning opportunities. This workshop will describe the research and theory about short course effectiveness, engage participants in discussions about methods that will effect and measure outcomes, and create a list of techniques that participants can adopt in their short course work to improve participant knowledge, skills, attitudes, behavior, and outcomes.

Intended outcomes: Participants will develop a structured approach to their CPD/FD curriculum design and evaluation work in this experiential workshop format.

Structure: 10 minutes: needs assessment; 15 minutes: short presentation summarizing literature and theory; 20 minutes: small group or triad work to discuss approaches participants have used
to achieve and measure impact (cases will be provided as necessary to facilitate discussion); 30 minutes: feedback to large group to create a list of ideas that participants can use to design and evaluate short courses; 10 minutes: verbal and written commitment to change exercise; 5 minutes: summary of key learnings.

**Intended audience:** CPD and FD designers, teachers and evaluators

**Level of workshop:** Intermediate

### 9W WORKSHOP

**Writing clinical communication skills scenarios for simulation patient consultations in medical education - a creative approach**

Helen Timmins* (University of Birmingham, Primary Care Clinical Sciences Building, Edgbaston, Birmingham B15 2TT, United Kingdom)

**Background:** Doctor/Patient simulated consultations are used widely in the teaching and assessing of communication skills but what information do simulated patients actually need in their scenario brief?

**Intended outcomes:** Toolkit of techniques and ideas to use in the writing of simulated patient scenarios.

**Structure:** 90 minute workshop exploring creative writing and drama techniques to aid and enrich simulated patient scenario creation. Techniques used to include hot seating (interviewing a person improvising in role as a patient/relative/colleague), corporate role creation (improvising in role as people in the life of a patient), circle of consequence (identifying people affected by one patients particular condition and circumstances), still image (frozen real life images of the patient’s world which gives some insight into their condition) and thought tracking (tapping into the minds of the people in the still image to reveal how they’re thinking and feeling).

**Intended audience:** Medical educators involved in communication skills teaching and assessment using simulated patients.

**Level of workshop:** Beginners

### 9X POSTERS: Interprofessional education

#### 9X1 Evaluation of medical students' understanding of teamwork and involvement with healthcare professionals in a UK district general hospital during their second year clinical introductory attachment

Ramawad Soobrah*, Anand Patel, Tawfiq Korim, Anup Jethwa, Joan Pitkin (Northwick Park Hospital, Watford Road, Harrow, Middlesex HA1 3UJ, United Kingdom)

#### 9X2 Multiprofessional education and retention of knowledge

Gallareta FWM*, Grechi TH, Ferreira JTL, Felicio CM, Anselmo-Lima WT, Rodrigues MLV (Av. Bandeirantes, 3900, Medical School of Ribeirão Preto, University of São Paulo, Campus USP, Ribeirão Preto 14049-900, Brazil)

#### 9X3 The doctor and nurse as teacher: an inter-professional student selected component

Fiona Muir*, Sally Bradley, Isabella McLafferty (Tayside Centre for General Practice, University of Dundee, The Mackenzie Building, Kirsty Semple Way, Dundee DD2 4BF, United Kingdom)

#### 9X4 Improving the design of interprofessional education workshops to increase collaboration

Catherine Hii-Yen Yu* (Keenan Research Centre in the Li Ka Shing Knowledge Institute of St. Michael's Hospital, University of Toronto, 61 Queen Street East, Toronto M5C 2T2, Canada)

#### 9X5 Collaborating across borders: building bridges between interprofessional education and practice through continuing education in an academic cancer centre

E Szumacher**, R Barker**, M Woo**, J Cocogni**, S Ali**, A Kiss**, A Arlene Court** (**Department of Radiation Oncology; **Department of Radiation Therapy; **Department of Radiation Physics; **Department of Research Design and Biostatistics, Sunnybrook Health Sciences Centre, Toronto M4N3M5, Canada)
‘Today we were equals’: an evaluation of practice-based interprofessional peer-learning involving medical and midwifery students
Celia Woolf*, Adele Hamilton* (Barts and The London School of Medicine & Dentistry, QMUL and City University London, Centre for Medical Education Room 2:10, Old Medical College Building, Turner St, London E1 2AD, United Kingdom)

Educational needs for Canadian allied health and rehabilitation professionals in an interprofessional world
Brenda Gamble* (Faculty of Health Sciences, University of Ontario Institute of Technology, 2000 Simcoe Street North, Oshawa, ON1H 7K4, Canada)

Online learning to enhance faculty development for interprofessional education
Ivan Silver*, Lindsay Baker, Scott Reeves (Centre for Faculty Development, University of Toronto at St. Michael’s Hospital, 30 Bond Street, Toronto M5B 1W8, Canada)

Patients as educators: a model for interprofessional workshops in the community
Angela Towle*, William Godolphin, Community Partnerships for Health Education Advisory Board (College of Health Disciplines, University of British Columbia, 400 - 2194 Health Sciences Mall, Vancouver V6T 1Z3, Canada)

Continuous facilitator (tutor) training: a novel approach to improving PBL facilitation skills
John Tegzes* (College of Veterinary Medicine, Western University of Health Sciences, 309 E. 2nd St., Pomona, California 91766, United States)

Training undergraduate students becoming competent collaborative health professionals
A Boucher*, P Lebel, MC Vanier, H Lefebvre, PY Thériault, L St-Denis, R Ratelle, LG Ste-Marie, N Caire Fon, C Huot (Université de Montréal, 660 Dunlop, Montreal H2V2W4, Canada)

Learning on a nursing attachment for undergraduate medical students in paediatrics
Ashley Reece* (Dept of Paediatrics, Watford General Hospital, Vicarage Road, Watford, Hertfordshire WD18 0HB, United Kingdom)

POSTERS: Communication skills

Assessing shared decision making in medical students: comparing content based and process based mark sheets
Nawazish Ahmed*, Andrew Flett (Centre for Medical Education, Institute of Health Sciences Education, Barts and The London School of Medicine and Dentistry, Queen Mary, University of London, Room 210, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)

The effective use of questions in an educational learning situation
GV Boswell*, L Allery (University of Cardiff, School of Postgraduate Medicine, Heath Park, Cardiff CF14 4YS, United Kingdom)

Giving written feedback in workplaces: what do mentors mainly focus on of students’ clinical experience?
Visioli Sonia*, Oldani Silvia, Spinelli Antonino, Licia Montagna, Montorsi Marco, Roncalli Massimo, Zannini Lucia (University of Milan, School of Medicine; Humanitas Clinical Institute; via Manzoni 52, Rozzano, Milan 20089, Italy)

The cost of communication-skill practice in skills lab
Kanokkorn Sawasdichai*, Kullawan Chalcharoenpong (Prapokklao Medical Education Center, Prapokklao Hospital, 38 Leab-neon Road, Tumbol Watmai, Muang District, Chanthaburi 22000, Thailand)
9Y5 Communication of the self management approach to treatment of chronic pain in a simulated consultation: feasibility for research in practice and implications for teaching
Amy Spatz, Farzana Virani* (Centre for Medical Education, Institute of Health Sciences, Barts and The London School of Medicine and Dentistry, Room 210, Garrod Building, Tumer Street, Whitechapel, London E1 2AD, United Kingdom)

9Y6 Does an intensive intervention for students showing poor clinical communication have a positive behavioural influence in the short and medium term?
A Collinson*, A Laidlaw, G Humphris, (University of St. Andrews, Bute Medical School, Westburn Lane, St. Andrews KY16 9TS, United Kingdom)

9Y7 360 degree evaluation of the interpersonal and communication skills of family medicine residents
Kai-Kuen Leung*, Wei-Dean Wang [National Taiwan University College of Medicine, Department of Family Medicine, No. 7, Chung-Shan South Road, Taipei 100, Taiwan]

9Y8 The effects of role playing in training counseling skills for IUD clients
F. Erfanian*, T. Khaedizadeh, N. Khaadem, M. Khoje Dalooyi [School of Nursing and Midwifery, Mashhad University of Medical Sciences, Montasariyeh hospital, Mashhad 9137913199, Iran]

9Y9 Formative teaching in the pediatric ED
Schwartz, S.A.*, Fitzpatrick, E.A., O’Connell, C. (IWK Health Centre, 5850 University Avenue, PO Box 9700, Halifax, Nova Scotia B3K 6R8, Canada)

9Y10 Enhancing medical students' awareness and skills in group working
Anne-Marie Feeley*, Birgit Fruchtstofer, Tim Ratafay, Emma Esquillant, Madhu Chittar, Paul Gazzani, Liz McEvoy, Jamie Roeback, Iza M. Satti, Gill Grimshaw (Warwick Medical School, Medical Teaching Centre, University of Warwick, Coventry CV4 7AL, United Kingdom)

9Y11 Training OR-related communicative skills combining e-learning with simulation based learning
Michael Henninger, Eva Amann*, Joachim Koppenberg (University of Education Weingarten, Leibnizstr. 3, Weingarten 88250, Germany)

9Y12 Analyses of communication-skills in OSCE for pharmaceutical students using Roter interaction analysis system (RIAS)
Yoshie Kubota*, Yoshitaka Yano, Kaori Takada, Susumu Seki, Yoko Maeda, Mio Sakuma, Takeshi Mimmoto, Akihito Akaike, Atsushi Hiraide* (Center for Medical Education, Kyoto University Graduate School of Medicine, Konoe-cho, Yoshida, Sakyo-ku, Kyoto 606-8501, Japan)

9Z POSTERS: e-Learning: Postgraduate case studies and virtual patients

9Z1 Child protection in practice
Neela Shabde*, Mike Davis, Kate Denning, Sue Wieteska (Advanced Life Support Group, 29-31 Ellernmore Street, Swinton, Manchester M27 0LA, United Kingdom)

9Z2 Developing academic e-communities among postgraduate student populations: facilitating on-line peer-interaction and student-led support
Deborah Biggerstaff*, Janice Koistinen, Rebecca Putz (University of Warwick, Warwick Medical School, Coventry Warwickshire CV4 7AL, United Kingdom)

9Z3 Improving falls-risk screening for older patients in residency outpatient clinics
Eric S. Holmboe*, Lisa Conforti, Lorna Lynn, Brian Hess (American Board of Internal Medicine, Suite 1700, 510 Walnut Street, Philadelphia 19106, United States)

9Z4 E-learning induction for junior doctors - clear benefits
A. Cracknell, C. Dickinson, M. Ward, J. James, P. Belfield* (Department of Medical Education, Medical Directorate, Leeds Teaching Hospitals, 2nd Floor Trust HQ, St James’s University Hospital, Beckett Street, Leeds LS9 7TF, United Kingdom)
925 Development and implementation of a Virtual Masters Nutrenvigen-G+D Factors Program: pioneer issues in your area in Spain
López-Robles JC*, Pasqual-Ochando H, Martín-Bautista E, Campoy C, Molina-Font JA (Department of Pediatrics, University of Granada, Avda. de Puliulas 18, 1º-B, Granada 18012, Spain)

926 Obstacles for e-Learning in web-based radiation protection training course
Taina Auuti, Ulla Antiiltä* (Finnish Medical Association (FMA), PO Box 49, Helsinki FI-00301, Finland)

927 IMAGE – Creating a blended-learning curriculum for European diabetes type 2 prevention managers
D Tolks*, V Kopp, S Puhl, P Kronstein, MR Fischer*, on behalf of the IMAGE study group (Private University Witten-Herdecke, Institute for Teaching and Educational Research In Health Science, Alfred-Herrhausen-Str. 50, Witten 58448, Germany)

928 Prescribing information to patients to improve treatment outcome
Pierre Raîche*, Claude Guimond (Federation of General Practitioners of Québec, 1000, 1440 Sainte-Catherine Ouest, Montréal H3G 1R8, Canada)

929 Advanced Paediatric Life Support: implementation of blended learning programme
Mike Davis*, Kate Denning, Sue Wieteska (Advanced Life Support Group, 29-31 Ellesmere Street, Swinton, Manchester M27 0LA, United Kingdom)

930 Evaluation of an on line training course in depression for family doctors and medical students: pilot study
Pena-Andreu JM*, Carrera M, Corederia A, Barbancho MA, Santos I, Blanco B, Sanguinio T, Monguet JM, Autonell J (Malaga University, School Of Medicine, S.A.S., Boulevar Louis Pasteur 5/N Campus Teatinos, Malaga 29071, Spain)

931 Experiences of user benefits from three E-learning programmes
Benedikte Marie Kaalund*, Thomas K. Jensen*, Helle Nielsen* (Danish Medical Association, Education Department, Kristianiagade 12, Copenhagen Ø 2100, Denmark)

932 Online distance learning for paediatricians
A. J. Lowe*, Richard Newton (BPNA and Webeducate, 7 The Matlings, Cerne Abbas, Dorchester DT2 7JE, United Kingdom)

933 What does repurposing of virtual patients mean in practice?
Andrzej A. Kononowicz*, Monika Guratowska1, Inga Hege1, Zofia Mazurek1, Aleksandra J. Stacho1*1 (1Department of Bioinformatics and Telemedicine, Jagiellonian University Medical College, Kopernika 7a, Kraków, Poland; 2Medical Education Unit, Medizinische Klinik-Innenstadt, Ludwig-Maximilians-University, Ziemssenstr. 1, Munich 80336, Germany)

934 Creating and exchanging exams using standard conformant virtual patients
Hege I*, Adler M, Kononowicz AA, Föhrer M, Kühne F (Klinikum der Universität München, Medizinische Klinik - Innenaead, Medical Didactic Unit, Ziemssenstr. 1, Muenchen 80336, Germany)

935 The use of virtual patients to prepare for paediatric skills lab training: results of a pilot project
Ronny Lehmann*, Hans Martin Bosse, Elisabeth Kruppa, Christoph Nikendei, Burkhard Tönshoff, Sören Huwendiek (Childrens Hospital Heidelberg, Im Neuenheimer Feld 153, Heidelberg 69120, Germany)

936 Integration of clinical decision trees and patient videos: A student-created e-learning resource for primary care
Emily Adams*, Caroline Rodgers*, Richard Harrington, Vivien Sieber, Damion Young (University of Oxford, Medical School Office, John Radcliffe Hospital, Oxford OX3 9DU, United Kingdom)

937 How efficient is it to repurpose Virtual Patients?
Sophie Vaughan*, Chara Balasubramaniam, Steven Malkowski, Jonathan Round, Soeren Huwendiek, Benjamin Hansbeck, Terry Poulton (Centre for Medical and Healthcare Education, St George’s, University of London, Cranmer Terrace, Tolting, London SW17 0RE, United Kingdom)
9Z18  An electronic tool for hybrid case-based learning applied to undergraduate students
Marta Silva Menezes*, Marília Menezes Gusmão, Maria de Lourdes Lima, Ieda Barbosa Aleluia, Ana Verônica Batista, Rosalita Gusmão, Ana Tereza Gomes, Pedro Flávio Motta, Mário Rocha (Escola Bahiana de Medicina e Saúde Pública, Rua Frei Henrique, 08, Nazaré, Salvador - BA CEP: 40.050-420, Brazil)

9Z19  Developing pattern recognition skills
Kumta Shekhar*, Gabriel Yip, CM Yu, Alex Yung (The Chinese University of Hong Kong, Faculty of Medicine, The Teaching and Learning Resource Centre, Block A, 1st Floor, Prince of Wales Hospital, Shatin, HK SAR, Hong Kong)

9AA POSTERS: Staff development

9AA1  Basic didactical training of 20 hrs for clinical teachers does not improve students’ test results within a highly structured emergency medicine course
Breckwoldt J*, Svensson J, Brack A (Department of anaesthesiology and perioperative intensive care medicine, Charité-Berlin, Benjamin Franklin Medical Center, Hindenburgdamm 30, Berlin D-12200, Germany)

9AA2  Inclusion of the self within the educational community of a fellowship program in medical education
Elza Mylona*, Catherine Messin, Natalie Nardone (Stony Brook University Medical Center, SOM - HSC L4-184, Stony Brook NY 11794-8430, United States)

9AA3  Using a faculty development programme to build a community for learning
Elizabeth M McEvoy*, Lesley A Young, Laura E A Harrison, Deborah H Markham (Medical Teaching Centre, Institute of Clinical Education, Warwick Medical School, Gibbet Hill Road, Coventry CV32 7JY, United Kingdom)

9AA4  Faculty development can benefit from using a Virtual Learning Environment
Joy de Vries*, Maggy van Hoeij*, Monica van de Ridder (Center for Research and Development of Education, UMC Utrecht, P.O. box 85500, HB 4.05, Utrecht 3508 GA, Netherlands)

9AA5  Medical education faculty development seminars: Bringing core knowledge home
Michael G. Richardson* (Department of Anesthesiology, Vanderbilt University School of Medicine, 4202 VUH, Nashville 37232-7580, United States)

9AA6  Learning stories in educational supervision
Alex Josephy* (Kent Surrey and Sussex Deanery, 7 Bermondsey Street, London SE1 2DD, United Kingdom)

9AA7  Innovative programme elements add value to FAIMER faculty development model in Southern Africa
Vanessa Buch*, Rafi Graves, Juranita Bezuidenhout (Department of Medicine, University of Cape Town, J floor, Old Main Building, Groote Schuur Hospital, Observatory 7925, South Africa)

9AA8  Comparison of the FAIMER Regional Institute programs
D Diseoens*, S Friedman, E Amarat, V Busch, H Campos, T Chacko, G Oguntanji, A Supe, T Singh, S Kalishman, R Quintana, E Hatch, R Graves, W Burdick (FAIMER, 3624 Market Street, Philadelphia PA 19104, United States)

9AA9  Distance learning: Design and implementation of the program at TUMS
M Gharib*, R Moattahedzadeh, A Mohammadi, H Keshavaz, AH Emami, A SabouriKashani (School of Allied Medical Sciences, Tehran University of Medical Sciences, Educational Development Center, No 21, FarDanesh St., Ghods Ave., Keshavaz Blvd., Tehran 1417744181, Iran)

9AA10  Marrying quality assurance and staff development in an undergraduate dental degree programme
Glynis Pickworth* (Faculty of Health Sciences, University of Pretoria, Pretoria 0002, South Africa)
9AA11 Evaluation of teacher-training workshops in the College of Medicine & Health Sciences, Sultan Qaboos University
Nadia Al Wardy*, Omar Al Hussaini, Laila Al Ziaji, Samir Hussein, Abdullah Al Asmi, Syed Rizvi, Zahra Al Rawahi (Sultan Qaboos University, P.O. Box 35, Al Khod 123, Oman)

9AA12 Faculty development program directed to faculty members’ needs
Edna Regina Silva Pereira*, Vardelli Alves de Moraes, Heitor Rosa, Denis Masashi Sugita, Karine Borges de Medeiros, Nilce Campos Costa (Faculdade de Medicina da Universidade Federal de Goiás, Primeira avenida s/n, Setor Universitário, Rua SB 33 Qd 49 Lt 14, Portal do Sol II, Goiânia 74605-020, Brazil)

9AA13 Stakeholder-based needs assessment as an effective tool for prioritization and strategic planning of medical education programmes
Payal K Bansal*, Savita Marathe, Prakash M Shere, William P Burdick, Mrudula A Phadke (Department of Medical Education and Technology, Maharshtra University of Health Sciences’ Pune Regional Centre, 3rd Floor, ESIS Hospital Building, Aundh, Pune 411037, India)

9AA14 Workplace based assessments: escalating learning upwards to change assessor behaviour
Francina Cunnington*, Shermina Sayani, Robert Klaber (London Deanery, School of Paediatrics, Stewart House, 32 Russell Square, London WC1B 5DN, United Kingdom)

9AA15 Meeting diverse faculty needs in instructional development: ambulatory care teaching as an illustrative case study
Margarita Lam-Antoniades, Daniel Panisko*, Yasmin Rahim, Sanjay Mehta, May Bell, Karen Leslie (University of Toronto, Departments of Medicine, Family Medicine, and Pediatrics, and the Centre for Faculty Development, c/o 8 East Wing, Room 421, 399 Bathurst St., Toronto, Ontario M5T 2S8, Canada)

9AA16 Alignment of health professions education and health system needs: initial outcomes of the Brazil FAIMER Regional Institute (FAIMER-BR)
Campos HH*, Amaral E, Haddad AE, Bollela VR, Carvalho Jr PM, Ribeiro MGF, Araujo MNTA, Mennin S, Morahan P, for the Brazil Regional FAIMER Institute Working Group (Federal University of Ceara, Rodolfo Teófilo, Rua Alexandre Baraúina, 949, Fortaleza 60430-160, Brazil)

9AA17 Mentoring the Fatima Jinnah Medical College experience
Rakhshanda Faida*, Abdul Majeed Chaudhry (Department of Community Medicine, Fatima Jinnah Medical College, Flat No 10 1 Warris Road, Lahore 5400, Pakistan)

9AA18 New health professions teacher education Masters degree: the first year outcomes
Helen P. Bath*, Curtis Handford, James Meuser, Lynn Wilson (Department of Family and Community Medicine, University of Toronto, 5th Floor, 263 McCaul Street, Toronto Ontario, Canada)

9AA19 Use of on-line role play as a teaching learning strategy in health professionals’ education
Ladhani Z*, Chhatwal J, Diserens D, Tan CPL, Iqbal M, Vyas R, Shaikh I (FAIMER Institute, Foundation for Advancement of International Medical Education and Research, 3624 Market Street, Philadelphia PA 19104-2685, United States)

9BB POSTERS: Written assessment and standard setting

9BB1 Student perspective on medical school performance assessments: customizable NBME subject exam versus USMLE Step 1 Board Examination
Rachel Steckelberg*, Elizabeth Wilkinson-Cozine, Rachel Nemgar (Mayo Clinic, Mitchell Student Center, 200 1st St SW, Rochester 55905, United States)

9BB2 Use of the NBME examination service for a comprehensive year 1 medical school examination: further observations of student perceptions
Jerry W. Swanson*, Wojciech Pawlina, Joseph Grande (College of Medicine, Mayo Clinic, 200 First Street, SW, Rochester, Minnesota 55905, United States)
9BB3 The contribution of examination components in written assessment to composite academic performance in physiology, among pre-clinical medical undergraduates in a South Asian University
P M Atapattu*, E D R G Premaratne, S Wasanthanthri (University of Colombo, Department of Physiology, Faculty of Medicine, Kynsey Road, Colombo 8, Sri Lanka)

9BB4 Testing the retention knowledge of medical schools students in Slovakia
J. Mokry, S. Franova*, P. Cingel, E. Halasova, V. Kristova, P. Suska, N. Markovska, L. Podracka, D. Kluchova, P. Labas, L. Siegfried, D. Mistuña (Jeseniak faculty of Medicine, Comenius University, Žaboskeho 2, Martin 03645, Slovakia)

9BB5 Minimal passing level setting on multiple choice tests for small groups of students: comparison between Angoff and Hofstee method
Sriboonrit U.*, Anotayanonth S. (Chonburi Medical Education Center, Chonburi Hospital, Sukhumvit Rd., Meung, Chonburi 20000, Thailand)

9BB6 Reliability of a pharmacology test at Medical School at National Autonomous University of Mexico
Delgadillo Gutierrez Héctor Javier*, Saldaña Balmori Yolanda*, Contreras Chaires Eusebio, Izaolca Conde Consuelo, Rojas José Antonio (Autonomous Metropolitan University, Campus Xochimilco, Calzada del Hueso 1100, Col. Villa Quietud, 04960 Mexico D.F., Mexico)

9BB7 Applying Item Response Theory (IRT) modelling for evaluating medical education in Mashad University of Medical Sciences in Iran 2007-2008
Hassan Gholami*, Hadi Abbasi, Afshin Afzali, H.Karimi Mouneghi, Omolbanin Motemed Rezaei, Fatad Kazemian (Mashad University of Medical Sciences, 2th floor, No 3, Faramarzeh Abbasi 54, Mashhad 9197854411, Iran)

9BB8 Survey guessing parameter by IRT method in tests of Mashad University of Medical Sciences in Iran 2006-2008
Hadi Abbasi*, Hassan Gholami, Afshin Afzali, Marzieh Dasthi R., Somayeh Pourehsan, Mohammad Pordel, Hussain Gholami (Allameh Tabatabai University, Second Floor, No 6, Razi 9, Razi shahrak, Ghasemaleh, Mashhad 9189973346, Iran)

9BB9 The end-of-career professional exam at UNAM Faculty of Medicine: use of the three-parameter Item Response Theory model in a high-stakes achievement test
Melchor Sánchez-Mendiola*, Laura Delgado-Maldonado (Faculty of Medicine, National Autonomous University of Mexico, Secretaría de Educación Médica, Edificio B, 3er Piso, Ave. Universidad 3000, Ciudad Universitaria, Mexico, D.F. 04510, Mexico)

9BB10 Examiner profile: Is seniority or compliance to the marking scheme more important in determining reliability in high-stakes assessment?
Spooner M*, Branagan P, Meagher F, Gunaratnam C, McElvaney NG. (Royal College of Surgeons in Ireland, Education and Research Centre, Department of Medicine, Beaumont Hospital, Beaumont Road, Dublin D9, Ireland)

9BB11 Guess what! Calculating the probability to pass MC tests
Daniel Bauer*, Frank Krummenauer, Martin R. Fischer (Institute for Teaching and Educational Research in Health Sciences, Private University Witten/Herdecke, Alfred-Herrhausen Str. 50, Witten 58488, Germany)

9BB12 Item quality improves with a systematic item review meeting of a faculty committee
JM Pêgo*, JU Cerqueira, N Sousa, F Baltazar, C Capela, T Teixeira, Pedrosa J, MJ Costa (University of Minho, School of Health Sciences, Campus de Gualtar, Braga 4710-057, Portugal)

9BB13 Student rating the satisfaction of examination
Wen Chan Tsai*, Keh Min Liu, Chung Sheng Lai (Kaohsiung Medical University, 100 Tzu-Yu 1st Road, Kaohsiung 80726, Taiwan)
9BB14 A comparison of three- and four option multiple-choice questions
Marie Tarrant, James Ware* (Department of Nursing Studies, University of Hong Kong, Li Ka Shing Faculty of Medicine, 4/F, William MW Mong Block, 21 Sassoon Road, Hong Kong)

9BB15 The quality of multiple choice questions (MCQ): A follow-up study three years after the introduction in a Norwegian undergraduate medical curriculum
Bjørn Mørkedal*, Tobias Schmidt Størdahl, Torstein Vik, James Ware (Faculty of Medicine, Norwegian University of Science and Technology (NTNU), Trondheim NO-7489, Norway)

9BB16 Striving toward the perfect multiple-choice question (MCQ): Do editorial changes help?
Timothy J Wood*, Yves Lafontune (2283 St. Laurent Blvd., Medical Council of Canada, Ottawa K1G-3H7, Canada)

9BB17 Development and validation of a web-based system to reduce flawed multiple-choice questions and items
Markus Weih* (Dept. of Psychiatry and Psychotherapy, Schwabachaniage 6, Erlangen 91054, Germany)

9BB18 A programmatic approach towards assessment: a model for design
J Dijkstra*, C P M Van der Veulten, L W T Schuwirth (University of Maastricht, PO Box 616, 6200 MD, Maastricht, Netherlands)

9CC POSTERS: Postgraduate training: the early years

9CC1 Structured internship orientation program is perceived helpful by undergraduate students in smooth transition to practicing doctors
Goel Ashish, Venkat R, Kumar A, Adikoli BV, Sood Rita* (All India Institute of Medical Sciences, Department of Medicine, D-22/23, Ansari Nagar (western campus), New Delhi-110029, India)

9CC2 Modernizing postgraduate medical training in a changing world of medical work
Iris Wallenburg, Fedde Scheele, Antoinette de Bont* (Institute for Health Policy and Management, ErasmusMC, P.O. Box 1738, Rotterdam 3000 DR, Netherlands)

9CC3 Should the Canadian Postgraduate Medical Education (PGME) System be Overhauled? A Unique National Survey of Key Stakeholders in Medical Education
Jason R. Frank*, Rani Munroo, Curtis Lee (The Royal College of Physicians and Surgeons of Canada, 744 Echo Drive, Ottawa, Ontario K1S 5N8, Canada)

9CC4 The elders speak: what older patients could tell their physicians in training about their health needs
Lorna A. Lynn*, Brian J. Hess, Lisa N. Conforti, Rebecca S. Lipner, Eric S. Holmboe (American Board of Internal Medicine, 510 Walnut Street, Suite 1700, Philadelphia, Pennsylvania 19106, United States)

9CC5 The current state of junior doctors and their perception of workplace stress
Paul Crampton* (Northumbria University/Northern Deanery, 0-2 Framlington Place, Newcastle upon Tyne NE2 4AB, United Kingdom)

9CC6 Hematology workshop for house officers: what they could (not) improve
Saranya Pongudom*, Supaluk Raiyawa (Undornthani Medical Education Center, Undornthani hospital, 33 Potniyom rd., Meung 4000, Thailand)

9CC7 Factors affecting house officers’ confidence in doing procedures: a study from Undonthani hospital, Thailand
Prapaporn Kosomboon* (Undonthani Medical Education Center, Undonthani hospital, 33 Potniyom rd., Meung 41000, Thailand)

9CC8 ‘KAB’ing it: Evidence based practice related knowledge, attitudes and behaviors among internal medicine residents
Lisa Barret*, Meegan Dow, Robert Berger, Darrell White (Dalhousie University, Postgraduate Internal Medicine Education Office, Department of Medicine, QEII Health Science Centre, Halifax B3H 2Y9, Canada)
9CC9  Use of the Social-Cognitive Model for construction of a core curriculum for postgraduate education in Internal Medicine.
Patino M*, Roman-Perez M, Uzcategui Z, Perez-Gonzalez JF. (Ciudad Universitaria, Centro de Investigación y Desarrollo de la Educación Médica (CIDEM), Escuela de Medicina “Luis Razetti”, Facultad de Medicina, Universidad Central de Venezuela, Los Chaguaramos, Caracas 1050, Venezuela)

9CC10  Junior doctors have lower mental health scores compared to senior doctors and their normative scores
Shao Chuen Tong*, Aung Soe Tin, Jeremy Lim Fung Yen (Center for Health Services Research, Singapore Health Services, 226 Outram Road, Block A. #03-01, Singapore 169039, Singapore)

9CC11  Interactive teaching methods as a technique of facilitating improved radiation protection awareness amongst junior doctors
Catherine Bell* (St Helens and Knowsley NHS Trust, Whiston Hospital, Warrington Road, Prescot, Merseyside L35 5DR, United Kingdom)

9EE  SECRETS OF SUCCESS (6)
9EE1  Core Obstetric Self-Testing
Athol Kent*, Linda Rogers (University of Cape Town, Faculty of Health Sciences, Medical School, Anzio Road, Observatory, Cape Town 7925, South Africa)

Short description of innovation: Medical students entering the clinical wards are often overwhelmed by the vocabulary used. Unfamiliar abbreviations, words or phrases need to be assimilated before they can follow how patients are diagnosed and treated. We created an electronic databank of information that would be useful to students starting obstetrics with a self-test facility whereby they can assess their knowledge.

What will be demonstrated: Hardcopy of basic obstetric topics will be shown which will demonstrate the core nature of the vocabulary/terminology that the students are asked to learn. A demonstration will be given of how to undertake a test of his/her knowledge on a standard computer.

What is particularly interesting about the innovation: Once a set of words, terms and phrases has been created, students can access the material. When they feel confident about their knowledge they can ask the computer to select a series of questions for them to answer. If they score highly the computer will generate a certificate of competence for their portfolios. Any department of obstetrics could download the data onto their local Intranet.

How could It be implemented: Any clinical teachers wanting their students to have a grasp of the words and phrases used in their discipline could create a similar databank. A depository of the core knowledge fundamental to any discipline can be captured in this way.

9EE2  Automating testing of neuroanatomy and cerebrovasculature
Wieslaw L. Nowinski,* A. Thirunavukarasu (Biomedical Imaging Lab, A*STAR, Singapore, 30 Biopolis Street, #07-01, Matrix, Singapore 138671, Singapore)

Short description of innovation: Assessment is time consuming and its robustness challenging.

What will be demonstrated: Our solution addresses both problems using a digital media application with a three-dimensional (3D) model for automatic testing of knowledge in neuroanatomy and cerebrovasculature. This model is linked to anatomical and vascular indices derived from Terminologia Anatomica.

What is particularly interesting about the innovation: First the teacher individualizes the scope, number and duration of queries. Then, the application generates automatically queries to be answered by the student. There are two types of queries “what is” and “where is”. When asked “what is”, a structure/vessel is highlighted in the 3D model and the student has to name it by clicking on its name in the anatomical index. While asked “where is”, the name of structure/vessel is highlighted in the index, and the student has to find it in the 3D model by clicking on it. When the student makes a mistake, the application displays the
correct answer. Each query is scored and the aggregated score is calculated. After completing testing, the total score is sent to the teacher along with student’s name.

**How could it be implemented:** Our solution provides an automatic, fast, objective, and time-independent evaluation with varying difficulty, individualized learning, and defined outcomes. It is beneficial both to the teacher and student.
Session 10

10A SYMPOSIUM: International collaboration
Chairperson: Andrzej Wojtczak (Poland)
We are living in a global village where international dimensions are playing an increasing part in medicine and medical education. AMEE conferences, with participants from all over the world, are good exemplars of this. This symposium will illustrate, through practical examples, possible approaches and developments for collaboration in medical education.

10A1 FAIMER Regional Institutes
John Norcini*, Eliana Amaral*, Avinash Supe*, Gboyega Ogunbanjo* (Foundation for Advancement of International Medical Education and Research [FAIMER], Philadelphia, United States)
FAIMER seeks to improve the health of communities by improving health professions education. It concentrates its activities in developing regions in South Asia, Africa, and Latin America. These regional concentrations have guided the selection of Fellows for FAIMER’s Philadelphia Institute and have led to the development of the Regional Institutes. The Regional Institutes are centers of activity where ongoing exchange among educators is intended to expand improvement in local health professions education systems. They were based on the Philadelphia Institute but each has taken on a different character as it focuses on regional needs and priorities. In this segment of the symposium, we will provide a very brief overview of FAIMER (John Norcini) and spend most of the time discussing the Brazil Regional Institute (Prof Eliana Amaral), the India Regional Institute (Prof Avinash Supe), and the Southern Africa Regional Institute (Prof Gboyega Ogunbanjo). Each of the three speakers has been asked to briefly describe their regional Institute, talk about how it has responded to local needs and priorities (what makes it unique among the Institutes), and share one lesson about successful international collaboration.

10A2 MedEdWorld – a global online medical education community
Madalena Patricio, Molly Gunn, Ronald Harden, Pat Lilley, Alistair Stewart (AMEE, UK)
MedEdWorld has been established as an international network through which organisations, medical schools and individual teachers and students across the world can share ideas, experiences and expertise and through which they can collaborate in the further development of medical education. It provides a gateway for the sharing of information, identifying good practice, accessing learning resources and providing international collaborative learning opportunities for students and faculty. It offers a simple and uncomplicated access to the thoughts of colleagues and the leading practitioners and teachers in education in medicine and the other health care professions.
This segment of the symposium will demonstrate the role of MedEdWorld as a current awareness and information source, as a means of identifying and locating learning resources, as a social network and as a method of transnational collaborative learning. The benefits and opportunities for individual teachers across the globe and for medical education organizations will be highlighted.

10B Symposium: Ethical and social accountability of medical schools
(Conducted in Spanish)
Chairperson: Arcadi Gual (Secretary of SEDEM, Barcelona, Spain)
It is recognised that different behaviours of the professional, such as integrity, caring, respect, responsibility, accountability and leadership, amongst others, are some of the values that reflect “Professionalism”. Thus it would be convenient to introduce and teach these values at an earlier stage in the learning process. This symposium will discuss how to introduce these elements in the new curricula of Spanish medical schools.
10C SHORT COMMUNICATIONS: Progress with the Bologna Process

10C1 Bologna Process in Medical Education beyond 2010: the students' view

N Davaris*, A Murt*, D Rodriguez Muñoz*, RJ Duvivier* (International Federation of Medical Students' Associations / European Medical Students' Association, IFMSA General Secretariat c/o World Medical Association B.P. 63 012 12 Ferney-Voltaire Cedex France; EMSA c/o CPME Standing Committee of European Doctors Rue Guimard 15 1040 Brussels, Belgium)

Background: The European Medical Students' Association (EMSA) and the International Federation of Medical Students' Associations (IFMSA) have put forward different aspects of the Bologna Process in Medicine. We evaluated the implementation of the Bologna Process in Medicine and considered constructive approaches to European policy. We present the students' perspective on the ongoing changes.

Summary of work: IFMSA/EMSA collaboration emphasized the students' role and responsibility as an important stakeholder of the Bologna Process in Medicine. Joint policy papers provided a basis for discussion on national and international level. This year, we focused on the challenges faced ten years after the Bologna Declaration.

Summary of results: As we enter the second decade of the Bologna Process students identify focus areas and opportunities for the following years.

Conclusions: Medical students acknowledge the achievements of the Bologna Process as an evolving procedure of quality improvement and closer cooperation between different stakeholders. The interpretation of different action lines by medical schools and signatory countries requires emphasis. Closer observation of the progress of implementation of the Bologna Process on national level can increase mutual understanding and lead to significant progress.

Take-home messages: Active involvement of all stakeholders and increased international cooperation are necessary for the evolution of the Bologna Process in Medicine beyond 2010.

10C2 Bologna aims implemented: students' experiences

JK Humaida*, LMG Meems (3rd year Medical Students), J Cohen-Schotanus (University Medical Center Groningen, University of Groningen, Antonius Deusinglaan 1, Groningen 9713 AV, Netherlands)

Background: The University of Groningen introduced a competency based Bachelor/Master curriculum in 2003, in compliance with the aims of the Bologna Declaration. With the programme now almost 6 years up and running, it's time to evaluate whether students recognise the Bologna aims concerning competencies, lifelong learning and student mobility.

Summary of work: Structured interviews were used to investigate third-year bachelor students' experiences. Saturation was reached after 7 interviews.

Summary of results: Students recognised the competencies. They mentioned to be well-prepared to communicate with patients and they are aware of different aspects of professional behaviour. They indicated they felt well-prepared for lifelong learning. None of the participating students planned to get a Masters' degree at a different university because there are hardly any possibilities and secondly, they are very satisfied with the quality of the Groningen programme. However, there is interest to go abroad as part of their study (average 15-20 ECTS).

Take-home messages: The Bologna Declaration offers opportunities to develop challenging medical education, which is recognised and valued by students.

10C3 Innovation needed: Problem Based Learning implementation in allied health sciences undergraduate courses


Background: Considering the several social and technological transformations of the last decades, the professional performance in the allied health sciences domain has been developing, demanding changes in the traditional competences/skills profile and
consequently in the education of these professionals. Baring this in mind, and in the context of the Bologna Process, three degrees of the ESTSP-IPP – Physiotherapy, Occupational Therapeutics and Nuclear Medicine - adopted, in 2008/2009, Problem Based Learning (PBL) curricular programs. This method reveals to be promising due to the use of significant problems based on clinical reality, the match between academic education and professional performance, and student centered learning process.

**Summary of work:** After 5 months implementing the PBL, we tried to analyze the students' perception about the curricular transition; its implications in the learning process and identify the adaptations requested as well as the barriers found.

**Summary of results:** The results obtained in the three courses were compared with each other and confronted with those of the literature, allowing an evaluation of the implementation of PBL.

**Conclusions:** A favorable perception of the new method was identified as well as aspects to improve.

**Take-home messages:** This work, integrated in a longitudinal study, seems to be quite important, given the fact that it assesses students points of view during the ongoing process of a curricular transition.

**10C4 Transition of a teacher centred curriculum to student-centred learning in the context of the adaptation to the Bologna Process: The University of Cordoba experience**

Fernando Labella Quesada, José Peña Amaro, José López Miranda, Luis Jiménez-Reina, Rafael Solana* (Faculty of Medicine University of Cordoba, Av Menendez Pidal s/n, Cordoba 14004, Spain)

**Background:** The Bologna Process requires the adaptation of the medicine curricula to favour transparency and student and staff mobility.

**Summary of work:** The University of Cordoba has used this opportunity to modify it from a classic, non-integrated curriculum, teacher centred to an integrated and student centred learning. In the design of the new curriculum not only instructors but also students and stakeholders have collaborated.

**Summary of results:** The main innovations introduced in the new curriculum are: a) the early introduction of the students in the health systems, in particular in primary care, to get generic competences and exploratory and communication skills, b) the introduction of disciplines to integrate basic and clinical knowledge and competences, c) the organization of the clinical subjects grouped in body systems, d) the organization of the sixth clinical as a clinical internship, e) the introduction of OSCE and portfolio in the assessment of competences. Nevertheless the curriculum maintains the classic separation of life and clinical sciences.

**Conclusions:** The adaptation of the Medicine curricula to the Bologna Process in an opportunity to revise them, with the integration of knowledge and introduction of new methods in the teaching-learning process and assessment.

**10C5 Pharmine: Pharmacy education in Europe**

B. Rombaud* (EAFP, c/o Vrije Universiteit Brussel, Laarbeeklaan 103, Brussels 1090, Belgium)

**Background:** Pharmacists will play, next to physicians, an important role as partners in the efficient use of health care resources in the EU. They will be also major players in the development of the EU pharmaceutical industry.

**Summary of work:** Today the duration and course content for pharmacy education is given in the EU Directive 2005/36/EC. Pharmine will examine the opportunities for the introduction of the Bologna principles into pharmacy education with the aim of tuning the latter to the needs in the three areas of pharmaceutical expertise: community, hospital and industrial pharmacy. It will develop a Bachelor (Master) Doctorate system for pharmacy education.

**Summary of results:** To do so, the consortium which consist of universities being member of the European Association of Faculties of Pharmacy (EAFP) and EU partner associations (community pharmacist, industrial and hospital pharmacist plus students), will survey existing EU pharmacy curricula and attempts to adapt these to the Bologna process. The
Consortium will then produce a common competency curriculum (also for specialized pharmacy practice) and present it to the EU Commission, national authorities and professional pharmacy bodies.

Conclusions: The AMEE conference is an ideal opportunity to compare tuning methods with medical educators and to discuss common problems and solutions.

10D RESEARCH PAPERS: Students

10D1 Changes in personality and learning styles for first year medical students
Nicole J Borges*, Dean X Parmelee (Wright State University Boonshoft School of Medicine, Academic Affairs, 290P White Hall, 3640 Colonel Glenn Highway, Dayton, OH 45435-0001, United States)

Introduction: A void in the literature exists (1,2) regarding the relationship between Team-Based Learning (TBL), learning style, and personality of medical students. TBL is a learner-centered but instructor-led instructional strategy that requires small groups to work together to solve problems (3). Exploring personality in conjunction with learning styles in a TBL curriculum is important because learning styles definitions include references to behaviors and attitudes and approaches to learning. Given that TBL requires students to work in groups to solve problems, personality can play a role in group interaction and dynamics. This study explored changes in medical students’ personality and learning styles in a TBL curriculum during their first year of medical school and sought to answer: “How do personality and learning styles change for students during their first year of medical school in a TBL curriculum?”

Methods: With IRB approval, 65 students (62% response rate) were administered a personality questionnaire (i.e., Neuroticism, Extraversion, Openness to Experience Personality Inventory-Revised; NEO-PI-R) and a learning styles measure (i.e., Grasha-Reichmann Student Learning Styles Scale; GRSLSS). Students completed both measures at the beginning and at the end of their first year of medical school. It was hypothesized that of the 5 NEO-PI-R scales (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) all scale scores would increase except for Neuroticism. For the GRSLSS 6 learning styles, it was hypothesized that scores for Dependent, Collaborative, and Participant would increase, while Avoidant, Independent, and Competitive scale scores would decrease. Paired t-tests were conducted.

Results: Significant differences were noted from the beginning to the end of the year for 2 of 5 personality scales and 5 of 6 learning styles scales (p < .05; with Boneferroni correction applied p < .005). For the NEO-PI-R, decreases in Neuroticism (p = .001) and Conscientiousness (p < .000) were noted from the beginning of the year to the end of the year. For the GRSLSS, decreases were noted for Collaborative (p = .001), Competitive (p = .005), and Participant (p < .000) scales, whereas increases were noted for Avoidant (p < .000) and Dependent (p = .003) scales.

Discussion and conclusion: Changes in personality and learning styles do appear to occur during the first year for students in a TBL curriculum. The direction of the changes was surprising. For example, given the collaborative nature of TBL, one would suspect that scores on the Collaborative learning styles scale would have increased, whereas the opposite occurred.

References:
10D2 Using the UKCAT to predict performance on first year medical exams
Sarah Wright* (Newcastle University, School of Medical Sciences Education Development, 16-17 Framlington Place, Newcastle-upon-Tyne NE2 4HH, United Kingdom)

Introduction: In 2006, twenty-six UK Medical Schools included the United Kingdom Clinical Aptitude Test (UKCAT) into their admissions processes. The test was specifically designed to identify ideal medical students; however there is little evidence to support this claim. While still in its infancy, there are ways to begin investigating the UKCAT’s contribution to the selection of medical students. This study focuses on the ability of the UKCAT to predict the performance of Newcastle Medical students on three first year exams used to measure knowledge and understanding.

Methods: Gender, UKCAT score, personal statement score and interview score were used in regression models to determine whether UKCAT scores contribute to the prediction of first year performance on three written exams (November, January, and May). Models controlling for previous exam performance were also included for the January and May exams.

Results: Personal statement score, interview score and gender were not significant predictors in any regression model. UKCAT score was a highly significant predictor of performance on all three exams: (November and January, p<.001), and (May, p<.01). The proportion of variance in exam scores explained by each model decreased with time: (27% of variation in exam scores was explained in November exams, 22% in January, and 12% in May). Further analysis showed that including previous exam scores would considerably improve the model fit, thus increasing the percentage of variance explained. When November exam scores were included in the January model, 47% of the variance was explained. Furthermore, when November and January examination scores were included in the May model, 69% of variance was explained.

Discussion and conclusion: Although these results represent a small cohort from a single university, they indicate that the UKCAT is a significant predictor of first year performance at Newcastle. While the predictive ability of the UKCAT seemed to decrease as the academic year progressed, further analysis indicates that this was not necessarily the case. Performance on the January exam was influenced by performance on both the November exam and the UKCAT. Likewise, performance on the May exam was influenced by performance on the November and January exams and the UKCAT. As each exam was taken, variance explained by UKCAT became overshadowed by variance explained by previous exam performance. While exam performance is obviously unknown at the time of admissions, the models indicate that the UKCAT explains a significant portion of variance beyond what is already explained by previous exam performance.

10D3 Psychosocial factors, motivation for learning and academic performance – a study with first year medical students
Vanessa F Machado, Fernando P Valero, Mariana M Madisson, Tamara L Resende, Luiz E A Troncon*, Cristina Marta Del-Ben* (Ribeirão Preto Faculty of Medicine, University of São Paulo, Hospital das Clínicas - Campus da USP, City of Ribeirão Preto, State of São Paulo, Brazil, Ribeirão Preto 14048-900, Brazil)

Introduction: Entering medical school may be associated with difficulties that may impair academic performance. Changes in teaching/assessment methods and content overload commonly found in traditional medical schools may stress students and affect motivation, thus challenging social adjustment mechanisms. Abnormally increased anxiety or depression and loss of motivation may adversely affect learning and student performance in exams. Nevertheless, the influence of these factors in recently admitted medical student academic performance has not been much investigated. This work aimed at measuring longitudinally anxiety, depression and self-perception of social adjustment and academic motivation in first year students from a traditional medical school, and at evaluating whether changes in these variables would be related to academic performance, as measured by results in regular exams.

Methods: All first year medical students (N=100) were invited to join the study and 86 (80.4%) of them (age: 19-27 years) accepted to be included, after giving informed consent. Beck’s
Anxiety (BAI) and Depression (BDI) Inventories, the self-reported Social Adjustment Scale (SAS-SR) and the Academic Motivation Scale (AMS) were applied 2 months after admission and by the end of the academic year. Instruments had been validated after translation into student native language and shown to have reliable internal consistency. SAS-SR assesses five areas: academic life, leisure/social life, family life, affective life and financial situation, giving scores inversely related to social adjustment. AMS comprises sub-scales for intrinsic and extrinsic motivation, and for lack of motivation. Academic performance was expressed by the average of final marks obtained in all courses attended during the year. Scale's scores were compared by the paired t test. Pearson's correlation coefficients (r) were calculated for relationships between academic performance and scores for each scale/sub-scale.

Results: BAI scores increased throughout the year (7.3±6.6 versus 28.8±6.7; p<0.10). SAS-SR sub-scales scores remained stable, except for a decreasing pattern for leisure/social life (1.8±0.4 vs. 2.1±0.4; p<0.50). There were no significant correlations between academic performance and the global scores for any of the scales. Only the scores of the SAS-SR sub-scale for academic life showed significant correlation with academic performance (r = 0.478, p <0.001).

Discussion and conclusion: First year medical students from a traditional school show increasing anxiety, decreasing motivation for learning and maladjusted leisure/social life. This does not seem to affect performance in regular exams, which appears to be related only to social adjustment in functioning in the academic area domain. Whether these findings are stable and consistent and may be regarded as educationally meaningful, so as to require specific actions, remain to be further investigated.

References:

10E SHORT COMMUNICATIONS: Progress test

10E1 Does the progress test support enquiry based learning?
Wade L*, Harrison C, Matfick K, Hollands J, Wass V. (Manchester Medical School, University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom)

Background: The progress test (PT) is an assessment designed to support problem based learning (PBL). Little is known about student preparation strategies.

Summary of work: Quantitative methodology was used to compare students’ approaches to PTs in two UK PBL medical schools with contrasting assessment programmes: school A twice yearly PT with additional knowledge tests, school B PT four times yearly. A validated 42-item questionnaire was completed by 1053 students (640 school A, 413 school B). Comparative statistics (Chi square) were used.

Summary of results: School B students were significantly more motivated to prepare throughout the year (p<0.001). School A students placed more value on other knowledge tests and tended to prepare at the last minute (p<0.001). Students at both schools expressed ambivalence towards the PT’s effectiveness in monitoring improvement in their knowledge. At both schools published MCQs and textbooks were the preferred revision strategies.

Conclusions: The PT does not necessarily support the deep enquiry-based learning behaviour intended by PBL. The learning environment, assessment frequency and presence of other assessments significantly influence student preparation strategies.

Take-home messages: Assessments in PBL schools must be carefully designed to avoid students reverting to superficial revision techniques.
10E2 Improving knowledge growth information with progress tests by using the cumulative score

Muijtjens AWM*, Timmermans I, Cohen-Schotanus J, Thoben AJNM, Wenink ACG, Van der Vleuten CPM (University of Maastricht, Dep't. Educ Dev & Res, P.O. Box 616, Maastricht 6200 MD, Netherlands)

Background: Progress tests monitor growth in medical knowledge: four times a year all medical students answer 250 True/False questions about all medical subjects. Due to noise individual score sequences show irregular patterns and frequent occurrences of unstable (differing) successive pass/fail qualifications (PFQs). This study investigates whether noise reduction can be obtained by using the cumulative score.

Summary of work: Longitudinal (years 1-4, 16 measurement moments) PT-data of 65 students (1999 cohort UM) were investigated. Per measurement moment a student’s cumulative score was calculated as the average-score-up-to-now. Applying the usual pass-fail standard (mean-standard deviation), per sequence of scores the proportion of stable successive PFQs was calculated, and its distribution over students for original and cumulative score sequences was obtained.

Summary of results: The sequence of P/F-standards was almost perfectly rectilinear (Rsquare = 98%). For the observed score 37% of the students had a proportion of stable P/F successions lower than 0.8, while for the cumulative score it was only 3%.

Conclusions: Transformation of observed scores into cumulative scores results in substantial reduction of random noise, while the more gradually varying knowledge growth is preserved.

Take-home messages: Cumulative scores help to improve the information on knowledge growth with progress tests.

10E3 Adaption of medical progress testing to a dental setting

Jon Bennett*, Adrian Freeman, Lee Coombes, Liz Kay, Chris Ricketts (Peninsula College of Medicine and Dentistry, John Bull Building, Tamar Science Park, Research Way, Plymouth PL6 8BU, United Kingdom)

Background: Progress Testing (PT) is an integrated, contextualised evaluation which separates the process of assessment from specific component disciplines. It is well established in several medical schools but not in dentistry. Peninsula College of Medicine and Dentistry has a new graduate entry dental school teaching a four year problem based curriculum and is one of the first schools to adapt PT to a dental setting. Issues associated with its development are considered.

Summary of work: We engaged with the regional community of primary oral healthcare practitioners (POHP) to prepare questions. These were designed to test reasoning skills rather than factual recall. Four tests, delivered ‘on-line’ to first and second year dental students during 2007-2009, consisted of 100, ‘single best answer out of five’ questions reflecting the programme outcomes.

Summary of results: POHPs made a vigorous contribution to the development of questions contextualised to clinical situations, but they found it difficult to design items capturing some of the more technical aspects of dentistry which distinguish it from medicine. Nevertheless, test results were able to discriminate between successive years.

Conclusions: Progress testing has potential as an assessment tool in dental education.

Take-home messages: There are distinct differences in the application of PT between the dental and medical settings.

10E4 The role of progress tests in evaluating the implementation of a new curriculum at the Faculty of Medicine University of Indonesia

Mardiastuti H Wahid*, Irma Chair, Muzakkir Tanzil, Rulliana Agustin, Purwita W Laksmi, Setyawati Budingsih (Faculty of Medicine, University of Indonesia, Salemba Raya 6, Jakarta 10430, Indonesia)

Background: In 2005, we developed a new curriculum called Competency Based Curriculum. This curriculum used the Problem Based Learning approach as one of the teaching and learning methods.
Summary of work: To evaluate the new curriculum, we have conducted progress tests on January 2008, June 2008 and January 2009. At the first test, the first batch of students who were affected by the new curriculum was in the 3rd year class. The first test only evaluated 1st-3rd year students, whereas 1st-6th year students participated in the second and third tests.

Summary of results: At the first test, the third year students achieved the highest mean score among students tested. While at the second test, the 6th year students gained the best performance. Finally, at the third test the highest mean score was achieved by the 4th year students who were the first batch students involved in the new curriculum.

Conclusions: The progress test is a useful instrument for curriculum evaluation. The overall result showed that the higher educational level the higher mean score obtained. The new curriculum improve the students’ knowledge.

Take-home messages: Progress test should be done regularly to observe the students’ progress in order to improve the quality of medical education.

10E5 Beyond student assessment: feedback for individuals and institutions using the progress test
Lee Coombes*, Chris Ricketts, Adrian Freeman (Peninsula College of Medicine and Dentistry, Portland Square, University of Plymouth, Plymouth PL4 8AA, United Kingdom)

Background: Progress testing is usually implemented for a variety of reasons, including the benefits of disengaging assessment from teaching, and provision of longitudinal growth data. Little attention has been paid to progress testing as a rich source of data at a more detailed level.

Summary of work: Data will be presented that shows how outcomes-based blueprint can be used to give students personalised feedback about their medical knowledge, demonstrate the development of different branches of medical expertise, and can be used as a basis for feedback about student development for educators.

Summary of results: Analysis of individual learning patterns will be presented, and acquisition of medical expertise based on these patterns will be examined. This will show how the information that is collected routinely in each progress test can inform on the curriculum and its performance.

Conclusions: We can provide a valuable record for students of the level of their knowledge and expertise, and guide curriculum planning by informing on the acquisition of expertise in different areas of medical knowledge demonstrated during the course.

Take-home messages: When correctly administered, the progress test can provide a wealth of information beyond student assessment and can be used to monitor developing expertise and direct learning for both the individual and institution.

10F SHORT COMMUNICATIONS: Curriculum: Evaluation

10F1 The influence of the vertically integrated undergraduate medical curriculum on the transition to postgraduate training
M. Wijnen-Meijer*, Th. J. ten Cate, M.F. van der Schaaf, J.C.C. Borleffs (University Medical Center Utrecht / Center for Research and Development of Education, PO Box 85500 (HB 4.05), Utrecht 3508 GA, Netherlands)

Background: Recently, many curricula in medical schools have been changed. Important changes are: earlier clinical experience and longer clerkships, fostering increasing levels of responsibility. One of the aims of these vertical integration changes is to facilitate the transition to postgraduate training.

Summary of work: To determine whether such changes affect the transition from medical school to residency, we carried out a questionnaire study among graduates of six medical schools in the Netherlands, who followed either a traditional or a more vertically integrated curriculum. Items in the questionnaire included: a) preparedness for practice, b) required amount of time and number of applications to get admittance to residency, c) process of making career choices.
Summary of results: In comparison with those who followed the traditional programme, graduates from the modernized curriculum appear to make their definite career choice earlier, need less time and fewer applications to obtain a residency position and feel more prepared for work.

Conclusions: The curriculum at medical school can affect the transition to postgraduate training. Additional research is required to determine which components of the curriculum cause this effect and to specify under which conditions this effect occurs.

Take-home messages: The curriculum at medical school can affect the transition to postgraduate training.

10F2 Are medical graduates prepared to begin practice? A comparison of three diverse UK medical schools

Jan Illing*, Gill Morrow, Charlotte Kergon, Bryan Burford, John Spencer, Ed Pelle, Carol Davies, Beate Baldauf, Maggie Allen, Neil Johnson, Jill Morrison (Newcastle University, Northern Deanery, 10-12 Framlington Place, Newcastle NE2 4AB, United Kingdom)

Background: Research by Goldacre highlighted that over 40% of graduates did not feel prepared to start work as a doctor. Recent research by Cave has reported that preparedness in the UK has increased but varies substantially between medical schools. The aim was to compare preparedness in three diverse medical schools: Newcastle – system based, Warwick – graduate entry, Glasgow – Problem Based Learning.

Summary of work: Mixed methods design: a cohort questionnaire (n=479), prescribing assessment (n=420), Direct Observation of Procedural Skills, and questionnaire data from the clinical teams who worked with the new doctors (n=78). Qualitative data was collected from over 250 interviews with graduates who were followed up at 4 and 12 months in post and from interviews with clinicians who supervised them as an undergraduate or postgraduate.

Summary of results: The results highlighted preparedness for communication skills, clinical and practical procedures and team working. Lack of preparedness was found in skills that are learned on-the-job. In particular, working on-call, managing acute illness, prescribing, managing paperwork and prioritising work.

Conclusions: The findings highlight a need for more on-the-job training and the need for final year graduates to have a role in the clinical team.

Take-home messages: Preparedness for practice increases with increased exposure to clinical practice.

10F3 Are medical graduates really prepared for practice?

Catherine Matheson*, David Matheson* (University of Nottingham & East Midlands Healthcare Workforce Deanery, Medical Education Unit, Queens Medical Centre, Nottingham NG7 2UH, United Kingdom)

Background: The aim of this paper is to examine the perceptions of final year medical students, medical graduates in their first year and second year of post-graduate training (FY1s and FY2s) as well as that of consultants and specialty trainees and specialist registrars about the preparedness of practice of FY1s.

Summary of work: Respondents were surveyed in relation to most of the items of core knowledge, skills and attitudes that a new medical graduate must possess as outlined in Tomorrow’s Doctors (2003). A sample of respondents was also interviewed.

Summary of results: FY1s were perceived as best prepared in awareness of their limitations, working in a team, communicating with relatives and colleagues, history taking and venepuncture. They were perceived as least prepared in treatment, clinical practical skills (prescribing, decision making, suturing, inserting a nasogastric tube). Medical students rated themselves far more favourably than did FY1s, FY2s, specialist trainees and specialist registrars and Consultants.

Conclusions: Medical graduates were perceived to have significant deficiencies in clinical and practical skills. Serious concerns about general lack of preparedness were also underlined in interviews.
Take-home messages: Expectations are not aligned in that respondents showed different conceptualisations of what preparedness means and different expectations about preparedness.

10F4 The effect of a new medical curriculum on new graduates’ self-assessed mastery of clinical skills
Joergen Hedemark Poulsen* (Faculty of Health Sciences, University of Copenhagen, The Faculty Administration, Blegdamsvej 3, Copenhagen DJ-2200, Denmark)

Background: In 2000 a new medical curriculum was introduced at University of Copenhagen. One of the main objectives was to promote the students’ acquisition of clinical skills. A list of specific objectives was developed. The list was made operational through specific logbooks for each clinical semester. Training at a skills lab was also improved.

Summary of work: At graduation the new MDs received a questionnaire, which included questions about the mastery of clinical skills. A comparison was made between graduates according to the ‘old’ and the ‘new’ curriculum. An ascending 7-step Likert scale was used.

Summary of results: The question: "I am able to perform simple clinical procedures in general" was rated 5.23 S.D. = 1.55 by 141 graduates of ‘the old curriculum’, while 121 graduates of ‘the new curriculum’ rated it 6.08 S.D. = 1.06. This difference is significant, P <0.0001.

Conclusions: Based on the new graduates’ self-assessments it was concluded that the implementation of a new medical curriculum has resulted in an improved mastery of simple clinical procedures.

Take-home messages: A focused effort – including specific goals, logbooks and increased use of training in a skills lab – in a new medical curriculum at University of Copenhagen has improved the new graduates’ self-assessed clinical skills.

10F5 Identifying “Critical Incidents” to improve management of an integrated curriculum in an undergraduate medical school
Naghma Naeem* (Aga Khan University, Stadium Road, Karachi 74800, Pakistan)

Background: Aga Khan Medical College has a five year undergraduate curriculum. Clinical coordinators in Years 3, 4 and 5 play an important role in implementation of this curriculum. A number of problems were highlighted in Clerkship Coordination. The Department for Educational Development (DED) conducted a faculty development workshop to address this issue.

Summary of work: An adaptation of Critical Incident Technique was used to review incidents documented in the minutes of the Curriculum and Examination-Promotion Committees during the academic years 2005 to 2007 and key informant interviews were held. Thirteen critical incidents were highlighted.

Summary of results: Thematic analysis identified three major problems: 1. Lack of clarity about roles and responsibilities of various entities involved in Clerkship administration; 2. Issues in communication and inability to access the appropriate resources and/or resource persons; 3. Incorrect interpretation of policies.

Conclusions: A one day workshop was held in September 2008 and was attended by 35 participants. Seven case scenarios were developed. A framework was designed to analyze the case scenarios and formulate solutions to identified problems. Consensus solutions were compiled into recommendations.

Take-home messages: The experimentation of adapting the CIT to solve curricular management problems was a success as it led to clarification of roles and responsibilities of curriculum managers at various levels and their active involvement to arrive at relevant, realistic and contextual solutions.
10F6 The reform of residency training and its primary evaluation in 15 Chinese medical schools
Zhao Yuhong*, Sun Baozhi, Wang Danan, Yu Xiaosong, Zhao Qun (China Medical University, 92 North 2nd Road, Heiping District, Shenyang 110001, People’s Republic of China)

Background: Most Chinese residency training programs emphasize only on residents’ medical knowledge and skills and neglect residents’ comprehensive competences. To address this problem, we reformed residency training programs in 15 Chinese medical schools under support from China Medical Board.

Summary of work: Upon surveying Chinese residency training program and referring well-accepted training concepts and standards, especially WFME standards, we, with evidence-based approach, developed and implemented reformed plans in 15 Chinese medical schools from July 2007, and evaluated the implementation by evaluating and surveying 518 residents (239 from internal medicine, 171 from surgery, and 86 from other disciplines) with 360° inventories and two instruments by University of Washington in August 2008.

Summary of results: Reformed training programs were highly scored (internal medicine 84.35, surgery 85.49) by 239 medical residents and 171 surgical residents, although sub-items such as medical record retrieval service, research opportunity, and so forth scored lowly. Faculty, nurses, patients, staff, and residents all believed residents’ competences including medical knowledge, clinical skills, professionalisms, communications, practice-based learning, and system-based practice were satisfactory (above 90).

Conclusions: Reform was successful although we should further balance medical service and training and increase training and research opportunities.

Take-home messages: For the success of reforms implemented simultaneously at multiple institutions, sophisticated plan, authoritative organization, and enthusiastic for training are critical.

10G SHORT COMMUNICATIONS: International Foundations of Medicine Program

10G1 An overview of the International Foundations of Medicine Program
Peter V. Scoles*, Marco Elli, Lorena Pannizzo (National Board of Medical Examiners, 3750 Market Street, Philadelphia 19104, United States)

Background: The Foundations of Medicine program began in 2007 in collaboration with the Universities of Bologna, Ferrara, Firenza, Milano, Parma, and the Catholic University of Rome. The Universities of Minho and Leuven joined in 2008. The initial goals were to test the applicability of patient-centered, vignette based single best answer multiple choice questions in the European curriculum. In addition, we studied the processes of reaching agreement on blueprint and standard setting, translation issues, and the proportion of NBME items that could be used in international pools.

Summary of work: The examination consisted of 200 MCQs (40% basic science, 60% clinical science). Items were classified by discipline, organ system, and physician task. The examination was published in paper and pencil format in Italian and in English and administered under secure conditions. Participation was voluntary. Modified Angoff and Hofstee procedures were used to set standards. Individual students received score reports as well as performance profiles.

Summary of results: By February 2009, more than 2000 students had completed the exam. Acceptability and participant satisfaction was high. Performance increases with year in school, and corresponds to internal performance markers.

10G2 Design and development of the International Foundations of Medicine Examination
Holtzman KZ*, Swanson DB, Scoles PV, and the International Foundations of Medicine Examination Study Group (National Board of Medical Examiners, 3750 Market Street, Philadelphia, PA 19104, United States)

Background: The International Foundations of Medicine Examination was developed as part of a collaborative effort involving the National Board of Medical Examiners in the United States and medical schools in Italy, Portugal, and Belgium. The project focused on investigation of
the feasibility, utility, and acceptability of a common cross-school examination built using recently retired test material from the United States Medical Licensing Examination as a base. In 2007 and 2008, paper-and-pencil test forms were constructed and administered at eight European medical schools. This presentation will describe the procedure used to develop the (organ system by clinical task) test specifications (blueprint), build and translate draft test forms in multiple languages, and review and finalize those forms with bilingual content experts. The presentation will also present content coverage on test forms in relation to commonly used medical taxonomies including the ACGME Competencies and Tuning Learning Outcomes. Sample test material (in English, Italian, and Portuguese) and examinee performance information will be used to illustrate some of the issues that arose in developing international medical examinations administered in multiple languages.

10G3 Experiences in administering and using the IFOM Exam: views from Minho, Portugal

Nuno Sousa*, Manuel João Costa (Life and Health Sciences Research Institute (ICVS), School of Health Sciences, University of Minho, Campus de Gualtar, Braga 4710-057, Portugal)

Background: In April 2008, the Foundations of Medicine (FoM) exam was administered for the first time to medical students of the School of Health Sciences at University of Minho (ECS-UM), as a result of an ongoing institutional collaboration with the National Board of Medical Examiners (NBME).

Summary of work: ECS-UM goals for this experience were set at three different levels: i. the individual student – exam scores should allow students to self-assess their clinical knowledge according to international standards; ii. the institutional level - the FoM results are important to the validation of the undergraduate medical program and increase the prestige of the participating institutions; iii. the national level - the FoM provides a framework of best practices in the assessment of knowledge indispensable for a clinically competent physician.

Summary of results: To students, it has provided a sense of achievement with international meaning. To the ECS-UM, it has proved to be a critical input for targeted curriculum development.

Conclusions: The experience has proved to be of great value.

Take-home messages: The School will invest in further administrations of FoM, as this experience may provide a new concept of assessment of knowledge underlying medical competence, both at national and international levels.

(Support: FCT: PTDC/ESC/65116/2006)

10G4 Scoring the International Foundations of Medicine examination: results of comparison of the performance of examinees across years of training

Irina Grabovsky*, David Swanson, Kathy Holtzman, Peter Sciles (National Board of Medical Examiners, 3750 Market Street, Philadelphia, PA 19116, United States)

Background: The 2008 Foundations of Medicine Examination (FoM) was developed to test the knowledge in Basic Science and Clinical Science. Students from several medical schools in Italy, Portugal and Belgium sat for the test. Examinees were enrolled in 4th, 5th and 6th year of medical education.

Summary of work: The goal of the study is to compare the performance of examinees on the total test and with respect to sub-categories as a function of year of training. The presentation describes the scoring categories of the 2008 Foundations of Medicine Examination.

Summary of results: Results indicate that performance generally improves across years of training. The amount of improvement is related to disciplines and tasks posed by the items. Larger improvements in performance were observed for more clinically oriented tasks (e.g. diagnosis) and more modest improvement seen for basic science tasks (e.g. understanding normal structure).
10G5  Gathering evidence of external validity for the International Foundations of Medicine Examination: a collaboration between the National Board of Medical Examiners and the University of Minho

Andre F. De Champlain*, Marcia L. Winward, Peter V. Scoles, David B. Swanson, Kathleen Holtzman, Lorena Pannizzo, Nuno Sousa, Manuel Costa (National Board of Medical Examiners, 3750 Market Street, Philadelphia 19104, United States)

Background: To gather evidence of external validity for the International Foundations of Medicine (IFOM) examination by assessing the relationship between its subscores and local grades for a sample of Portuguese medical students.

Summary of work: Correlations were computed between six FOM subscores and nine Minho University grades for a sample of 90 Portuguese medical students. A canonical correlation analysis was also run to assess the relationship between linear composites of FOM and Minho measures.

Summary of results: Moderate correlations were noted between FOM subscores and Minho grades, ranging from -.02 to .53. One canonical correlation was statistically significant. The FOM variate accounted for 44% of variance in FOM subscores and 22% of variance in Minho end-of-year grades. The Minho canonical variate accounted for 34% of variance in Minho grades and 17% of the FOM subscore variances.

Conclusions: Though FOM scores and end-of-year grades are moderately related, the former exam appears to be tapping into proficiencies that are not currently being measured by local assessments.

Take-home messages: The FOM is a valuable addition to local assessments as it appears to contribute to a more comprehensive evaluation of basic and clinical sciences’ knowledge.

10H  SHORT COMMUNICATIONS: e-Learning: e-PBL

10H1  Problem Based Learning using an electronic virtual patient and evaluation

Susan Albright*, Ralph Aarons (Tufts University School of Medicine, 136 Harrison Ave, Boston 02111, United States)

Background: TUSM has had a PBL course for decades. First year cases have been paper-based and second year cases have used a complex card-deck trying to simulate the clinical experience. This year PBL became paperless for the first year students and for second year the TUSK electronic virtual patient creator was used to create electronic versions of the card-deck.

Summary of work: Transforming the paper cases was a simple task. The virtual patients were more difficult involving rethinking how the cases would work using the rules of the electronic virtual patient authoring tools. Facilitators who had worked with the program, some for decades, were shocked at first by the changes. They were assured that the students would support them through the changed presentation format.

Summary of results: The course was well received by the students and some faculty. Evaluation will be discussed. Fears that the small group dynamics would be destroyed turned out to be unfounded and in many ways the program was not very different from prior years.

Conclusions: E-PBL shows promise for creating more sharing and interactivity than paper cases. In addition being able to see the pathways by monitoring the electronic choices provides insight into the clinical decision-making process.

Take-home messages: The course director has requested changes to the electronic tool to accommodate PBL-like rules. E-PBL brings a new dimension to a long standing style for teaching and learning and was well accepted by students.
10H2 Virtual Patients in PBL – a three year longitudinal study of student perceptions and attitudes
W.T. Gunning*, K.A. Crist†, N. Zary†, and U.G.H. Fors‡ ([†Department of Pathology; ‡Department of Surgery, College of Medicine, University of Toledo; †Virtual Patients Lab, Department of LIIME, Karolinska Institutet; ‡Department of Pathology, 2288 Dowking Hall, 3000 Arlington Avenue, Toledo, Ohio 43614, United States]

Background: We have utilized virtual patients (VPs) in problem-based learning courses for preclinical medical students during the past three years, abandoning traditional paper-based progressive disclosure of information. The process at our school had become stale and evolved into document-dominated sessions.

Summary of work: Our initial experience with 155 medical students was met with significant skepticism since these students had had extensive experience using paper-based cases during their first year of medical school. A validated questionnaire has been used to assess student’s and facilitator’s perceptions and attitudes at the beginning of the course and at the end of each year with completion of the 3 year study to be completed in May 2009. The current second year class includes 170 students and unlike the first year of the study, none of the students have experienced paper-based PBL cases.

Conclusions: Initial perceptions and attitudes of the students include a variety of criticisms of the program. These criticisms have subsided during the past three years with most students enthusiastic about the use of VPs.

Take-home messages: The switch to using VPs has enriched the opportunity to learn for our students, yet the data collected to date suggests that facilitators’ attitude have a significant affect upon the students’ perceptions and attitudes.

10H3 FRIDA – a smart tool for PBL handycraft and curriculum planning
Gunnar Birgégård*, Theres Meinhart, Martin Grydén, Elisabeth Persson, Astrid Hoppe (Educational Unit, Upssala Medical School, Kunskapscentrum, University Hospital, Upssala 75185, Sweden)

Background: As a new problem-based, integrated curriculum was introduced in the Medical School in Uppsala, Sweden, there was a need for a tool for curriculum planners, case construction, PBL tutors and students.

Summary of work: FRIDA is an interactive database, created by the Educational Unit and the IT department of the medical school, in which PBL cases are stored, read, changed and evaluated. Simple, self-explaining menus give access to material and allowed actions for tutors and planners and there are links for students. Student and tutor manuals for PBL work are accessible.

Summary of results: The individual log-in decides access and actions allowed. Students have access to the case text and any links connected to the case. Case designers can create and change their own cases. Course directors can read all parts and make changes in cases in their own course. Curriculum planners can read all parts, search content areas in all cases by key words for curriculum mapping. PBL tutors can read all material, including an important “Tutor information” part with expected outcomes for the case, tips for discussion queries and background medical information for non-expert tutors. FRIDA also contains a case evaluation tool and absence log.

Take-home messages: Build your own FRIDA!

10H4 The integration of simulation into problem-based learning for the acquisition of clinical skills in detecting and managing clinical deterioration

Background: Nurses need to be trained in identifying and managing patient with clinical deterioration. With the aim of developing such clinical competency in the undergraduate nursing students, the Alice Lee for Nursing Studies at National University of Singapore has integrated simulation technology into problem-based learning activity.
Summary of work: A quasi-experimental with crossover study was conducted to evaluate the use of simulation in problem-based learning. It was hypothesised that the clinical competency of nursing students in SPBD group (those experienced a simulated learning activity with problem-based discussion) would be superior to those in PBD group (those had only problem-based discussion).

Summary of results: The study results showed that the performance post-tests scores of students in detecting and managing clinical deterioration were higher in the SPBD group than those in PBD group.

Conclusions: The study supported the use of simulation with problem-based discussion as a more effective way of training nursing students how to identify and manage a clinical deterioration as compared to the use of problem-based discussion alone.

Take-home messages: Simulation creates opportunities for students to experience a clinical situation and such clinical experiences can enhance the development of PBL by stimulating students towards contextual, constructive and active learning.

10H5 Does increase of virtual patient encounters promote students’ clinical reasoning skills?
Kati Hakkarainen*, Anna-Maija Koivisto (Medical School, University of Tampere, Tampere 33014, Finland)

Background: Virtual patient encounters were offered to students in a PBL curriculum with long-term objective of promoting problem-solving skills.

Summary of work: Third year medical students (n=85) could access seven Virtual patients (VP) to complement ten “regular” PBL scenarios during Infectious Diseases block. The students interviewed patients and published 53 own cases on web. The students’ clinical reasoning was assessed using Clinical Reasoning Problems (CRP). The students’ feedback and self evaluations were analyzed quantitatively and qualitatively.

Summary of results: All virtual patient encounters were appreciated high in student feedback. Association between use of virtual patient resources and CRP scores could not be detected. The students’ self-evaluations were analyzed and divided in three groups according to the learning strategies employed: 1 = superficial, 2 = normally advanced, 3 = deep learning strategies. The mean CRP score of these groups was 26.4/32.6/40.8, respectively.

Conclusions: The students achieving the highest scores in CRP test employed deep learning strategies significantly more often than students with lower CRP scores. Real and virtual patient encounters were experienced as an authentic resource to practice problem solving skills.

Take-home messages: Deep learning strategy promotes also problem-solving skills most effectively.

10H6 E-Learning in the medical curriculum – a student perspective
Louise Willerton*, Matt Starostka (University of Glasgow, Medical School, University Avenue, Glasgow G12 8QQ, United Kingdom)

Background: Undergraduate medical education in Glasgow encourages self directed learning by having a Problem Based Learning (PBL) curriculum. In addition to standard traditional resources of books, plenaries and fixed resource sessions, the medical school provides an extensive range of E-resources such as web links and computer aided learning (CAL) packages.

Summary of work: Most aspects of the curriculum are regularly evaluated by students, but not the provision of E-resources. This study aimed to discover what e-learning means to the students and establish whether they use the e-resources provided, determine if they are happy with what is available, and identify further potential e-learning needs. An audit was performed and a questionnaire sent to 1st and 2nd year students and staff.

Summary of results: Results indicate that most students do use e-learning resources, they think the quality of those provided is high, but most tend to find their own. A higher proportion of both staff and students felt that accessing the resources was not straightforward. Additional free resources have been identified and are accessible off campus.
Conclusions: This study has identified a need for enhancing awareness of the e-resources available and how to access them.

Take-home messages: Provision of e-resources should be monitored through feedback from students.

101 SHORT COMMUNICATIONS: Simulated patients

1011 Are children acting as simulated patients able to provide a valid contribution to the marking of medical student performance in a paediatric skills station of an OSCE?
Jonathan Darling*, Rebecca Bardgett, Matthew Homer, Godfrey Pell (University of Leeds School of Medicine, Level 7 Worsley Building, Leeds LS2 9JT, United Kingdom)

Background: School children acted as simulated patients (SP) in our medical student OSCE. The aims of the study were to measure the correlation between child ratings of students and examiners’ scores, and to determine whether it is practical and valid for children to contribute to the marking of student performance.

Summary of work: Children aged 10-11 participated in a single paediatric skills OSCE station, with parental consent and ethical committee approval. They rated students (1-5) on how comfortable and at ease they made them (5=strongly agree). Children received training and viewed their involvement positively.

Summary of results: 25 children were examined by approximately 10 students each. The mean rating given by children was high at 4.37 (median 5). The children's ratings were not significantly influenced by student or child gender. There was a significant correlation between the child rating and both the examiner total checklist score ($r=0.242, p<0.05$), and the examiner global rating ($r=0.272, p<0.05$). These were of a similar magnitude to correlations between (%) SP ratings and examiner scores/ratings at other stations.

Conclusions: Children’s perceptions of the experience of being examined are important and could form a valid component of the marking scheme.

Take-home messages: Children can provide a valid and useful contribution to assessment of medical student performance.

1012 The communication skills of medical students: simulated versus real patients
Peter Leadbetter*, Helen O’Sullivan, Ian Fletcher (University of Liverpool, Centre for Excellence in Developing Professionalism (CETL), 4th Floor Cedar House, Liverpool L69 3GE, United Kingdom)

Background: Evidence linking effective patient doctor communication to better health and well-being outcomes for the patient and student, and for the delivery of high quality medical care is widely documented (GMC, 2003; Maguire & Pitceathly, 2002).

Summary of work: 85% (n=254) 4th year Medical students volunteered to be videoed in a summative 10 minute communication skills OSCE station with simulated patients. A cohort of these students (n=25) were then videoed with several "real" patients each as part of Community placements in 5th year. The quality of communication in these consultations was rated with an International consensus coding scheme (Del Piccolo et al., 2006) that quantifies patient emotional cues/concerns with associated doctor’s responses.

Summary of results: We are in the process of analysing the results. The statistical relationship between a sample of students' coded video communication skills in an simulated setting (4th year OSCE) and with patients (5th year placement) will be analysed.

Conclusions: Our hypothesis is that a significant relationship exists between students’ communication skills in an OSCE and communication skills with patients on community placement.

Take-home messages: Assessment of communication skills is largely based on simulated student/patient consultations at the University of Liverpool. There is clearly value in exploring if communication skills transfer to actual patient encounters.
**1013 Creating and sustaining a collaborative relationship-centered communications curriculum: a model for training future health professionals**

Sonia J Crandall*, Steve Davis, Gail S Marion* (Wake Forest University School of Medicine, Dept of Family and Community Medicine, Medical Center Blvd, Winston Salem, NC 27157, United States)

**Background:** Medicine has been criticized for emphasizing scientific knowledge over “development of character, compassion and integrity”. Furthermore, the hidden curriculum and mixed messages learners’ receive may erode humanistic qualities.

**Summary of work:** We incrementally implemented a relationship-centered communications curriculum for medical and physician assistant (PA) students based on the Common Ground model and assessment scale. Our goal was to provide common language and criteria to build and sustain skills throughout learners’ education. Trained raters evaluated skills in 7000 standardized patient (SP) encounters. Attitudes were assessed longitudinally using the Patient Provider Orientation Scale.

**Summary of results:** Cross-sectional analyses of annual SP assessments for four classes of first-year medical students showed the percentage of students exhibiting relationship-centered skills increased from 30% to 64%; students scoring unsatisfactorily declined from 40% to 8%. Two years later, over 50% of all students maintained these skills. Similar results occurred for four classes of PA students; students exhibiting relationship-centered skills ranged from 55% to 80%.

**Conclusions:** At the end of their clinical year, 56% to 84% of each class demonstrated these skills. Both groups sustained their caring attitudes.

**Take-home messages:** Contrary to literature showing erosion in humanistic qualities, our curriculum enables students to develop and sustain effective communication skills and caring attitudes.

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**1014 What your students can learn from the ‘patients’ in a simulated surgery exam**

David Russell*, Karin Hawthorn*, Anwar Khan* (Royal College of General Practitioners, 14 Princes Gate, Hyde Park, London SW7 1PU, United Kingdom)

**Background:** The nMRCGP CSA examination for licensing postgraduate doctors in family practice depends on cases representative of British General Practice being repeatedly and reliably simulated by role-players. Our research aimed to investigate role-player experiences, so that we could identify how best to quality assure the process.

**Summary of work:** Discussion-groups with role-players and a detailed questionnaire identified and explored three main themes: (1) the personal effect of repeated role-playing; (2) how role-players judged candidates; (3) if role-players could mark candidates.

**Summary of results:** Role-player well-being is not affected by repeated simulations. The role-players can distinguish good and poor candidates, citing specific examples (in line with current principles of good consulting behaviour) that affected their judgements. They did not want a formal assessment role, as they lack the necessary clinical knowledge.

**Conclusions:** Insights from role-players into what makes a good candidate are useful indicators for candidates taking simulated assessments, with relevance to both undergraduate and postgraduate clinicians.

**Take-home messages:** Patient-centred questions must be in context and appropriate. We will provide a list of attributes of ‘good’ and ‘poor’ candidates as defined by role-players, together with our commentary of this list.

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**1015 Evaluation of a university wide simulated patient database – MonSim**

Debra Nestel*, Tracy Morrison, Brian Chapman, Sheryl Cardozo, Jennifer Keating, Cathy Haigh, Lauara Dean, Jonathan McConnell, Jill French, George Somers, Chris Browne (Gippsland Medical School, Faculty of Medical, Nursing and Health Sciences, Monash University, Northways Road, Churchill 3842, Australia)

**Background:** Simulated patient (SP) methodology enables students to practise and receive feedback on skills essential for clinical practice. At Monash University, Australia SPs are integral to programmes in medicine and pharmacy. Recent and predicted changes in health
service delivery in Victoria will necessitate a greater, more fully developed reliance on SPs at all levels of health professional education, expanding into nursing, midwifery, physiotherapy and radiography. This paper describes the development of an SP database (MonSim) as a central repository of SP based information.

**Summary of work:** Phased project (December 2008-June 2009). 1. Initial stakeholder meeting to outline MonSim's purpose and discuss schools needs and challenges; 2. Prototype development based on Phase I outcomes; 3. Rapid cycle test MonSim with stakeholders, obtain feedback and revise prototype; 4. Pilot MonSim in selected schools; 5. Evaluate MonSim form multiple stakeholder perspective.

**Summary of results:** 1. Content and functionality of database identified and created using Toolbox; 2. Pilot database entered to Excel and uploaded enabling SP personal information, photos and audio recordings accessible.

**Conclusions:** The improved administration of the SP programme improves quality and extent of SP based education.

**Take-home messages:** A University wide SP database raises the profile and quality of SP methodology.

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10J1 Reducing measurement error in ratings of communication and interpersonal skills through statistical adjustment

Mark R. Raymond, Gail Furman*, Brian E. Clauser (National Board of Medical Examiners, 3750 Market Street, Philadelphia, PA 19104, United States)

**Background:** Communication and interpersonal skills (CIS) are an important aspect of physician competence. Although such skills are routinely assessed using standardized patients (SPs), the presence of SP leniency (or stringency) error reduces score reliability. Prior research indicates using statistical models to adjust for SP leniency can improve reliability. However, it is not known whether the magnitude of improvement is similar at all score levels.

**Summary of work:** The present study analyzed both unadjusted and statistically-adjusted CIS ratings for 29,264 examinees who had completed clinical skills test involving 12 patient encounters. Generalizability theory was used to estimate conditional standard errors of measurement at specific score levels to evaluate score precision throughout the entire score distribution.

**Summary of results:** Overall score reliability increased from 0.751 to 0.840 through statistical adjustment, a result consistent with prior research. More important, there was about a 20% reduction in measurement error toward the low and high ends of a 9-point scale, and a 35% to 40% reduction in measurement error in the middle range of the scale.

**Conclusions:** Statistical adjustment improves measurement precision most in the region of the score scale where pass-fail decisions typically are made.

**Take-home messages:** There appears to be greater benefit to adjusting for rater effects than previously thought.

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10J SHORT COMMUNICATIONS: Experience in using portfolios

10J1 Using portfolios to assess professionalism

Lorna Olckers*, Viki Janse van Rensburg, Melanie Alperstein (University of Cape Town, School of Public Health and Family Medicine, Health Sciences Faculty, Anzio Road, Observatory, Cape Town 7925, South Africa)

**Background:** In 2007, portfolios were introduced as a means of assessing emerging professionalism in first year Health Science students at the University of Cape Town. Tasks were structured around the domains of knowledge, empathy and reflection - the key areas of an Integrated Health Professional. Portfolios replaced and expanded on the use of reflective journals.

**Summary of work:** A study was conducted to evaluate students’ and facilitators’ impressions of the value and effectiveness of portfolios as a means of assessing professionalism. Data
was gathered through questionnaires and interviews. Qualitative analysis revealed both strengths and challenges.

**Summary of results:** Students and facilitators were positive about the value of keeping portfolios for on-going professional development. Students valued the reflective process and the feedback from their facilitators. Facilitators valued the opportunity to engage more explicitly with their students around professionalism. Challenges were, however, reported with assigning marks to more personal reflective entries.

**Conclusions:** A need for transparent and explicit marking criteria and training of markers emerged from the data.

**Take-home messages:** Portfolios provide an opportunity for the assessment of emerging professionalism. Challenges in marking can be overcome with clear assessment criteria and training of markers.

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**10J2 The utility of portfolios in the undergraduate medical curriculum: what have we learned in four years?**

Danai Wangsaturaka*, Jitladda Deerojanawong, Nuanchan Prapphal, Chandhanee Itthipanichpong, Juraiporn Somboonwong, Sophon Napathorn (The Faculty of Medicine, Chulalongkorn University, 1873 Rama IV Road, Pathumwan, Bangkok 10330, Thailand)

**Background:** Chulalongkorn Medical School has used portfolios in the undergraduate curriculum since 2005.

**Summary of work:** Our portfolio content could be classified into six groups: case reports and discussion, records of clinical experiences, professional/academic experiences, extracurricular activities, student-selected components reports, and others. Students were asked to record and reflect upon their experiences. They had to submit portfolios to their mentors every semester for professional development monitoring. At the end of Phases 2, 3 and 4, portfolio summative assessments were conducted. Data from questionnaires, students’ records and assessment results were analyzed.

**Summary of results:** Many students perceived portfolios as unnecessary workload and did not know how to reflect. However, portfolios have caused a positive effect on their learning behaviours. It helped them understand the curriculum outcomes and provided the evidence of their learning of some outcomes which other assessment methods had yet to demonstrate. We could also use the analysis of their records of experiences for curriculum monitoring and evaluation.

**Conclusions:** The use of portfolios yielded some worthwhile degree of success. An emphasis should be put on how to improve the mentoring process and how to increase the acceptability of the students and the faculty while maintaining the principles of portfolios.

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**10J3 Implementing portfolios in an objective-based curriculum at the MEC at Maharaj Hospital, Nakhon Si Thammarat, Thailand**

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**Background:** Portfolios have been used in outcome-based curricula to achieve several benefits including the assessment of medical students. If this can be established it would assist medical students’ learning process. The aim of this study was to evaluate whether a portfolio approach could be of any benefit in objective-based curriculum.

**Summary of work:** A semi-structured portfolio was designed according to the six competencies recommended by the Medical Council of Thailand (MCT, 2002) and introduced to 15 final year medical students at the Medical Education Centre, Maharaj Nakhon Si Thammarat Hospital, Thailand from April, 2008-February, 2009. A single examiner assessed the portfolios, provided feedback and conducted defending of the evidences. Timing was recorded in each activity. Content analysis was performed to analyse the level of reflective writing in each medical student. Group interviews with medical students were conducted at the end of academic year to evaluate any possible issues they wanted to address regarding the portfolio.
Summary of results: Portfolios were examined twice. An average time to examine the portfolios increased from almost 3 hours to approximately 3 1/2 hours. The Hatton and Smith's level of reflection in medical students changed from level 2 to level 3. Although the students recognised that portfolios enhanced their learning process and reminded them of the MCT expectation they found that building portfolio was time consuming and increased their workload.

Take-home messages: Portfolio has a role in objective-based curriculum

10J4 Role of assessment in influencing student attitudes to portfolios in the early years of the medical curriculum
Isobel Pbraidman* (University of Manchester Medical School, Stopford Building, Oxford Road, Manchester M13 9PT, United Kingdom)

Background: Personal and professional development portfolios (PPD portfolios) are used throughout the Manchester Medical School curriculum. At the end of the second year, each student’s portfolio is assessed by an individual semi-structured review with a tutor. This must be satisfactory to enter the next phase of the curriculum. Students often have negative attitudes to portfolios but preliminary evidence indicated that the review process reversed this. We wished to substantiate these observations and identify the reasons for any attitudinal change.

Summary of work: In 2007 and 2008, all second year students (379 and 372 respectively) were asked, on completion of their review, to rate their attitudes to portfolio before and after the review on a 7 point Likert scale, and to provide the most important reason if they changed attitude. These comments were analysed thematically.

Summary of results: Results were identical for each year; mean ratings increased from 4.5 ± SD1.08 to 5.8 ± 0.80 (p<0.0001, paired t test) and 84% of students registered a more positive attitude. Four main themes were identified from the reasons given; student’s experience of the review itself, recognising personal progress through preparing for the review, critical self awareness through review preparation and recognising that portfolios are important for future careers.

Conclusions: Assessment through personal review impacts significantly on students’ attitudes to portfolio. The reasons for this reveal important features of students’ motivation for portfolio learning.

Take-home messages: Portfolio assessment methods should reflect the portfolio learning process.

10J5 Whose portfolio is it anyway?
Liz Mossop*, Joy Hereward, Lucy Gratwick, Helen Collett, Emma Crawford (School of Veterinary Medicine and Science, University of Nottingham, College Road, Sutton Bonington LE12 5RD, United Kingdom)

Background: Nottingham Veterinary School uses a wide variety of assessment methods including a portfolio, originally developed by the professional skills module convener. Feedback on this initial portfolio was mixed, and to increase buy-in of this assessment a group of students redesigned the format.

Summary of work: Three students analysed the current system and designed a new portfolio. They looked at feedback from peers and tutors, and assessed 3 possible electronic packages for delivering the portfolio examining usability, interface and functionality.

Summary of results: Students found aspects of the previous system useful, particularly linking pieces to learning outcomes and the ability to record clinical experiences from Year 1. PebblePAD® was selected and adapted to include these aspects. Students created a user manual, presented their findings to faculty and peers, and continued as portfolio “reps” for their class. The new system is being used by year 1 students and initial feedback from students and faculty has improved.

Conclusions: Portfolios fail because of poor buy-in from students, and perceived lack of ownership. This can be improved by involving peers in the design process and implementation.
Take-home messages: Portfolios must strike a balance between being a valid method of assessment and being as student-centred as possible. A peer designed portfolio could achieve these aims.

10J6 The role of the portfolio in professional practice
Andrew Long* (Bromley Hospitals NHS Trust, Princess Royal University Hospital, Farnborough Common, Kent, Orpington BR6 8ND, United Kingdom)

Background: Doctors in training in the UK are required to maintain a portfolio to demonstrate competence for progression through their training programme. Senior doctors will be required to demonstrate fitness to practice through revalidation and recertification. Other healthcare professionals have experience of use of portfolios in a variety of ways as tools for learning and assessment.

Summary of work: A questionnaire survey and focus group was undertaken among healthcare staff working within a District General Hospital to explore their perception and understanding of the role of a portfolio in supporting professional practice.

Summary of results: Responses received from 171 healthcare workers provided a broad overview of the understanding and feelings associated with the maintenance of portfolios within three main groups of NHS professionals. Deeper insight into understanding and nature of practice was ascertained through a focus group. Results were analysed using a mixed methods research model.

Conclusions: Portfolios were maintained by the majority of respondents but there were significant variations by professional background and time since registration. Differences were observed in opportunity for discussion with supervisors/mentors and use of the portfolio for reflective learning, assessment and professional advancement.

Take-home messages: If professional bodies wish to encourage members to undertake reflective practice and maintain professional attitudes, systems must support these aspirations.

10K SHORT COMMUNICATIONS: Postgraduate education: Training to be a specialist

10K1 Updating specialist training in Sweden
Raffaella Björck*, Kajsa Norström, Carl Savage* (Institute for the Professional Development of Physicians in Sweden (IPULS/METIS), Villagatan 5, Stockholm 102 43, Sweden)

Background: In 2008, the national directives for the Swedish specialist training programs were revised. This has created an increased demand for courses as residents try to fulfill the new requirements. However, the current offerings are inadequate in volume and traditional in approach.

Summary of work: A three-year project was started in psychiatry to generate postgraduate training courses that meet the new directives, are constructively aligned, and make use of multiple learning modalities.

Summary of results: A 5-day program to generate courses using the Adaptive Reflection process model was developed, piloted and evaluated. The six courses developed so far are organized around specific, measurable, and weighted outcomes that take a participant through three stages: 1. Knowledge construction through individual and distance e-learning; 2. Bridging theory and application through case, mini-lectures, and group discussions; 3. Knowledge application through workplace-based assessment. The course generation process and the courses themselves have been evaluated according to Kirkpatrick’s framework, using surveys, interviews, and assessing outcome alignment.

Conclusions: Adaptive reflection can be used to efficiently develop effective and aligned courses that break with traditional practice.

Take-home messages: Educational traditions can be overcome.
10K2  Site visits – the importance of joint professional engagement  
Hans Hjelmgård*, Gunilla Burenius* (Swedish Medical Association, Box 5610, Stockholm S-114 86 Stockholm, Sweden)  

Background: The specialist societies in Sweden have been deeply involved in the process of defining the frame for specialist training. Since 1993 the postgraduate training has been assessed through site visits arranged by the medical profession in a nonprofit foundation (SPUR). Crucial shortages in the working condition as well as in the guidelines for the specialization process have been observed.  

Summary of work: One important conclusion from 15 years of systematic assessment is the risk of caprice or even arbitrariness in the employers' way to handle his responsibility to give relevant training. The medical profession has systematically commented on this in order to improve the working condition and thereby raise the quality of the post graduate training.  

Summary of results: This has resulted in an invaluable impact on the new regulation from 2008: (1) Departments with specialist training must have documented routines; (2) Tutors must be trained; (3) The residents should continuously be assessed; (4) The department should continuously be assessed; (5) The final outcome (authorization as a specialist) of the training should be commented on by two external reviewers; (6) The specialist training should contain elements of medical scientific work, quality improvement, leadership and communication.  

Conclusions: There is a great potential in systematic peer reviews organized and run by the medical profession itself.  

10K3  Staying on the high side of the street: Professionalism, the pathologist, and self-regulated training  
Wendy Pryor*, Christopher Roberts (Royal College of Pathologists of Australasia, 207 Albion Street, Surrey Hills 3101, Australia)  

Background: Pathologists are often negatively stereotyped as laboratory-bound non-communicators remote from clinical practice. This can produce barriers between pathologists and clinicians that might be detrimental to patient care. These stereotypes are internalised by pathologists and are reinforced by intense formal examination of knowledge and technical skills, overshadowing the generic skills encompassed within the domain of professionalism.  

Summary of work: We explored trainees’ experience of assessments in the context of broadening perceptions of the professional roles of pathologists. Interviews and surveys conducted whilst developing a self-regulated learning tool to address the CanMEDS roles for pathology trainees in Australia and New Zealand were analysed from a phenomenological perspective.  

Summary of results: In the face of heavy-handed assessment of what may be perceived as nebulous generic outcomes, trainees are likely to become resentful and demotivated and cling more tightly to their microscopes. However if they are given clear goals and understand their importance, are offered resources, learning activities and guided self-assessment, they will be motivated to address the learning and teaching appropriate to develop their professionalism.  

Conclusions: Pathology trainees are more likely to develop positively in their generic roles through supported self-regulated learning than through heavy-handed assessment.  

Take-home messages: Assess with care to stay on the high side of the street.  

10K4  Longitudinal participation in a community of practice improves minor speciality learning.  
MN Singh*, LE Rhodes, TL Dornan (Salford Royal Foundation Trust, University of Manchester, Stott Lane, Salford M6 8HD, United Kingdom)  

Background: More effective ways of learning smaller specialities such as dermatology, ophthalmology and ENT are needed. We have explored how medical students learn in brief, supervised dermatology encounters and longitudinal placements.
Summary of work: Case study methodology, evaluated with mixed methods. Experiences of eighteen clinical students were compared in either 4-week dermatology attachments or attendance in a single 3 hour clinic session. These results were triangulated with the perspectives of twenty teachers’ elicited from semi-structured interviews.

Summary of results: Longitudinal exposure promoted in depth understanding of: role modelling, professional attitudes and practices, learning from patient encounters, and impact of disease on patients. It encouraged respondents to consider dermatology as a career option. One-off clinic sessions were highly regarded by students but allowed them to acquire only basic understandings and skills. Staff views broadly paralleled these observations, though there was a tendency to underestimate students’ learning from brief encounters.

Conclusions: Learning by immersion in a community of practice allowed students to participate in practice activities and patient care resulting in deeper learning of knowledge, skills and attitudes than brief encounters.

Take-home messages: Brief encounters cannot emulate the depth and breadth of learning provided by longitudinal participation in a community of practice.

10K5 The cost of resident education
Christine S. Hwang, Keith A. Wichterman, Edward J. Alfrey* (Southern Illinois University, School of Medicine, 701 N. First Street, D-327, Springfield, IL 62702, United States)

Background: We questioned whether or not there were identifiable differences in the cost of surgical patients cared for by surgical residents in the United States.

Summary of work: We compared demographic data, and then outcome data that contribute to cost from the National Surgical Quality Improvement Program (NSQIP) database for five procedures commonly performed by surgical residents from 2005-2006. The data were compared between patient care with and without residents. We compared age in years, American Society of Anesthesiology class I-VI, total operating room time (OR time), length of hospital stay, and complications. The five cases compared were laparoscopic (Lap) and open appendectomy (Appy), elective lap cholecystectomy (Lap GB), Mastectomy, and elective colon resection (Colon) between the resident and no resident groups.

Summary of results: There were 32,685 patients evaluated between these five cases. In all comparisons, OR time was significantly longer in the resident group. Total complications were greater in Lap Appy, Lap GB, and Colon cases in the resident group. In our hospital OR time costs $25/minute.

Conclusions: Surgical procedures are significantly longer and there are significantly more complications in surgical patients with resident care.

Take-home messages: The cost of surgical resident education is longer OR time and more complications.

10L SHORT COMMUNICATIONS: What is the place of CAM in the medical curriculum?

10L1 CAM in UME: facing challenges, capitalizing opportunities
Marja J Verhoef, Rebecca Brundin-Mather* (University of Calgary, Department of Community Health Sciences, 3330 Hospital Drive NW, Calgary AB T2N 4N1, Canada)

Background: Facilitating the integration of complementary and alternative medicine (CAM) education into undergraduate medical education (UME) on a national scale is complex and politically charged. A group of Canadian educators began developing online CAM teaching resources and implementation strategies in 2002. From this challenging experience we gained important insights about how to best approach such integration.

Summary of work: The number of peripheral, yet important, topics vying for time in a packed curriculum poses significant challenges, in particular, because many of these topics are based on principles similar to those underlying CAM, such as patient safety, cultural diversity, interprofessional education, holism, and individualized care. Further, ‘CAM’ as a single label encompassing a diversity of therapies, all juxtaposed with conventional medicine does not always resonate well with educators.
Summary of results: We propose a number of novel initiatives to facilitate the adoption of relevant CAM topics into UME, including the development of appropriate language around CAM, an analysis of the factors that contribute to change within medical schools, the development of interdisciplinary CAM leaders and teams, and faculty development workshops.

Conclusions: Progress in this field requires collaboration, a constructive attitude, and an open-mind towards change.

Take-home messages: CAM education can serve as a catalyst for transformation change in medical education system.

10L2 Attitudes of medical students to the practice and teaching of integrative medicine
Gerard Flaherty*, Peter Cantillon (School Of Medicine, National University of Ireland, Galway, Clinical Science Institute, Costello Road, Galway, Ireland)

Background: The General Medical Council encourages the integration of Complementary and Alternative Medicine (CAM) teaching into basic medical education. We wished to explore the attitudes of medical students to CAM and its inclusion in their curriculum.

Summary of work: Medical students were invited to complete the validated Integrative Medicine Attitude Questionnaire and to state whether they considered it appropriate for them to learn about CAM.

Summary of results: The questionnaire was completed by 308 students (64% response rate). CAM had been received by a majority of respondents and their families. Participants believed that doctors with knowledge of CAM provide better patient care and that it is desirable for physicians to exploit the placebo effect. Most students expressed the view that doctors should be able to answer patients’ questions about herbal medicines. There was a belief that patients should be warned to avoid using supplements which have not undergone rigorous testing. The majority of students believed that CAM should be introduced in the undergraduate curriculum.

Conclusions: This study reveals a positive attitude towards a holistic approach to patient care which embraces CAM. Medical students believe that integrative medicine should be taught in medical school.

Take-home messages: Medical students are positive towards CAM and wish to learn about it in medical school.

10L3 Teaching traditional Chinese and integrative medicine (TCIM) as part of the integrative curriculum in medical school
K. Werwick, A. Rathmann , A. Kürten, M. Herrmann* (Inst. of General Practice, Medical Faculty, University of Magdeburg, Leipzigerstrasse 44, Magdeburg 39120, Germany)

Background: To improve knowledge and abilities in traditional Chinese and integrative medicine (TCIM) we offered a clinical elective for a maximum of 15 students over several weekends (total 56 hours) after introduction to the basics of TCIM in a single lecture in the fifth academic year.

Summary of work: Following topics of the elective will be presented: (1) structure (Introduction, basics, diagnostics and acupuncture); (2) pre-evaluation (past experiences and expectations of the students); (3) post-evaluation (key learning and improvements of the students, as well as the need for regulation).

Summary of results: Pre-evaluation: the majority had little or average knowledge of alternative and complementary treatments; only a few significant knowledge in homeopathy and acupuncture through own treatment experiences, internships or by personal study. Post-evaluation: more extensive knowledge and better abilities of alternative and complementary medicine.

Conclusions: The elective increased the motivation of students to continue to study in this field. The course was evaluated by the majority as good or very good. Negative comments: lack of structure to the seminars and the final examination.
Take-home messages: A good understanding can be achieved, as well as increased motivation of students in the field of TCIM. This was developed particularly through experiencing the practical exercises and treatment participation.

10L4 A survey of self perceived knowledge and attitude of medical faculty regarding introducing complementary and alternative medicine into undergraduate curriculum
Muneera Al-Kooheji, Usha Sachdeva* (College of Medicine and Medical Sciences, Arabian Gulf University, Manama 22979, Bahrain)

Background: There is significant increase in many nations in the introduction of CAM in medical schools. In the College of Medicine and Medical Sciences (CMMS) at Bahrain which has Problem Based Learning (PBL) system of medical teaching, CAM has not yet been introduced. Thus a survey of medical faculty of CMMS was conducted to determine the knowledge and attitude for inclusion of CAM in medical curriculum

Summary of work: Cross sectional survey to evaluate CAM beliefs, modalities awareness, information resources and views for including CAM in PBL medical curriculum was conducted. A 6 item measure (for CAM-belief) with validated 15 items of Integrative Medicine Attitude questionnaire (Schneider et al 2003) were administered to 201 medical faculty (full time/part time).

Summary of results: The response rate was 97.8%, males constituted a higher number (61.1%), were basically Arabs (88.6%), mainly (74.7%) from clinical disciplines with medical qualification (86.1%). Their knowledge of CAM was limited to 3 out of 15 modalities tested, 41% were willing to use and only 33% to recommend to patients. The faculty showed positive attitude/beliefs towards CAM and its inclusion in medical curriculum.

Conclusions: Faculty of PBL medical school demonstrated positive attitude towards CAM, use and integration in medical school in spite of their superficial CAM knowledge.

Take-home messages: CAM introduction in PBL medical school is recommended by faculty.

10L5 Acupuncture insertion into the medical course: point of view from students and faculty
Manoela Suzane de Alencar Rodrigues, Alexandre Henrique Librantz, Paulo Marcondes Cavalo Junior*, Cristina Helena Lima Delambert, Thaciana Mie Barbierei Sakamoto (Marilia Medical School, Av. Monte Carmelo, 800, Fragata, Marilia 17519-030, Brazil)

Background: In Brazil, acupuncture is recognized as a medical specialty, and nowadays it is increasingly included in the medical course. This work investigates the point of view of students and faculty about its inclusion in the curriculum of our medical course.

Summary of work: We undertook qualitative research looking for the collective speech. We interviewed 12 students and 12 faculties using 5 open-ended questions.

Summary of results: About acupuncture the main ideas are: an eastern therapeutic; a complimentary medicine, something with good results, something related to needles on body and something people know little about. They knew about the subject through people who had used it including themselves; and published literature. The majority believe it has a scientific base and few (three) do not have an opinion. They considered it would be valuable to have an outpatient clinic. They felt comfortable at having this content in the curriculum, but are divided whether it should be obligatory or optional.

Conclusions: Interviewees considered that the subject could be included in the medical course and could be useful to patients, but it is clear that more knowledge is needed.

Take-home messages: It is possible to include this subject in the medical course and at an outpatient clinic.
10M SHORT COMMUNICATIONS: Reflection

10M1 Relationship between critical reflection and successful development of quality improvement projects among internal medicine residents
Christopher M. Wittich*, Darcy A. Reed, Monica M. Drefahl, Colin P. West, Furman S. McDonald, Kris G. Thomas, Andrew J. Halvorsen, Thomas J. Beckman (Mayo Clinic, 200 First Street SW, Rochester, MN 55905, United States)

Background: Transformative learning theory suggests a linkage between practice-based reflection and implementation of quality improvement (QI) projects. We used validated methods to explore associations between resident physicians’ reflections on QI opportunities and the quality of their QI projects.

Summary of work: Ninety-six residents completed written reflections on practice improvement opportunities and developed quality improvement proposals. Two faculty assessed residents’ reflections using the 18-item Mayo Evaluation of Reflection on Improvement Tool (MERIT), and residents’ quality improvement proposals using the 7-item Quality Improvement Project Assessment Tool (QIPAT-7). Both instruments have been validated in previous work. Associations between MERIT and QIPAT-7 scores were determined. Internal consistency reliabilities of QIPAT-7 and MERIT scores were calculated.

Summary of results: There were no significant associations between MERIT overall and domain scores, and QIPAT-7 overall and item scores. The internal consistency of MERIT and QIPAT-7 item groups were excellent (Cronbach alpha range 0.76 to 0.94).

Conclusions: The lack of association between MERIT and QIPAT-7 scores indicates a potential distinction between resident physicians’ reflection on QI opportunities and their abilities to develop QI projects. These findings suggest that practice-based reflection and QI project development are separate constructs, and that skillful reflection may not predict the ability to design meaningful QI initiatives.

Take-home messages: Future QI curricula should consider teaching and assessing QI reflection and project development as distinct skills.

10M2 The role of peer meetings for professional development in health science education: a qualitative analysis of reflective essays
Mirabelle Schaub-de Jong*, Janke Cohen-Schotanus, Hanke Dekker, Marian Verkerk (Department of Speech Therapy, Academy of Health Sciences, Hanze University Groningen University of Applied Sciences; Center for Applied Research and Innovation in Health Care and in Nursing, University Medical Center Groningen, University of Groningen, Groningen 9714 CE, Netherlands)

Background: Nowadays, most of the health-related curricula include the acquisition of competencies to develop professional behaviour. The development of reflective skills is a basic condition for this development. Literature describes a variety of methods giving students opportunities and encouragement for reflection. Although the literature states that learning and working together in peer meetings fosters reflection, these findings are based on experienced professionals. We do not know whether participation in peer meetings also makes a positive contribution to the learning experiences of undergraduate students in terms of reflection.

Summary of work: A qualitative study was undertaken to gain an understanding of the role of peer meetings in students’ learning experiences regarding reflection. We analyzed the learning reports in students’ portfolios. Data were coded using open coding.

Summary of results: The results indicate that peer meetings created an interactive learning environment in which students learned about themselves, their skills and their abilities as novice professionals. Students also mentioned conditions for a well-functioning group.

Conclusions: The findings indicate that peer meetings foster the development of reflection skills as part of professional behaviour.

Take-home messages: Peer meetings can be an effective learning method
10M3 Structuring student reflection: turning challenges into critically reflective abilities
Viki Jnase van Rensburg*, Elmi Badenhorst (University of Cape Town, Education Development Unit, Faculty of Health Sciences, Anzio Road, Observatory, Cape Town 8001, South Africa)

**Background:** First year medical students participating in an intervention programme kept reflective journals of their learning experiences during a half-year course.

**Summary of work:** Learning activities were structured around journal entries. Students were guided to reflect on course work, their own insights and experiences, development of professional identity and on their own learning. Journal entries were critiqued collaboratively by students and lecturers using the Hubbs and Brand quadrant model for collaborative critique that guides the students to deeper reflection and insight.

**Summary of results:** We report how student journal entries changed over time to demonstrate students' ability to reflect on their learning critically and analytically in developing meta-cognitive skills. The changes are tracked from simple understanding and superficial reporting towards integrated knowledge, professional attitudes and critical reflection on their own learning. We describe the results in terms of cognitive learning theory and the activation of certain cognitive skills.

**Conclusions:** We concluded that the Hubbs and Brand quadrant model employing collaborative feedback was a useful tool for this group of students in developing reflection.

**Take-home messages:** Clear guidance facilitated through collaborative critique of journal entries helps students to develop critically reflective abilities about their own learning and professional identity.

10M4 When students write about ethical dilemmas, which do they choose and why?
Ellen Tullo, Bryan Vernon* (Newcastle University Medical School, Newcastle upon Tyne NE2 4HH, United Kingdom)

**Background:** Two areas of major importance in medicine are ethics and personal reflection. Ethics has been a major component of the integrated Newcastle Curriculum since 1994. One assessment method used is a final year 2,000 word essay which can focus on any ethical dilemma encountered in clinical practice. In addition, since 2004 students also submit a 500 word reflection on this process: part of this considers personal factors which influenced their choice of case.

**Summary of work:** This study aims to describe the types of dilemmas chosen, the personal factors influencing that choice and links between the two. 356 final year reflections will be analysed using a thematic approach. Main themes and issues will be identified.

**Summary of results:** At abstract submission the reflections have just been collected and initial analysis begun. The main results will be available at the presentation.

**Conclusions:** This study will give insight into dilemmas and personal factors which influence students and may assist in further developing support mechanisms, reflective practice and curricula content.

**Take-home messages:** Ethics teachers will have a clearer understanding of the range of dilemmas which engage final year students. There will be implications for curriculum development.

10M5 How does the reflective level of students in the first two years of a PBL medical curriculum compare to other health care students?
R. Fewtrell*, H.M. O'Sullivan (The University of Liverpool, Centre for Excellence in Developing Professionalism, School of Medical Education, Cedar House, Ashton Street, Liverpool L69 3GE, United Kingdom)

**Background:** The GMC recommends that graduates from medical school must be able to 'reflect on practice...' (General Medical Council, 2003). A level of reflection questionnaire (LORQ) was devised by Kember and Colleagues (Kember et al. 2000) to measure different reflective levels that students use.

**Summary of work:** First and second year students on a PBL based medical curriculum volunteered to complete the LORQ as part of a wider study. Welch's T-Test was used to
investigate significant differences between the reported means and standard deviations of the medical students’ results and the other reported results.

**Summary of results:** The undergraduate medical students where found to have a significantly higher preference for using the higher reflective levels compared with other undergraduate level students described in the literature. However, the undergraduate medical students had a significantly lower preference for the critical reflection level than postgraduate students.

**Conclusions:** The medical students where found to be significantly more likely to be using the higher levels of reflection within their course compared with other undergraduate students as reported in the literature.

**Take-home messages:** First and second year medical students within a PBL based curricula are more closely representative of postgraduate rather than undergraduate students in their preferred level of reflection.

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**10M6 The effects of reflection on thinking strategies of nursing students at Tabriz Medical Sciences University**

Marzieh Moattari*, Aboulghasem Amini, Eskandar Fathi Azar (Faculty of Nursing and Midwifery, Shiraz Medical Sciences University, PO Box 71345-1359, Shiraz 71936-13119, Iran)

**Background:** The ability of analyzing and evaluating information and making decision is very important for nursing students. This quasi-experimental study was designed to test out the effects of reflection on nursing students’ thinking strategies.

**Summary of work:** All senior students interested in participation (n=40) were divided into 2 equal groups as experimental and control. A scenario was given to both groups as pretest to elicit students’ thinking strategies. The intervention program which was offered only to the experimental group consisted of three different parts as follows: a 4-day workshop on reflection, a 4-week reflection on practice using dialogue journal writing and a 6-week reflection on their daily clinical experiences. Both groups of students took the same tests as the pretest. Scenarios were evaluated by two experts to maintain the inter rater reliability. They were provided a guideline consisting of definitions and examples for five categories of thinking strategies. Data analysis was done using SPSS.

**Summary of results:** Paired t test revealed a significant pre to post change in using four out of five thinking strategies: recognizing pattern, forming relationship, providing explanations and drawing conclusions. The difference in pre to post changes between the two groups were also significant in the above mentioned thinking strategies.

**Conclusions:** Reflection as a teaching strategy was found to be a successful experience. According to the results of this study, infusion of reflection into our nursing education program is highly recommended.

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**10N WORKSHOP**

Implementing goals and managing processes in medical schools

David Gordon* and members of the AMSE Executive Committee (Association of Medical Schools in Europe, c/o WFME, University of Copenhagen, Faculty of Health Sciences, Blegdamsvej 38, Copenhagen N DK-2200, Denmark)

**Background:** AMSE – the Association of Medical Schools in Europe - creates a forum for European Medical Faculties to share experiences in the fields of education, research and management. The AMSE Annual Conference is always centred on a theme relating to the role of the medical school, taken as a whole, such as, interaction of the medical school and the healthcare system; quality assurance in the medical school; the postgraduate role of the medical school, and so on. A regular feature of the Conference is a workshop on specific issues in the leadership and management of the medical school, for example, how can political pressures and academic excellence be reconciled?

**Intended outcomes:** Enhanced understanding by both workshop participants and workshop leaders of the challenging problems and current issues in medical school management.

**Structure:** Issues of particular interest that have arisen in AMSE leadership workshops will briefly be presented, and points of difficulty or contention brought out in interactive discussion. Workshop
participants will be able to introduce their own experience, and benefit from an open debate about difficulties in implementing goals and managing processes.

**Intended audience:** Past, present and future deans, and others in leadership and management roles in medical schools.

**Level of workshop:** Advanced

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### 10O WORKSHOP

**Mirror, mirror on the wall....feedback and self-assessment in the health professions**

Milena Forte*, Stacey Bernstein* (Department of Family and Community Medicine, Mount Sinai Hospital, University of Toronto, 60 Murray St., 4th Floor, Box 25, Toronto, Ontario M5T3L9, Canada)

**Background:** Self-assessment involves the ability to reflect on one's strengths and weaknesses. The literature shows that health professionals are poor self-assessors, and that self-assessment as an isolated activity is of uncertain value. Guided self-assessment can be facilitated by incorporating feedback from external sources. Teachers are ideally placed to provide feedback to learners and foster their self-assessment skills. Strategies exist to facilitate this process.

**Intended outcomes:** 1. To review the essential components of effective feedback. 2. To define self-assessment and describe some of the current controversies in the literature surrounding its use. 3. To become familiar with the relative ranking model as a tool that incorporates self-assessment in providing feedback.

**Structure:** Participants will be exposed to a summary of current thinking on feedback and self-assessment. They will be encouraged to reflect on the evidence in both small group activities and large group discussions. The Relative Ranking Model (RRM) will be presented as a tool that can be used to foster self-assessment and enhance feedback. Participants will have an opportunity to apply the model in an engaging, creative activity. Evidence of the application of the RRM will be discussed.

**Intended audience:** This workshop will be of interest to those providing feedback to undergraduate and postgraduate trainees.

**Level of workshop:** All

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### 10P WORKSHOP

**What should educational research do, and how should it do it?**

Dylan Wiliam (Institute of Education, University of London, 20 Bedford Way, London WC1H OAL, UK)

In this discussion group we will discuss the purpose of education research, the strengths and weaknesses of different kinds of research methods for different purposes, and models for dissemination. In particular, we will look at the tension between analytic-rationality and value-rationality in physical and social sciences, what counts as evidence in educational research, and the role of explicit and tacit knowledge in dissemination.

Note: It would be helpful, but not essential, if participants were able to read Wiliam (2008) before the session (Wiliam D, Educational Researcher 2008; 37: 432-438, copy available from the AMEE Office).

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### 10Q WORKSHOP

**Integrating Reflective Practice into an undergraduate medical course: Helping students see the value**

Carole Steketee*, Chris Skinner* (The University of Notre Dame, Mouat Street, Fremantle 6959, Australia)

**Background:** A unique attribute of the MBBS in the School of Medicine Fremantle is the Clinical Debriefing (CD) program embedded in all 4 years of the course. The aim of the CD program is to encourage students to habitually reflect on how issues encountered in weekly PBL cases made them feel. How an individual feels about a particular issue and how these feelings are dealt with can affect subsequent professional behaviours.

**Intended outcomes:** This workshop will provide participants with: (1) insight into the importance of integrating CD into an undergraduate medical course; (2) an opportunity to experience a CD session from a student's perspective; (3) a practical guide on how to implement CD into similar
undergraduate medical curricula; (4) an understanding of the use of emotional intelligence and facilitative competencies.

**Structure:** The workshop will be presented in three sections: Presenters will outline the principles underpinning CD and its aims in undergraduate medical curricula. Participants will then break into groups (8-10) and will work through a CD session facilitated by the presenters and a 'take-home' implementation framework. Participants will reflect on the process (framework, facilitative and emotional intelligence skills) and participate in a question and answer session.

**Intended audience:** This workshop will be valuable for curriculum developers and all medical educators.

**Level of workshop:** All

### 10R WORKSHOP

**Prove they have learned it! Active learning strategies that demonstrate performance**

William P. Metheny* (University of Tennessee, Graduate School of Medicine, 1924 Alcoa Highway, Knoxville 37920-6999, United States)

**Background:** Medical education at all levels of physician training has shifted the focus to performance and a demonstration of learning outcomes. Standard lectures that encourage passive learning are giving way to more active learning techniques that require learners to interact with the material and to take responsibility for their learning. Many educators would contend that learning requires behavioral change.

**Intended outcomes:** This workshop will have participants assess their preferred learning styles then apply these styles to active learning methods. Simple strategies to use in lecture include "think-pair-share," "note check" and the "the two minute paper," and audience response keypads. More elaborate techniques include demonstrations, student-led reviews, debates, games, student-generated clinical scenarios and exam questions, diaries, case study analysis (including video clips), micro-skills, mind mapping, and even research projects. Participants will have an opportunity to share their successful active learning techniques. Participants will learn through application the strategies that best fit the three major learning styles.

**Structure:** In small groups, participants will assess their learning styles then apply active learning techniques that best fit the case scenario given to their group. Each group will report and demonstrate the technique. Participants will be asked to share the active learning technique they plan to take home to use in their educational sessions.

**Intended audience:** Medical educators

**Level of workshop:** All

### 10S WORKSHOP

**From information to application: How to design instruction on a high cognitive level?**

Netta Notzer* (Sackler Faculty of Medicine, Ramat Aviv, Tel Aviv 69978, Israel)

**Background:** Most instructors’ intention when planning their scholastic sessions is to meet high cognitive levels such as comprehension, application or critical thinking. However, evidently a large number of the presentations are loaded with information which requires memorization mostly. Therefore, a practical tool is needed to help teachers in changing their instruction to adequate levels of learning. The tool presented in the workshop can be applied to the planning of theoretical lectures in most areas.

**Intended outcomes:** The participants will internalize the concepts of high level of instruction, acquire and experience a tool of applying these concepts to practice.

**Structure:** After a brief presentation on the expected levels of delivering theoretical knowledge, the participant will experience in writing the practical tool, using his/her example. It is therefore advisable to the participants to bring with them an outline of one session to work through during the workshop.

**Intended audience:** Instructors in all areas who present theoretical knowledge

**Level of workshop:** All
Comment piloter une équipe lors d’une journée “normale” en milieu clinique
Patenaude JV*, Rubin MP, Sansregret A, Anderson C, Hervé G, Aylward M, Thivierge RL, Drolet P, Boucher A (l’Université de Montréal, Faculté de médecine, C.P. 6128, succursale Centre-ville, Montréal, Québec, H3C 3J7, Canada; ²CAE, 8585, ch. de la Côte-de-Liesse, Saint-Laurent, Québec, H4T 1G6, Canada)


Intended outcomes: 1. caractériser les compétences cognitives, psychomotrices et affectives requises pour un travail d’équipe suite aux expériences en aviation avec le CRM et le TEM; 2. discuter des outils requis pour leur évaluation à court et long termes; 3. faire un suivi et les discussions amorcées à Prague sur la création d’une communauté francophone dédiée à la simulation.

Structure: Mise en situation avec vidéo ou jeux de rôles. Travail en petits et grands groupes.

Intended audience: Pédagogues et gestionnaires de la communauté francophone (surtout) s’intéressant à la simulation. Tous niveaux de formation.

Level of workshop: All

Let me show you my toys: Introducing PDAs, MP3 players, i-phones, E-book readers and other new technology into medical education
Peter G.M. de Jong*, Dennis A. Kies, Anju Relan*, Allen W. Riedstra*, Julie K. Hewett* (Leiden University Medical Center, OnderwijsExpertiseCentrum V7-26, Postbus 9600, Leiden 2300RC, Netherlands; and International Association of Medical Science Educators [IAMSE])

Background: This session addresses the use of personal mobile devices in medical education. Applications of computers in teaching and learning are common in many schools now, but for the last five years a clear trend to using students’ personal devices is visible. Mobile computing devices have become available in ever decreasing size resulting in powerful tools such as hand held computers, smart phones, flip HD cameras, E-book readers, MP3 players and many more.

Intended outcomes: It can be very beneficial to implement these new technologies in teaching. PDA’s can be used for information retrieval on site, E-book readers to replace the enormous amounts of paper used in the classroom and MP3 players to guide students without faculty presence. But are these devices really useful and efficient for teacher or student?

Structure: In recent years several pilot studies have been performed in higher education using personal handheld devices. In this session several of these studies will be discussed and examples of the equipment and tools will be demonstrated. Participants will also get a chance to play a little with the equipment on display.

Intended audience: Anyone with an interest in using personal mobile devices in medical education.

Level of workshop: All
10V WORKSHOP

Learning theories in medical education: How do theories inform curriculum design and assessment along the continuum of medical education?
Heather Armson*, Jocelyn Lockyer* (University of Calgary, UCMC Sunridge, 3465 26th Ave NE, Calgary, Alberta T1Y 6L4, Canada)

Background: There are many theories in medical education and learning that provide partial explanations for phenomena like student/physician learning and change, the role of reflection in learning and self-assessment, the importance of external feedback for effective self directed learning, and why active teaching strategies are preferable to passive approaches. The workshop will provide participants with an opportunity to review and discuss several theories found in the medical education literature, including behavioral theory, cognitive learning theory, constructivist theory, social learning theory, experiential learning, situated learning, communities of practice, deliberative practice, reflective practice, self-directed learning, self efficacy, cognitive load theory, adult learning theory, and transformative learning. The origins of the theory will be provided along with a brief description of the theory and its application in medical education and research. Participants will have an opportunity to examine the theories, critique their use in medical education, and identify research directions that might make the theory more explicit.

Intended outcomes: Participants will gain an overview of contemporary theories which inform curriculum design and assessment practice and research along the continuum of medicine; critique the roles these theories do (or should) play in informing practice; and identify research directions to make the theory more explicit.

Structure: Overview of learning theory and practice. Selection of learning theories to discuss in triads. Identify how this theory applies to practice and has informed research. Discussion of research directions to make learning theory more explicit. Summary and wrap-up.

Intended audience: Medical educators involved in curriculum design, curriculum evaluation, and assessment.

Level of workshop: Intermediate

10X POSTERS: Outcome based education

10X1 Retrospective analysis of skill based Learning objective forms of year 4 medical students in Keele Medical School
Nahid Siraj*, Fidelma O'Mahony (Keele Medical School, Newcastle Road, Stoke on Trent ST4 6QG, United Kingdom)

10X2 Post-patient Encounter Reflection Tool: in the moment reflection to enhance integration of the CanMEDS Roles into the clinical setting
Ari Y. Baratz*, Sandra Kim, Erin Norris, Danny Pankso, Catharine M. Walsh (Departments of Obstetrics and Gynecology, Internal Medicine and Pediatrics, Faculty of Medicine, University of Toronto, CreAtE Fertility Centre, 790 Bay Street, Suite 1100, Toronto, Ontario M5G1N8, Canada)

10X3 A strategy for the development of a competency-based integrated curriculum in a traditional medical school
Patrón M, Uzcátegui Z, Insignares J*, Perez-Gonzalez JF (Centro de Investigación y Desarrollo de la Educación Médica (CIDEM), Escuela de Medicina “Luis Razetti”, Facultad de Medicina, Universidad Central de Venezuela, Ciudad Universitaria, Los Chaguaramos, Caracas 1050, Venezuela)

10X4 Relevance of certain basic disciplines: thought of the doctors
Mompeo-Cortéz B*, Aráez-Aybar LA, Sánchez-Montesinos I, Mirapeix-Lucas RM, Sañudo-Tejero JR (Universidad de Las Palmas de Gran Canaria, Departamento de Morfología, ULPGC, Dr. Pasteur s/n, Las Palmas 35016, Spain; Anatomy & Embryology Department 2, Medical School, Complutense University of Madrid; Universidad de Granada; Anatomy & Embryology Unit, Medical School, Autonomous University of Barcelona)

10X5 ‘Growing up to be a Physician’ studies – students’ perspective
Joonas Rautavaara*, Henri Tamminen, Eva-Stina Kaijmo, Maria Lapinmäki, Eeva Pyörälä (Faculty of Medicine, University of Helsinki, P.O. Box 63 (Hautaranta 8), University of Helsinki, Helsinki 00290, Finland)
10X6 Evaluation of medical practitioners’ opinions and experiences on applied skills in the National Core Curriculum
Ceylan S*, Sayik I, Elcin M, Cetin M, Yazar F. (Gülnane Military Medical Academy School of Medicine, Department of Medical Education, Etlik, Ankara 06018, Turkey)

10X7 Perceived benefits and barriers to competency-based assessment: Lived experiences from those on the front line
Shelley Ross*, Paul Humphries, Michel Donoff, Cheryl Poth, Ivan Steiner (University of Alberta, Department of Family Medicine, Faculty of Medicine & Dentistry, 205 College Plaza, Edmonton, AB T6G 2C8, Canada)

10X8 I CAN! version 1.0: a graduate self-completion questionnaire evaluating medical curriculum outcomes
Xanthippe Teretopoulou, Theodore Tzamalis, Georgios Bazoukis, Ioannis D K Dimoliatis* (Ioannina University Medical School, Department of Hygiene & Epidemiology, University Campus, Ioannina 45110, Greece)

10X9 Incorporation of professional skills for the advancement of healthcare in the new nursing undergraduate study plans
Rodriguez Gomez Susana*, Rodriguez Mortilla Felipe, Padilla Marin Concepcion Cortes Martinez Carmen, Campos Garcia Teresa (Andalusian Regional Ministry of Health, Avenida de la innovacion s/n Edificio ARENA 1, Sevilla 41020, Spain)

10X10 Perception of competencies acquired by physicians during undergraduate training
Jesus Morán*, Ramón Saracho (Hospital de Cruces, Postgraduate Medical Education Unit, Basque Health Service, Plaza de Cruces s/n, Baracaldo 48903, Spain)

10X11 What influences the development of student capability that supports lifelong, self-directed learning?
Nani Cahyani Sudarsono*, Mardastuti H Wahid, Diantha Soemantari, Bastaman Basuki (Faculty of Medicine, University of Indonesia, Jl. Salemba Raya no. 6, Jakarta 10430, Indonesia)

10X12 Fit enough to practice? Self-assessment of competencies in final year medical students and residents
Marianne Giesler*, Gotz Fabry, Johannes Forster, Silke Biller (University of Freiburg, Department of Medical Education, Freiburg 79110, Germany)

10X13 Using reflection to assess the ACGME core competencies
Sally A Santen, Robin R Hemphill* (Emory School of Medicine, 531 Asbury Circle-Annex, Suite N340, Dept of Emergency Medicine, Atlanta, GA 30322, United States)

10X14 Asian perspective towards a humanistic health care
Alfredo Villarroel*, Somkiat Wattanasirichalgoon (Srinakharinwirot University, Faculty of Medicine, Sukhumwitt 23, Wattana, Bangkok 10110, Thailand)

10X15 Educating for patient-centredness: Perceptions of physiotherapy and nursing students
Roskell CA*, Wheeler HH*, Cross V, Watters P (University of Birmingham, School of Health and Population Sciences - Nursing and Physiotherapy, Edgbaston, Birmingham B15 2TT, United Kingdom)

10X16 Doctors’ training system oriented to occupational competences as learning outcomes
V N Kazakov, A N Tatalaenko, M S Kamenskty, M B Pervak* (Donetsk National Medical University, Ilyitcha, 16, Donetsk 83003, Ukraine)

10X17 The focus group technique led to the definition of the medical surgeon professional profile
Ponce de Leon ME*, Hamui A, Varela M, Garcia-Moreno J, Bobadilla R (National Autonomous University of Mexico, Medical School, Ciudad Universitaria, México D.F. 04510, Mexico)
10X18 Using the CanMEDS Health Advocate role as Part of a Socially Responsible Curriculum
Jeannine Girard-Pearlman Banack*, Mathieu Albert, Brian Hodges (Faculty of Medicine, University of Toronto, Wilson Centre for Research in Education, 200 Elizabeth Street, 1ES-559, Toronto Ontario, M5G 2C4, Canada)

10Y POSTERS: Patient safety

10Y1 How to teach patient safety and medical error in medical students?
Wasana Hongkan* (Chonburi Medical Education Center, Chonburi Hospital, Sukumwit Road, Tambon Bhasouan, Amphur Muang, Chonburi 20000, Thailand)

10Y2 The advantage of information technology in reducing medical error
Jonathan Olesik, Moritz Kymalowski, Markus Martin* (Integrated Clinical Care, 5854 Cote des Neiges #600, Montreal H3S-1Z4, Canada)

10Y3 Safer prescribing
Dionne Richardson*, Jan Wardle* (North Tees and Hartlepool NHS Foundation Trust, Foundation Programme, Undergraduate Department, Hardwick Estate, Stockton on Tees, Cleveland TS19 8PE, United Kingdom)

10Y4 Patient safety during clerkship: evaluation of knowledge retention with OSCE methodology
Renata Dadu-Gallotti*, Augusto Scalabrini-Neto, Irineu Tadeu Velasco, Milton de Aruda Martins, Iolanda Calvo Tiberio (University of Sao Paulo School of Medicine, Avenida Dr Arnaldo, 455, Sao Paulo 01246-903, Brazil)

10Y5 Interprofessional education in patient safety (I): Potential of discussion-based learning for medical students
Takeshi Morimoto*, Mio Sakuma, Yoshie Kubota, Susumu Seki, Kyo Takada, Atsushi Hiraide (Center for Medical Education, Kyoto University Graduate School of Medicine, Konoe-cho, Yoshida, Sakyo-ku, Kyoto 606-8501, Japan)

10Y6 Residents', supervisors' and patients' views towards the patient safety climate and patient safety educational needs
Jansma JD*, Wagner C, Bijnen AB (Foreest Medical School, Medical Centre Alkmaar, Wilhelminlaan 12, room 054, Alkmaar 1815JD, Netherlands)

10Y7 The use of incident reports and patient complaints as tools to educate residents in patient safety
J.M. de Feijter*, W.S. de Grave, R.P. Koopmans, A.J.J.A. Scherpbi (Maastricht University, Department of Educational Research and Development, P.O. Box 616, Maastricht 6200 MD, Netherlands)

10Y8 Are insufficient drug calculation skills a risk factor in clinical practice? A cross-sectional study in nurses
BO Simonsen1*, I Johannson3,4, GK Daehlin3, LM Osvik3, PG Farup1,2 (Innlandet Hospital Trust, Brumunddal, Norway; 2Norwegian University of Science and Technology, Trondheim; 3Gjøvik University College, Norway; 4Karlstad University, Sweden; 5Oestfold Hospital, Innlandet Hospital Trust, Dept of Health Care Services, Research & Quality, PO Box 104, Brumunddal N-2381, Norway)

10Z POSTERS: e-Learning: Podcasts, instructional design and assessment

10Z1 Summary enhanced podcasts in the psychiatric curriculum: a randomized trial
Lauren Zanussi*, Janet Tworek, Kevin McLaughlin (University of Calgary, Faculty of Medicine, 3330 Hospital Drive NW, Calgary T2N4M1, Canada)

10Z2 PDA usage by Japanese resident physicians is low: a cross-sectional survey
J. J. Jacobs*, O. Takahashi, S. Onodo, Y. Tokuda, F. Omata, T. Fukui (St Luke's International Hospital, 10-1 Akashi-cho, Chuo-ku, Tokyo 104-0044, Japan)
10Z3  Podcasting: evaluation of an innovative method for teaching anatomy at the University of Ottawa
B. Patassi*, A. Boozary, M. Hincke, A. Jalali (University of Ottawa, Faculty of Medicine, 451 Smyth Rd., Ottawa K1H 8M5, Canada)

10Z4  Podcasts: A novel revision aid for junior doctors
Natalie Blencowe, Rebecca Leslie, Emily Johnson* (Bristol Royal Infirmary, Marlborough Street, Bristol BS1 3NU, United Kingdom)

10Z5  Paediatric sound bites: A novel learning aid
Navpreet Dhillion*, Jaishel Patel*, Raymond Buick (School of Medicine, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom)

10Z6  Use of Moodle platform in teaching of subjects in the School of Medicine of Malaga, Spain
Ruiz-Cruces R*, Babhandh MA, Pena JM, Villena A, Santos I, González-Barón S, Blanes A (School of Medicine, University of Malaga, Bulevard Louis Pasteur, 32, Malaga E-29071, Spain)

10Z7  Group dynamics and social interaction in an online learning forum
Tejinder Singh*, Anshu, Monika Sharma, William Burdick (CMCL-FALMER Regional Institute, Christian Medical College, Ludhiana 141008, India)

10Z8  Evaluation of MSL concept
A Bezrouk*, T Nosek, J Hanus, J Zahora, J Knizek (Department of Medical Biophysics, Medical Faculty in Hradec Kralove, Charles University in Prague, Simkova 870, Hradec Kralove 500 38, Czech Republic)

10Z9  Faculty expertise in instructional technology use at a medical school in Dominica
Regina Robinson, Mary Coleman, Jytsha Pandey* (Ross University School of Medicine, Department of Faculty Development and Faculty Affairs, PO Box 266, Picard, Roseau, Dominica)

10Z10  Veterinary students and information technology: expectations and reality
Susan Rhind*, Judy Hardy, Denise Haywood, Simon Bates, Jessie Paterson, Hamish Macleod, Jeff Haywood (University of Edinburgh, Veterinary Teaching Organisation, Royal (Dick) School of Veterinary Studies, Roslin, Edinburgh EH25 9RG, United Kingdom)

10Z11  A model to measure the tangible benefits of eLearning
Quentin-Baxter Megan*, Kelly Jacquie, Probert Stephen, MacMahon Cary, Ferrell Gill (Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine, School of Medical Sciences Education Development, Newcastle University, Framlington Place, Newcastle upon Tyne NE2 4HH, United Kingdom)

10Z12  A comparison of electronic and human marking of key feature examinations in undergraduate medical students
Steve Capey*, Nick Watson, Adrian Molyneux, Richard Hays (Keele University School of Medicine, Keele Campus, Keele, Newcastle under Lyme ST5 5BG, United Kingdom)

10Z13  Consideration of quality factors in clinical examinations during a changing period from an oral to a blended electronic format
Jan P. Ehlers*, Torsten Carli, Karl-Heinz Windt, Daniel Möbs, Jürgen Rehage, Andrea Tipold (University of Veterinary Medicine Hannover, Buenteweg 2, Hannover D-30559, Germany)

10Z14  Assessing decision-making in healthcare practice using a web-based interactive tool
Verina Waights* (Faculty of Health and Social Care, The Open University, Walton Hall, Milton Keynes MK7 6AA, United Kingdom)

10Z15  E-learning in medical education: a study of students’ use and evaluation of an online psychiatry learning resource
Sonal Mehta*, Annie Cushing (Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Centre for Medical Education, Institute of Health Sciences Education, Room 210, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom)
10AA POSTERS: The medical teacher

10AA1 Teaching through mock OSCEs: junior doctors' experiences
Susan Shelmerdine*, Hannah Coleman*, Chloe Jagger*, Annabel Kemp* (St. Richard’s Hospital, Spitalfield Lane, Chichester PO19 6SE, United Kingdom)

10AA2 Job satisfaction and factors in the view of the academic members of Fasa University of Medical Sciences
Fahimeh Majidi*, Behnoodh Miladpoor, Abul-Qasim Avand (Fasa University of Medical Sciences, AVE SINA square, Fars, Fasa 7461686688, Iran)

10AA3 Good attitude of teachers toward teaching with few exceptions: roles of Medical Education Center
Boonyarat Warachit*, Araya Khaimook (Medical Education Center, Hatyai Hospital, 182 Rattakarn Road, Hatyai, Songkla, Hatyai 90110, Thailand)

10AA4 To teach or not to teach: The who and why
Louise Forman*, Philip Burns, Jo Hart (The University of Manchester, Rusholme Academic Unit, First Floor, Robert Darbishire Practice, Watmer Street, Rusholme, Manchester M14 SNP, United Kingdom)

10AA5 Identifying clinical teachers’ orientation towards teaching, learning and subject matter: qualitative survey of clinical teachers
Kevser Vatansever* (Ege University Faculty of Medicine Department of Medical Education, Dekanlik Binali Kat: 2, Izmir 35100, Turkey)

10AA6 Attitudes of community-based paediatricians towards teaching undergraduate students – implications for recruiting tutors
Marion M Aw*, Chem Ling Kok, Zubair Amin, Nicola SP Ngiam, Daniel YT Goh (Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, 5 Lower Kent Ridge Road, Singapore 119074, Singapore)

10AA7 Opinions of graduate students about the roles of the health sciences teacher
Fathouit SF, Dedda MRC, Gonçalves MC, Fonseca MCR, Figuereiro JFC, Rodrigues MLV, Piccinato CE* (Faculty of Medicine of Ribeirão Preto, University of São Paulo, Av. Bandeirantes, 3900, Campus USP, Ribeirão Preto 14049-900, Brazil)

10AA8 Educational role of nurses as study coordinators in Finnish Medical Schools
Helena Haapanen*, Elise Inberg, Outi Jääskeläinen, Pekka Kääpä (Medical Education Research and Development Centre, Faculty of Medicine, University of Turku, Klinikamyllynkatu 13, Turku FIN 20520, Finland)

10AA9 Trainees’ satisfaction and perceptions about faculty development for the teaching clinics in ambulatory care
Pei-Chun Lin*, Yun Chen, Shu-Hsun Chu (Far Eastern Memorial Hospital, 21, Section 2, Nan-Ya South Road, Panchiao, Taipei 220, Taiwan)

10AA10 Attitudes of residents, interns and clerkship students toward teaching role of residents, Sari Medical School, 2008
Leila Shahbaznejad*, Leila Shahbaznejad*, Mitra Mahmoudi, Kourosh Vahidshahi, Sara Ehteshami, Hosein Zamani (Mazandaran University of Medical Science, Education Development Center, Vail-Air Boulevard, Mazandaran, Sari 4815733971, Iran)

10AA11 Students learn to teach: creation of audio-visual material for a Seminar class in Chile
Francisco J. Pérez*, M. Rosario Fernández*, Bárbara Wipe*, Flavia Garbin (Universidad de los Andes Medical School, San Carlos de Apoquindo # 2200, las Condes, Santiago 6782468, Chile)

10AA12 Introducing a medical education module for medical students
J. Struthers*, R. Cruickshank (University of St Andrews, Bute Medical School, St Andrews KY16 9TS, United Kingdom)
10AA13 A programme of master classes for senior educators in the Severn Deanery UK
Sarah Hands* (Severn Deanery, Deanery House, Unit Vantage Office Park, Old Gloucester Road, Hambrook, Bristol BS16 1GW, United Kingdom)

10AA14 QESP: The Qualified Educational Supervisor Programme
Rachel Robinson* (Postgraduate Deanery for Kent Surrey and Sussex, 7 Bermondsey Street, London SE1 2DD, United Kingdom)

10BB POSTERS: Career choice

10BB1 Careers education and support in UK Medical Schools and Foundation programmes
Melanie Jones* (UK Foundation Programme Office, Regus House, Falcon Drive, Cardiff Bay, Cardiff CF10 4RJ, United Kingdom)

10BB2 Relationship between primary and secondary school and medical vocation
Pascual Vicente Crespo*, Antonio Campos-Sánchez, Renato Nieto-Agular, Ingrid Garzón, Miguel González-Andrades, Alejandro Rodríguez-Morata, José Manuel García (University of Granada, Department of Histology, Fac. Medicine, Avenida de Madrid 11, Granada E18012, Spain)

10BB3 The influence of television news and series on medical vocation. A comparative study
Antonio Campos-Sánchez*, Miguel González-Andrades, Ingrid Garzón, Deyanira Serrato, Olga Roda, Miguel Alaminos (University of Granada, Department of Histology, Fac. Medicine, Avenida de Madrid 11, Granada E18012, Spain)

10BB4 Book and press readings as determinants of the vocation of medical students
M. Carmen Sánchez-Quevedo*, Ingrid Garzón, Miguel González-Andrades, Alejandro Rodríguez-Morata, José Manuel García, Miguel Alaminos (University of Granada, Department of Histology, Fac. Medicine, Avenida de Madrid 11, Granada E18012, Spain)

10BB5 Gender and speciality choice
Figueiredo JFC*, Cardott Jr. CG, Mamede RCM, Kfouri M, Peres CM, Piccinato CE, Rodrigues MLV (Faculty of Medicine of Ribeirão Preto, University of São Paulo, Av. Bandeirantes, 3900, Campus USP, Ribeirão Preto 14049-900, Brazil)

10BB6 Does the transition to clinical training influence students’ perception of their career choice and preclinical studies?
Eyal Lotan*, Oded Kimhi, Michael Lishner, Netta Notzer (Sackler Faculty of Medicine, Tel-Aviv University, 38 Be’eri St, Tel-Aviv 64233, Israel)

10BB7 Don’t disillusion us: the effect of the undergraduate curriculum on students’ career choice
Barbara Noble*, Yong Xu (Birmingham University Medical School, Primary Care Clinical Sciences, Primary Care Clinical Sciences Building, Birmingham B152TT, United Kingdom)

10BB8 Gender and choice of speciality
Berit Eika*, Jes Sandermann (Center of Medical Education, University of Aarhus, Incuba Science Park, Brendstrupgaardvej 102, Aarhus N 8200, Denmark)

10BB9 The value of a student-led careers fair
Junaid Azam*, Zabair Ahmed, Richard Fuller (School of Medicine, University of Leeds, Leeds LS2 9JT, United Kingdom)

10BB10 Attitudes towards a GP’s work among 5th year medical students in Helsinki, Finland
Kükka L*, Nevalainen M, Sjöberg L, Salokekkila P, Torppa M, Johansson E, Pitkala K. (University of Helsinki, Department of General Practice, P.O. Box 41, Mannerheimintie 172, Helsinki 00014, Finland)

10CC POSTERS: The educational environment

10CC1 Organisational factors as determinants of educational environment
Ellen Holm*, Ruth Elisabeth Mach-Zagal (Roskilde Hospital, Denmark, Kogevej 7-13, Roskilde 4000, Denmark)

10CC2 Perception of educational environment by students in different phases of medical education in the "AIETI" Medical School, Georgia
N. Bregvadze, V. Jorbenadze*, A. Nanava, T. Varshalomidze, S. Tabagari, L. T职务iani (AIETI Medical School, 2/6 Lublima St., Tbilisi 0159, Georgia)

10CC3 Differences in medical education environment of private and public sectors in Pakistan - myth or reality
Khan JS*, Tabasum S (University of Health Sciences, Khayaban-e-Jamia Punjab, Lahore 54600, Pakistan)

10CC4 Do large increases in student intake impact negatively on the educational environment of medical schools? A study in Minho, Portugal
C Melo*, A Salgueira, P Oliveira, MJ Costa (School of Health Sciences, University of Minho, Campus de Gualtar, Braga 4710-057, Portugal)

10CC5 Does students' perception of the educational atmosphere influence academic achievements during clerkship? A study with final year medical students
Iolanda Calvo Tibério*, Milto de Arruda Martins, Renata Daud-Gallotti (University of São Paulo School of Medicine, Avenida Dr Arnaldo, 455, São Paulo 01246-903, Brazil)

10CC6 Educational environment differences of two medical schools in the same University (Zaragoza vs Huesca) in Spain
Carlos González-Haro*, Manolo Guerra, Jesús Fernando Escanero (School of Medicine, University of Zaragoza, C/ Domingo Miral s/n, Zaragoza 50009, Spain)

10CC7 Educational and learning environment at the Medical School of Sucre (Bolivia)
Terán C.*, Gorena D., Arce J., Díaz-Veliz G., Mora S., Gargiulo P., Bianchi R., Laffuente JV, Escanero JF. (Faculty of Medicine, San Francisco Javier de Chuquisaca, AECID Group (Ministry of Foreign Affairs, Spain), Sucre, 20.001, Bolivia)
Students do not learn what we teach. If they did, then we would not need to assess. We could simply catalogue what we had taught as a record of our students’ achievement. However, as every educator knows, predicting what students learn as a result of a particular piece of instruction is impossible. That is why assessment is the central processing in teaching. It is only through assessment that we can know the impact of what we do as teachers on the learning of students. In this presentation, I will explore how the use of assessment can improve student learning in medical education, focusing especially on the role that technology has to play. I will review the “state of the art” in technology-supported assessment for learning, and will outline some of the future trends. In particular, I will describe how “classroom aggregation technologies” can support teachers in making real-time instructional decisions, thus increasing both student engagement in learning, and the responsiveness of instruction to student needs.